PUZZLE DEFENSE
Design Document
### Contents

**PUZZLE DEFENSE** .......................................................................................................................... 1

1. The Team: ................................................................................................................................. 3

2. Vision Statement .......................................................................................................................... 4

3. Definitions: ................................................................................................................................. 5

4. Audience: .................................................................................................................................... 7

5. The Platform: ............................................................................................................................... 9

6. Related Games ............................................................................................................................ 10

7. Basic Gameplay ........................................................................................................................... 14
   Overview: ...................................................................................................................................... 14
   Gameplay Description: ................................................................................................................... 16

8. Interface ........................................................................................................................................ 27

9. Features ....................................................................................................................................... 45
   Feature List: ............................................................................................................................... 45
   MVP Section: ............................................................................................................................... 45
   Expandable Section (Non-MVP): ................................................................................................. 55

10. Player Characters (PC’s) .......................................................................................................... 67

11. Non-Player Characters (NPC’s): ............................................................................................. 72

12. Story: .......................................................................................................................................... 75

13. The Game World: ...................................................................................................................... 77

14. Media List: .................................................................................................................................. 79

15. Sound Assets: ............................................................................................................................. 91

16. Technical Specifications: .......................................................................................................... 92
1. The Team:

1. Jameka – Product Owner
2. Rene Gomez – Art Liaison
3. Ryan Cook – Lead Engineer
4. Wesley Hsiao – QA Lead
5. Gabriel Rivera – Producer
6. Bradley Monajjemi – AI/Networking/UI/Writing Liaison
7. Te Wan Kim – Wordsmith/Programmer
8. Leqi Lu – Programmer
9. Brittney Sager – Art Coordinator
10. Ryan Beck – Artist
11. Amanda Lee – Artist
12. Colin Eldred Cohen - Writer
2. Vision Statement

*Game Logline:*
*Puzzle Defense* is a competitive puzzle game in which players must match orbs to attack their opponents' life while defending their own.

*Gameplay Synopsis:*
*Puzzle Defense* is set in a fantasy world in which angels take shelter in a floating utopia, steampunks populate a hazy metropolis, and witches dwell within idyllic forests. The game sports a playful, vibrant, and cartoon-esque art style that demonstrates the gameplay's brisk nature. The game features a plethora of gameplay elements that distinguish it from traditional games of the competitive puzzle genre. A list of these features includes the following: the game pits two players against each other in a single horizontal playing field; it utilizes the depletion of a player's life counters to evaluate victory and loss; it gives players the ability to directly attack their opponents as well as defend themselves from incoming attacks; it provides players with the freedom to choose to play as one of three character races, each of which offers unique play mechanics in terms of spells and orb manipulation; it introduces an "elemental wheel" system to the genre; and provides play sessions between friends over Facebook and Google+.

With regard to specific gameplay elements, *Puzzle Defense's* standard mode of play accommodates two players with a horizontal playing field that is divided in half such that each side contains one player, a randomly assorted stack of elemental orbs that grows over time, and a column of resources that acts as a life counter for that player. Each player can move up and down, cast three types of spells, and utilize two actions for manipulating orbs, where a player's spell set and method of orb manipulation depend on whether he plays as a witch, steampunk, or angel. Orb manipulation is central to creating matches, where a match is the formation of a horizontal or vertical line of three or more orbs sharing the same element. When a player creates a horizontal match, its constituting orbs immediately disappear upon unleashing deadly faeries that fly over to the other player's side in an attempt to damage his crystals. When a player creates a vertical match, its constituting orbs immediately disappear, resulting in the formation of faerie shields that block attacking faeries at the front lines of that player's side until they break. The elemental wheel system refers to how these clashes are resolved based on each faerie's element. A player must strategically utilize this system and other tools at his disposal in order to destroy his opponent's resources and claim victory.
3. Definitions:

1. Faerie - A magical creature that inhabits the world Puzzle Defense. They are summoned out of elemental orbs of energy, the various factions harness their energy to attack the opposing forces or create defensive structures. In the game they are activated by creating matches of three or more, vertically or horizontally.
2. Matches - When elemental orbs of the same color are aligned horizontally or vertically and the length is equal to or greater than three.
3. Elemental Orbs – Comprises all the objects that can be manipulated on the Playing Field. They are orbs of Earth, Wind, Fire, and Air that house the elemental energies that make up the world of puzzle defense.
4. Durability - The amount of damage that a particular object can take, this usually applies to shields and resources.
5. Resources - The life source of a player, it's generalized because it differs from race to race. Crystals = Witches, Generators = Humans, and Shrines = Angels.
6. Character – The avatar that a player controls in the Puzzle Defense Game.
7. Hand – The amount of orbs and type of orb that a Witch character is currently carrying.
8. Collect – When a Witch collects an orb from the board into their hand as long as it’s the same type as the one in their hand.
9. Throw – When a Witch puts all the orbs in their hand onto the board.
10. Orb Queue (OQ) – The structure that holds all the orbs that a human will shoot, it basically determines the order of the orbs.
11. Shoot – When a Steampunk Human puts an orb onto the board. This can’t create any matches.
12. Sacrifice – When a Steampunk Human puts an orb onto the board that has the ability to put an orb onto the board that can destroy other orbs or make matches.
13. Selection Box – An Angel Mechanic that shows which elemental orbs the angel can swap.
14. Swap – When an Angel switches the positions of two orbs.
15. Toggle – When an Angel switches the position of the selection box from highlighting two orbs that are horizontal to vertical and vice versa.
16. Stunned – When a character gets hit by an attack and they can’t move.
17. Game – When players utilize the basic mechanics to fight in the playing board. Basically, a game of puzzle defense between two people.
18. Start Screen – The First Screen that a player sees in the game, they can only go to the title screen.
19. Character Selection Screen – A Screen where the players choose characters before a Game.
20. NPCs – Non-Player Characters, characters that the player doesn’t control but can usually interact with.
21. PCs – Player Characters, the characters that the players can control and use in combat.
22. Options – The Screen that allows people to customize their play experience.
23. Wall - A side of the PB that can't be manipulated, basically the boundaries of the PB.
24. etc. (This could go on and on)
4. Audience:

The underlying mechanics of the game are simple and easy to pick up. As players get more advanced, more features are introduced that increases the complexity of the game. This game is geared towards the casual audience who can play a match in 2-4 minutes. This will also appeal to puzzle game fans because the added difficulty with spells will provide a unique challenge. Below is a more detailed explanation of the audiences we're specifically trying to capture: the name of the demographic, an explanation of the general demographic, why would they be interested, and why they would be important.

Audience Name:
• Casual
Reason for Interest:
• They form the core of the social gaming audience and most social games cater to them. If Facebook has 800 million active users then this would probably be the largest demographic for people that play games.
Importance of the Demographic:
• They will cover the largest section of our User base, most likely, and so the more we can appeal to them the easier it'll be to get more people playing.

Audience Name:
• Puzzle Fanatics
Reason for Interest:
• They are the main reason why this game is being made. The game is meant to appeal to people that enjoy puzzle games, specifically fast paced puzzles like Tetris, so they would probably be our most loyal audience members if we can get them to like it.
Importance of the Demographic:
• The casual audience may play the game but if we can appeal to puzzle fanatics then we should be able to find a more loyal user base. This is because they inherently like puzzles and if we can get them to like it, odds are they'll keep coming back. Furthermore, this is a good gauge of how appealing our game is. If people that inherently like puzzles don't like it then how will we get the casual audience to like our game?

Audience Name:
• Young Adults and Adults (Ages range from 18-34)
Reason for Interest:
• They comprise the most Users on Facebook at the very least. There's a sizable number of adults (age ~35-45 range) that utilize it as well but this demographic is the widest spread.
Importance of the Demographic:
• If this demographic comprises almost 50% of Facebook Users then odds are it remains the same for other sites as well. This means that we want to appeal to this since the amount of Users we can get from this bracket is the largest. Basically, if we try to get this demographic then we have a greater chance of hitting larger numbers than any other demographic.
5. The Platform:

Puzzle Defense is aiming to release on the social network: Facebook and Google+. A social network game allows us to expose Puzzle Defense to a large audience for free. We plan to utilize the social network to expand the puzzle genre through community integration via matchmaking and the ability to play against friends. Below are some specifics on the platforms we’ll be utilizing.

**Facebook:**
This is the largest social network that is currently on the web, it already has a fairly healthy community of games and a large install base that plays them. The main advantage to this platform is that it’s the dominant platform and so there’s a larger guarantee that we’ll be able to get Users. However, with all the games on this platform, there is the chance that Puzzle Defense will be lost in the large cacophony of games that they offer.

Statistics:
- More than 800 million active users
- Average User has 130 friends
- People install apps on Facebook more than 20 million times a day
- More than 7 million apps and websites are already integrated with Facebook

Development Tools:
- Facebook API
  - Fairly well documented; however, it is there to make it easy for the game to integrate with areas such as Facebook notifications, Login, etc. Basically, it will help us integrate with Facebook but it seems like there isn't anything that would make coding in HTML5 any easier.

**Google+:**
This is the newest social network to be released to the public. It has a decent User base but we're unsure on how many people play games on the service. The best thing about this proposition is that there aren’t many games that are already apart of Google+. This creates a space that Puzzle Defense could fill which could result in Puzzle Defense getting more people to play the game.

Statistics:
- ~85,477 Users
- 68.8% of Users are Male and 30.1% are female

Development Tools:
- Google +API
  - Again, it’s well documented. Nothing seems too out of place at this point, like Facebook, it looks like most of the API is devoted to simple integration so we have little help in getting the game running.
6. Related Games

Puzzle Quest: Challenge of the Warlords

Puzzle Quest is a mix of a puzzle game and a turn-based role-playing game, where the matches you make on the shared board give the player elemental magic or physically attack their opponent. The magic is used to cast spells which can help the caster or harm their opponent. The biggest and most dynamic difference between Puzzle Quest and Puzzle Defense is that Puzzle Quest is turn-based and Puzzle Defense is real-time. This real-time combat forces the players to act and react quickly instead of calculating their moves.
Tetris DS also combines puzzle with competitive play. In the multiplayer mode, it uses the classic Tetris gameplay and adds in items that aid the player or affect the boards of the other players. The main difference between Tetris DS and Puzzle Defense lies in the competitive aspect. In Tetris DS, the combat is passive because each player plays on their own board, only interacting with their opponent by dropping dead blocks on their board. In Puzzle Defense, the player needs to keep track of their opponent’s actions to know where to focus their attacks and defenses.
Magical Drop III is a competitive puzzle game where the goal is to either destroy the quota of colored orbs called “drops” or overflow your opponent’s screen. Drops disappear when the player moves them into columns of three or more. This style of play is similar to Puzzle Defense's witches play mechanic. However, in Puzzle Defense, witches can make matches horizontally as well as vertically.

Another interesting note from Magical Drop III is that each playable character has a unique way of passively affecting the opponent's board. When the player makes several matches in a row, it doesn't push all of the opponent's drops down by row. They may push the outside rows down by three and inner rows by one. This makes the characters unique, although the average player doesn't recognize that these attack patterns are taking effect. The combat is fast-paced and players don't focus on the opponent's board.
Magical Drop V

Magical Drop V is the latest game in the Magical Drop series, release date unknown. In this game, there are two different mechanics the players can use in the same game. For the classic Magical Drop characters, their play mechanic is the same. They need to make a match of three or more vertically to clear drops. If the player selects a character from the Ghostlop series, they play using that mechanic. The player needs to throw a ball of the same color of the drops in order to remove them from the screen. This is similar to Puzzle Defense in that it allows two different play mechanics to take place in one game.
7. Basic Gameplay

Overview:
The objective of Puzzle Defense is to destroy the opposing player’s resources. In order to destroy the opponent’s resources and defend your own, each player can make use of attacks, shields, and spells by creating matches.
The way a player accumulates mana for spells and what mechanics they use to create matches depends on the character’s race. There are three races in the game: Angels, Humans, and Witches but all of them utilize around the three core mechanics that are explained below:

- By creating horizontal matches, the player unleashes fairies that fly towards the enemy’s crystals. Each fairy in the match deals one point of damage. Additionally, if horizontal matches are adjacent to matching colors, those orbs will also become part of the attack.

Witch Shoots Orb

Orb Collides with matching horizontal orbs
The Orb Collision projects a faerie attack.

- Alternatively, the player can create shields by forming vertical matches. These vertical matches summon fairies that act as shields from oncoming attacks, these shields can take six points of damage. These shields are placed in the center on the game screen and change size depending on their health.

Witch Shoots Orb

OrbCollides with matching vertical orbs
The Orb Collection Projects a Defensive Faerie Shield inside the player's shield area

- The player accumulates mana, which allows them to cast spells that can support, attack, or defend. Once they have accumulated enough mana, they can activate a spell to either help them in battle or manipulate the opponent. Currently there are three spells implemented in the prototype. The support spell destroys all orbs of the same color on your side as the one you currently hold. The attack spell shuffles the color of the orbs on your opponent’s board, thus changing the state of their board. The defense spell generates an aura around your character, slowly healing the crystals within the aura for a limited amount of time.

Add picture of a full spell bar and spell being activated.

**Gameplay Description:**
The following sections explain the mechanics and layout of the game in greater detail. Since there are three races, if a mechanic differs between the three of them then there will be smaller sections that will explore the specifics of each race.

**The Play Field:**
The board is made up of four main sections that the players can interact with: the Spell Meter (SM), resource space (RS), the movement area (MA), Free Area (FA), Puzzle Board (PB), Shield Area (SA) and the dividing column (DC). The places where each space is situated depends on if the player is the first or second player because the orientation would be different on either side of the screen; however, both players share the same DC. The first player occupies the left side of the screen and the challenger (or second player) occupies the right side of the screen.
Figure 6.1: This picture displays layout of the play field from Prototype 2.

Each space has its own purpose and corresponds to a color on the play field. Please refer to Figure 6.1 for the color references and orientation of the play field.

Resource Space (Dark Blue):
This place holds the resources that the player needs to protect in order to survive. Destroying the opponents' resources is the goal of the game and so it's best to keep an eye on the opponent's RS as well.

Movement Area (Light Blue):
This area is solely devoted to manipulating the character's position on the play field. Nothing will enter this field unless it's an attack aimed at the crystals; otherwise nothing should block a character's movement here.

Free Area (Green):
The purpose of the FA is to give extra space so that the player can manipulate the game board if there is no free space left on the PB. This is because as the rows of orbs grow closer there is no more room on the PB, since this would normally result in death the FA is there to prevent the inability to manipulate the PB.

Puzzle Board (Yellow):
All the orbs that the player can manipulate are located here. Therefore, this is the main space on the play field and where the all the main forms of interaction occur. This space is what allows the player to create matches in order to create attacks or shields.

Shield Area (Orange):
All the shields that the player creates are placed here. It is the closest to the dividing line so that the shields can block all attacks before they reach other areas. This is important because attacks can be distracting to the both players, so the less attacks that block a player's PB the better.

Dividing Column (Red):
The column's purpose is to separate the territories of the first player (on the left) and the second player (on the right). Consequently, it creates a space in the center that reduces the amount of clutter on the screen. This makes it so that it is easier to differentiate between what orbs a person can manipulate and which territory is theirs.

Spell Meter (Purple):
The SM keeps track of each player's current mana levels and lets each person know when they can use a spell. This is purely cosmetic and the player will never interact with it directly. When the bar is filled with purple then it means it's full, black means it's empty. The player can only manipulate it by forcing it to fill up; the actions this depends on will shift depending on the race a person is playing as. When this is full then the player can unleash a spell.

Resources:
The resources a player has in their possession are central to the gameplay in Puzzle Defense. If the first player loses all of their resources then they lose; likewise, if the opponent loses all of their resources then the first player wins. This means that the player's character does not have to worry about losing by letting attacks hit their character and dying. A resource is a singular item that is located within the RS, while resources are the sum of all of those items. The resources among the three races will always have these commonalities:

- There will always be 9 instances of a resource within the RS, arranged in a vertical column.
- Each resource has a total durability of how much it can be hit for.
- If a resource has a durability of 10 hit points, this means that they can be hit by 10 faeries before being destroyed.
- If each resource has a durability of 10 hit points, the player has a total of 90 hit points before they lose the game.
- When a resource has half its durability or less left, it will begin to glow red to show that it's taken a lot of damage. This is so that the player will have visual feedback on when their resources are going to be destroyed and which ones they have to focus on protecting.
- Each resource has an effect on the spell meter.

Figure 6.2: This shows the breakdown of the Witch's resource, Mana Crystals
**Race Specifications for Resources:**

Each race has its own resource and so there differences in how these resources are handled and the effects that they generate.

**Witches:**
- Resource Name: Mana Crystals
- Description: The crystals are what the Witch's use to channel the Mana from their Mana Wellsprings in the forests. By drawing the power from the crystals it allows them to release the faeries in their surrounding environment by manipulating the latent magical energy.
- Durability: 10
- Effect on Spell Meter: When a witch loses a crystal 1/18th of the witch's spell meter will be permanently filled. This means that when 8 of the crystals are destroyed it will permanently fill their spell meter to half. This is because the witch is able to utilize all the energy that was released in that crystal, now giving her more energy to complete her spells.

**Humans:**
- Resource Name: Steam Engines
- Description: The Steam Engines are what power all the gadgets that a human has at their disposal. They are connected to the wearer and can be deployed from a backpack that would be carried around by the user. The Steam Engines will constantly generate power for the User's gadgets, so human's don't have to worry about creating a steady supply of energy through the manipulation of magical energy. They typically use that steam power to draw the latent magical energy into the generators so that way the elements can be processed and loaded into the Human's gun.
- Durability: 12
- Effect on Spell Meter: When a Steam Engine has less than a quarter of it's health left it will begin producing twice the amount of steam energy as normal. This is because it is made so that when it's in danger of breaking down, it will expend all of it's precious fuel as fast as possible.

**Angels:**
- Resource Name: Shrines of Balance
- Description: Angels will carry around these shrines to judge themselves. Angels have a large amount of magical power that is inherently within them, therefore they don't trust themselves to always act in the best interests of the world. The shrines judge their actions and allow them to channel more energy if their actions bringing the world into balance.
- Durability: 8
- Effect on Spell Meter: Each shrine will multiply the effect that a shield or attack has on a spell meter by 2x. This can mean that the spell meter can be worse off if there are more shrines, if the player's style isn't balanced properly. The prerequisites for what "balanced" is will be described in section _ : The Spell Meter.
Movement:
The player's character will always move vertically on the play field within the MA and will not be able to move horizontally. The reason for the lack of movement is because the game would become too confusing if the player had to move between multiple levels while manipulating the PB.

Elemental Orbs and the Puzzle Board:
The PB is made up of 11 columns and 9 rows. The columns are numbered 1 through 11, with column #1 being the column closest to the DC. Likewise, the rows are numbered 1 through 9 - with row #1 being the column that's closest to the top of the screen. Each row starts out with 4 elemental orbs inside of it that the player can manipulate. The orbs themselves correspond to four elements with each element represented by a color:

1. Water = Blue
2. Fire = Red
3. Earth = Green
4. Air = Yellow

As the game progresses, the PB will give a player a new column in column #1 every 20 seconds with the time interval getting shorter by seconds throughout the game. When a new column is introduced in the column #1 position all the other columns (columns #2 - #11) will be shifted to the next column in the line. If column #9 is currently occupied and a new column is introduced, then column #9 will be thrown into the player's resources. Every resource will be hit for 1 point of damage for every orb it gets hit with. The player can block 1 point of damage by an orb by standing in front of the chosen resource and getting stunned (this will be covered more in the Section - Being Stunned.

Manipulating the Puzzle Board:
Each race has its own distinct mechanics for manipulating the PB. This means that the game will be inherently puzzle if a person chooses a different race. There are only a couple commonalities between the play mechanics of each race:

- Each race can only perform 2 different types of actions in order to manipulate the PB.
- The player can only manipulate the elemental orbs in the row that their character is standing in.
However, they all share the same outcome of matching similar elemental orbs. Namely:

- If 3 or more orbs of the same element are aligned horizontally when a match is made, then the player produces an attack.
- If 3 or more orbs of the same element are aligned vertically when a match is made, then the player produces a shield.
- This will be explained more thoroughly in Section: **Attacking** and Section: **Shields**.

The distinctions between the mechanics of each race can do are given in the following sections.

**Witches:**
The Witches utilize a special feature that is called a "Hand". This Hand allows the Witches to store as many orbs as they want through their collection action (see below). The Witch's strategy then revolves around taking orbs and then giving them back, in equal amounts and can be seen in the actions they employ.

The Witches manipulate the PB through two actions:

1. **Collect:**
   - Witches can collect as many orbs as they want from the board and put it into their Hand.
   - A Witch's Hand can consist of as many orbs as they want.
   - A Witch can only collect elemental orbs that share the same element as the ones currently in her/his hand.
   - If a Witch's Hand is empty then any type of elemental orb can be collected.

2. **Throw:**
   - Witches can throw out all the orbs they have in their hand back onto the PB.
   - The orbs that are thrown will all appear in the row that the Witch is currently in.
   - A Witch cannot throw orbs onto the PB if there isn't enough space. If a Witch’s hand currently consists of 5 but there are only 4 spaces left in the row, then a Witch cannot throw their hand.

**Humans:**
The Humans have a special feature in their play mechanic called an Orb Queue (OQ). Since the Humans cannot manipulate the PB directly, they are forced to manipulate it by adding more orbs to the PB. These orbs are given to them in the Orb Queue and a Human should be able to see what is inside the Orb Queue at all times. This allows a player who is using a human character to create a strategy as opposed to being frustrated by not being able to plan.
The Humans manipulate the PB through two actions.

1. Shoot:
   - The Human will be able to see the current elemental orb in the OQ.
   - The Human will shoot the current elemental orb in the OQ onto the PB.
   - The Human can see the elemental orb that they will get next int the OQ.
   - When these elemental orbs are shot out onto the PB, they will not activate Matches.

2. Sacrifice:
   - A Human utilizes the current orb in their OQ and shoots it onto the board. We'll refer to this orb as the sacrificed orb (SO).
   - If the next orb in the row isn't connected to a match, then the SO and the next orb in the row are both destroyed.
   - If the next orb in the row is connected to a match, then the SO and the match all activate an attack or shield.

Angels:
The Angels have a special feature called a "Selection Box" (SB). There are quite a few specifications for the SB:

- The SB consists of two spaces on the PB that aligns with the current position of the angel character.
- Also, the SB will always situate itself in the column # that has an orb closest to the MA.
- When the SB is toggled (explained below), the axis of rotation will always be on the orb that's closest the MA.
- If the selection box is about to run into a wall when the character moves, then the selection box will keep its current position but change its axis of rotation to be in the same row that the character is in.

The Angels manipulate the PB through two actions:

1. Swap:
   - Angels can swap the positions of the orbs within the SB. Basically, the two orbs within the SB will exchange positions.
   - If an Angel tries to swap an orb with an empty space, the orb will be swapped into that empty space and then move to the closest empty position to the DC in that row.

2. Toggle:
   - Angels can toggle the position of the SB to align with two spaces horizontally or vertically.
   - When using this action the player will toggle between the two options.
- If the SB is aligned vertically, when the player chooses the toggle action, the SB will rotate to encompass two spaces aligned horizontally.
- If the SB is aligned vertically, when the player chooses the toggle action, the SB will rotate to encompass two spaces aligned vertically.
  - If the player tries to toggle the SB from vertical to horizontal and the SB would run into a wall then this will happen:
    - The SB will rotate to encompass the two closes spaces to the wall.
    - The axis of rotation for the SB will still correspond to the row that the character is in.

**Attacking:**
A player can attack their opponent by getting horizontal matches. When these matches are activated, all elemental orbs that are the same type as the match and are adjacent to it, will turn into faeries and fly towards the opponent. Each faerie will deal 1 point of damage to anything it touches, except a player's character, which means that the faeries will only harm an opponent's resources or shields.

**Being Stunned:**
If an attack hits a character, then that character will be stunned for ___ seconds. This means that the character cannot move or perform any actions for the amount of time that they are stunned.

**Shields:**
A player can create shields to protect themselves from the opponent by getting vertical matches. When these matches are activated, all elemental orbs that are the same type as the match and form a continuous vertical line, will turn into faeries and create a shield in the SA. Any attack that tries to come through will be blocked by the shield that's in the corresponding row and the shields will block until their durability runs out.

Each race has a different amount of durability for their shields and a special ability for their shields:

- **Witches:**
  - Durability - 6
  - Special Ability: Whenever a shield is destroyed it adds to their spell meter.
• Humans
  o Durability - 2
  o Special Ability - Any attack that goes through a shield doubles the strength of the faeries.

• Angels
  o Durability - 8
  o Special Ability - When any attack hits the shield it will heal the resource that it shares the row with in accordance to how much damage it has taken.
  ▪ Other suggestions is to make it so that whenever an attack hits the shield it fills up the angel's spell meter.

Shields cannot be stacked together, so shields will only be replaced. This means that if a player's shield is still in the SA and blocks for 3 points of damage but the player makes another shield, the old shield will be replaced with the new one to block for a total of 6 points of damage. This will never add up to equal a shield that will block for 9 points of damage.

**Elemental Wheel:**

This is a feature that corresponds to the attacks and shields that a player can put up. Basically, every element has a weakness as is shown by the table below:

Element: Strong Against: Weak Against:

<table>
<thead>
<tr>
<th>Water</th>
<th>Fire</th>
<th>Air</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire</td>
<td>Earth</td>
<td>Water</td>
</tr>
<tr>
<td>Earth</td>
<td>Air</td>
<td>Fire</td>
</tr>
<tr>
<td>Air</td>
<td>Water</td>
<td>Earth</td>
</tr>
</tbody>
</table>

When faeries attack the opposite player or create a shield, they keep the element of the orb that they were released from. When an element is stronger than another one then it deals double the damage or blocks for double the damage. This is the basic philosophy:

- If a shield meets an attack with an element that it is strong against then it will block for double.
- If an attack meets a shield that it is strong against then it will deal double the damage.
If an attack or shield meet something that it has no affiliation with then the damage blocked and damage dealt will be normal.

**Spells:**
Spells are special attacks that a character can use when their spell meter is full. The spells correspond to 3 basic types:

1. **Attack** - Increases your offensive power in some way
2. **Support** - Doesn't affect the enemy but helps you by repairing something or making a particular object stronger
3. **Defense** - Increases your defensive power in some way

All of these spells have a cool down that is activated after a spell has been used, this means that a person can only use one spell every __ seconds on average. This number will vary depending on the spell utilized and is in direct relation to the power of that spell. These spells can affect all elements on the play field but the way that it does will depend entirely on the spell itself.

**The Spell Meter:**
A player can only activate a spell if the spell meter is full, therefore the spell meter primarily details how often a player can use spells. The spell meter holds a maximum of __ points and is full when that is matched. The way that the spell meter behaves varies between races and is detailed below:

**Witches:**
The spell meter is will fill up in accordance to have many matches the player has made. For each match made, the spell meter will be filled by __ points. This doesn't correspond to the size of the matches; therefore, the witches depend on quantity not quality. After a spell is used, the spell meter will be reset to empty.

- **Resources** - The resources affect this spell meter by decreasing the size of the meter by 1/18th for every resource destroyed.
- **Shields** - Whenever a shield is destroyed it will fill up the spell meter by __ points.
Humans:
Their spell meter fills up slowly over time. This means that Humans don't have to depend on matches to make spells occur but it also means that their spell meter won't be affected if they are doing well. A Human can only use their spell when the meter is full and the meter is emptied when a spell is used.

- Resources - The resources affect this spell meter by increasing the rate at which it fills for each Steam Engine that is => a quarter of it's durability.

Angels:
Their spell meter constantly drains to 0 but fills up by creating attacks. The larger the attack the more that attack will fill up the spell meter, this encourages these players to think about a strategy a little bit more in order to set up larger attacks. The amount of mana that is draining from the spell meter corresponds to how many shields they have out on the field. So if they have more shields, it will make the meter go down slower.
8. Interface

Overview:
This section will map out the controls, interface, and other portions of the game. Basically, this should give a detailed description of how the game works from the player’s perspective. This means that all the screens in the game will be needed here along with wire frames that would first be made by an engineer, an artist can replace these as needed. They should detail what each button does in the game as well as how the player interacts with it.

Controls:
**Flow Chart:**

Puzzle Defense Navigational Flow Chart

### Basic Game Loop
- Character Selection (Figure 3)
  - Test Selection (Figure 7)
  - Game Screen (Figure 6)
    - Pause Screen for Single Player (Figure 9)
      - Yes
      - No
    - No common area?
      - Yes
      - History Log Pop-Up (Figure 10)
      - Rematch
        - No
      - Back to Main Navigation

### Main Navigation
- Start Screen (Figure 1)
  - Customize (Figure 5)
    - Profile (Figure 3)
      - Yes
      - No
    - Options (Figure 2)
      - Campaign/ Mission Select (Figure 3)
      - Create a Game (Figure 5)
      - Join a Game (Figure 4)
      - Tournament Menu (Figure 12)
      - Tournament Setup Screen (Figure 13)
      - Tournament Setup Screen (Figure 14)
  - Tournament Menu (Figure 11)
    - Next Game Loop

### Key
- Main
- Next to View
- Can happen at any time
- Submenus/ Functions
- Section

---

**Key for Wireframes**

- This means this can't be interacted with, it can be background and there's a lot of room for interpretation.
- This means it's a button that requires a condition in order to be activated.
- This means that this button is what should be highlighted upon start up through it's the default before on the screen.
The following sections detail all the screens that are found in the flowchart above, how they will look and their functions. The format is as follows:

1. **Start Screen:**
   - The Initial screen that the User sees, it only serves as something that a person would use to initialize the game.
   - **Button List:**
     - **Start** - This will start the game and bring the User to the Title Screen.
   - **Wireframe:**

![Start Screen Wireframe](image)

2. **Title Screen:**
   - This screen allows the User to navigate to all the main sections of the game, it is also the first screen that the User sees.
   - **Button List:**
     - **Campaign** - Brings the Player to the Mission Screen for the Single Player Campaign
     - **Join a Game** - Brings the Player to the "Join a Game" Screen.
     - **Create a Game** - Brings the Player to the "Create a Game" Screen.
     - **Tournaments** - Brings the Player to their Tournament Screen.
     - **Profile** - Brings the Player to their Profile Screen
     - **Options** - Brings the Player to the Options Menu
   - **Wireframe:**

![Title Screen Wireframe](image)
3. **Campaign Mission Select Screen:**
   - A User selects a mission to play through in the single player campaign here.
   - **Button List:**
     - **Character** - There should be a button for every character, when this is clicked it opens up the mission buttons for that character
       - If this is greyed out then it isn't selectable at the current moment.
     - **Mission** - There should be a button for every mission that can be selected for a character
       - If this is greyed out then it isn't selectable at the current moment.
     - **Back** - This will take the Player back to the main menu.
   - **Wireframe:**
     - This Screen is when the Player is initially trying to select a character.
4. **Join a Game:**

   - This screen is where players can search for other people's games and join them.
   - Button List:
     - **Mode** - This should be a drop down menu that allows a person to pick what mode they want to join.
       - This will have the options for all the modes that we'd have available:
         - 1 versus 1
         - Team Battle
         - Co-op
         - Etc.
     - **Search** - When this button is pressed it will search for a match of the desired type and make sure that everyone participating is of equal skill level.
       - This will then start the match and it will immediately go to the Character Selection Screen.
       - It will prioritize friend games when searching.
     - **Back** - This will take the Player back to the Main Menu.

   - **Wireframe:**
5. Create a Game:
   o This screen is where players to create a game and then make it public or invite specific friends to play with them.
   o Button List:
     ▪ Mode - This should be a drop down menu that allows a person to pick what mode they want to create.
       This will have the options for all the modes that we’d have available:
       ▪ 1 versus 1
       ▪ Team Battle
       ▪ Co-op
       ▪ Etc.
     ▪ Privacy - This is another drop down menu that gives the Players the option to choose who can join this game.
       There are several options that a User can pick:
       ▪ Private - Only Friends that are invited can join this match.
       ▪ Protected - Only Friends that are invited or Friends that are currently searching for matches can join.
       ▪ Public - Everyone can join this match.
     ▪ Invite Friends - This will be a list of all the friends that are online and who can be invited to the match.
       There will be a check box next to each friend's name.
       "Check All" - This is a button that is available in case a person wants to invite all of their friends.
       "Send Invites" - This button will send an invite out to every friend that has a check box marked.
     ▪ Preferences - This allows the player to choose what preferences they want for the match:
- This could be the amount of time is allocated during the selection screens.
- If there is a time limit on rounds.
- Etc.
- Create Session - It will create a session and the host will be taken to the Character Selection Screen where they wait for a person to join their game.
- Back - This will take the Player back to the Main Menu.

Wireframe:

6. Character selection:
   - This is where Players can choose what characters they all want to be before a match starts.
   - Button List:
     - Character Portrait - There should be a button for every single character that is available to the players.
     - When a portrait is clicked, a box should remain around that character's portrait and the character's art should appear on screen. This should signify who was selected.
       - If Player 1 has selected a character then that character's portrait should be highlighted in blue.
       - If Player 2 has selected a character then that character's portrait should be highlighted in red.
     - Ready/Cancel Buttons:
       - Player 1 Ready - When this is clicked it will lock Player 1's choice into the character they selected. The button will also change to "Player 1 Cancel".
       - Player 1 Cancel - This is the button that "Player 1 Ready" changes into. If this is clicked then Player 1's choice isn't locked anymore and Player 1 can continue choosing his/her character again.
       - Player 2 Ready - When this is clicked it will lock Player 2's choice into the character they selected. The button will also change to "Player 2 Cancel".
- Player 2 Cancel - This is the button that "Player 2 Ready" changes into. If this is clicked then Player 1's choice isn't locked anymore and Player 2 can continue choosing his/her character again.
- Countdown Timer - There is a timer that will count down how many seconds people have to choose their characters.
  - When the timer reaches zero then both character's are assumed to be ready and the players are immediately taken to the Spell Selection Screen.
  - After both players are ready then the timer will immediately begin to count down from 10. When it reaches zero then all players will be taken to the spell selection screen.
  - "Skip" - This will appear below the countdown timer after both players are ready. If this is clicked by both players then the timer will skip the Countdown and the players will be taken to the spell Selection Screen.

- Wireframe:

```
7. Spell selection:
  - This is where Players can choose what spells they all want to be before a match starts.
    - Spell Portraits - There should be a button for every single spell that is available to the players.
      - When this is clicked, a box should remain around that spells portrait and the spell's art should appear in the spell bank. This should signify what spells have been selected.
        - If Player 1 has selected a spell then that spell's portrait should be highlighted in blue.
```
• If Player 2 has selected a spell then that spell's portrait should be highlighted in red.
• If a player clicks on a portrait once then it will add that spell to the spell bank within the current slot selected.
• If the player double clicks a spell then that spell is added into the spell bank in the first slot that is available.
  • If there isn't a slot that's available anymore then it will overwrite whatever is currently selected in the spell bank.
• If a spell can only be chosen by Player 1 then the frame around it should be a dotted blue line.
• If a spell can only be chosen by Player 2 then the frame around it should be a dotted red line.
• If a spell can be chosen by both Players then the frame around it should be a solid black line.
• Spell Bank - This should have three different slots, these should signify how many spells a person is allowed to choose.
  • The first slot will always start off as the current spot selected.
  • If the player clicks on one of the slots then that will turn into the slot that is currently selected.
• Ready/Cancel Buttons:
  • Player 1 Ready - When this is clicked it will lock Player 1's choice into the spells that they selected. The button will also change to "Player 1 Cancel".
  • Player 1 Cancel - This is the button that "Player 1 Ready" changes into. If this is clicked then Player 1's choice isn't locked anymore and Player 1 can continue choosing his/her spells again.
  • Player 2 Ready - When this is clicked it will lock Player 2's choice into the spells they selected. The button will also change to "Player 2 Cancel".
  • Player 2 Cancel - This is the button that "Player 2 Ready" changes into. If this is clicked then Player 1's choice isn't locked anymore and Player 2 can continue choosing his/her character again.
• Countdown Timer - There is a timer that will count down how many seconds people have to choose their characters.
  • When the timer reaches zero then both character's are assumed to be ready and the players are immediately taken to the Spell Selection Screen.
  • After both players are ready then the timer will immediately begin to count down from 10. When it reaches zero then all players will be taken to the spell selection screen.
  • "Skip" - This will appear below the countdown timer after both players are ready. If this is clicked by both players then the timer will skip the Countdown and the players will be taken to the spell Selection Screen.

○ Wireframe:
8. **Game screen:**
   - This is where all the actual gameplay happens.
   - **Button List:**
     - Pause - This will pause the game in the single player campaign and pause the game.
   - **Wireframe:**

9. **Pause screen for single player:**
   - This screen brings up a set of options that a User can choose from, just in case they need to make some changes.
   - **Button List:**
- Controls - Takes the person to a menu that's similar to the one in options, where they can reassign the controls and check to see what they already have selected.
- Save - This will allow the User to save their game manually into a save slot.
- Load - This will allow the User to manually load a game from a save slot.
- Main Menu - This will have the User quit the campaign and bring them back to the Main Menu.
  - If a person presses this then a "yes/no" prompt comes up. If the person presses "yes" then they are brought back to the main menu. If they say no then they are brought back to the pause menu.
- Back to Game - Brings both players back to the game screen. A countdown will start when this is pressed where the players can stare at the game screen for 5 seconds before any actions can be taken. While this happens the entire screen will turn monotone.

10. Wireframe:

![Game Paused Wireframe](image)

10. Victory/Loss Pop-Up:
- After a Game is over this pop up will come up telling the Player if they won or lost.
- Button List:
  - Continue - Brings the User back to the Join a Game screen if they originally joined the game or the Create a Game screen if the player is currently hosting this game.
  - Rematch - A person can click this to get a rematch with their current opponent.
- This will only count if both players click this button. If only one player clicks this button then the game will assume that both players clicked on "Continue".
- If both players press this button then the match will start over again from the beginning.

### Wireframe:

<table>
<thead>
<tr>
<th>HUD Elements for Player 1</th>
<th>Pause</th>
<th>HUD Elements for Player 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Congratulations you won!

<table>
<thead>
<tr>
<th>Stats</th>
<th>Player 1</th>
<th>Player 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orbs Destroyed</td>
<td>142</td>
<td>156</td>
</tr>
<tr>
<td>Attacked</td>
<td>142</td>
<td>156</td>
</tr>
<tr>
<td>Shields up</td>
<td>142</td>
<td>156</td>
</tr>
<tr>
<td>Damage Given</td>
<td>142</td>
<td>156</td>
</tr>
<tr>
<td>Damage Taken</td>
<td>142</td>
<td>156</td>
</tr>
<tr>
<td>Shields Destroyed</td>
<td>142</td>
<td>156</td>
</tr>
<tr>
<td>Etc</td>
<td>142</td>
<td>156</td>
</tr>
<tr>
<td>Etc</td>
<td>142</td>
<td>156</td>
</tr>
<tr>
<td>Etc</td>
<td>142</td>
<td>156</td>
</tr>
</tbody>
</table>

Theorem here

#### Rematch

#### Continue

### 11. Tournament Menu:

- This is a page dedicated to organizing a player's tournament information.
- **Button List:**
  - "Start a Tournament" - This will take the player to the tournament set up screen.
  - It will have a list of all the tournaments that the player is competing in.
    - If a tournament is clicked then it will take the player to that tournament's screen.
    - Each tournament's label will have who the player is currently set to face and what round the tournament is in.
      - If the player isn't in the tournament anymore, the tournament will still appear but only tell the player what round it is in.
- **Back** - Takes the User back to the main menu
- **Wireframe:**
12. **Tournament Set Up Screen:**
   - This screen assists the player in setting up a tournament.
   - **Button List:**
     - **Name** - This is what the name of the tournament will be.
       - The player who wins the tournament gets a medal with this name on it. It will be put on their profile.
     - **Privacy** - This is another drop down menu that gives the Players the option to choose who can join this game.
       - There are several options that a User can pick:
         - **Private** - Only Friends that are invited can join this match.
         - **Protected** - Only Friends that are invited or Friends that are currently searching for matches can join.
         - **Public** - Everyone can join this match.
     - **Invite Friends** - This will be a list of all the friends that are online and who can be invited to the match.
       - There will be a check box next to each friend's name.
       - "Check All" - This is a button that is available in case a person wants to invite all of their friends.
       - "Send Invites" - This button will send an invite out to every friend that has a check box marked.
     - **Preferences** - This allows the player to choose what preferences they want for the match:
       - This could be the amount of time is allocated during the selection screens.
       - How many people should be in the tournament at a maximum.
       - If there is a time limit on rounds.
       - Etc.
- Start Tournament - It will create a session and the host will be taken to the tournament’s tournament screen and all the players are put in randomized slots in the tournament.
  - Back - Takes the User back to the Tournament Menu.
  - Wireframes:

![Tournament Set Up](image)

### 13. Tournament Screen:
- This screen shows all the current information on the tournament and allows people to set up challenges.
- Button List:
  - There is a tournament bracket that will show where everyone is on the tournament.
    - This will have everyone's profile on it with their proposed time next to the profile.
    - Next to their proposed time, if they're your opponent, there should be a "Challenge Accepted" button.
      - This will indicate that the other person agrees they'll play at this time.
      - If this happens then that time will become highlighted.
    - Each game will have a "Propose Time" or "Play Now" button on it.
      - If it is "Propose Time" it means that their opponent isn't on and you can put in a date and time to play at.
      - If it is "Play Now" then both people are on and they can start the match immediately.
      - This will take both players to the Character Selection Screen.
  - Back - Takes the User back to the Tournament Menu.
14. Profile:
   - This shows all of the Player's statistics and other things that they can customize.
   - Button List:
     - There is a list of statistics that mainly show:
       - Wins in each game type and the Win/Lose ratio.
       - Shows their rank in each game type.
     - Customize Characters - Takes them to the Customization screen.
     - Back - Takes them back to the Main Menu.
   - Wireframe:
15. Customization Screen:
   o This is where a person can customize what each character looks like.
   o Button List:
     - There should be character portraits to the left of the screen.
     - When a character portrait is selected by clicking on it, the portrait will be highlighted in blue and the avatar will be on the right side of the screen.
     - The Right Side of the screen should have 4 levels to it:
       - Themes - There are left and right arrows that will change the color palette of the overall character when clicked.
       - Head - There are left and right arrows that will change the head wear of the character when clicked.
       - Chest - There are left and right arrows that will change the shirt or upper body wear of the character when clicked.
       - Legs - There are left and right arrows that will change the pants or lower body wear of the character when clicked.
     - These changes should appear on the character avatar.
     - Back - Saves the settings and brings the user back to the profile screen.
   o Wireframe:

16. Options:
   o This screen is where the Player can select what options he/she would like to use.
   o Button List:
     - Controls - Brings the User to a menu where they can look at the controls or change them.
     - Audio - Allows the User to adjust the sound.
     - Video - Allows the User to adjust the video.
- Single Player Difficulty - Allows the User to adjust the difficulty of the Single Player Campaign between Normal, Veteran, and Expert.
- etc.
- Back - Brings the Player back to the Main Menu.
- Wireframe:

```
Options

Controls
Audio
Video
Difficulty
```

17. Invitation Pop Up:
- This is what will pop up when a User logs in and their friends have invited them to things.
- Button List:
  - Includes a caption of who invited whom and to what. If all invitations have been turned down then a person will receive a pop up saying no one is available, with Accept as the only option.
  - Challenge Accepted - The player accepts the invitation and is immediately taken to the Character Selection screen.
  - Ignore - The pop up is taken away.
Wireframe:

Puzzle Defense

Potential Place for Art

- Campaign
- Join a Game
- Create a Game
- Tournaments
- Profile
- Options

Potential Place for Art

Invitation from Zach

Zach invites you to a game of 1 versus 1

Challenge Accepted  Ignore
9. Features

Feature List:
This page should hold all the desired features that would be in the game as well as a description of how each would work. The main difference here is that the basic gameplay would only talk about the core of the game and anything that would expand upon that core gameplay mechanic (more orbs, character types, etc.). This section is meant to flesh out the various features we’d want to offer, this means matchmaking, co-op, campaign. This can be fairly extensive and would probably be accompanied by artwork that would act as test runs for all of these. If there are particular multiplayer or single player modes that deviate from the basic gameplay, it would be best to detail their rules and scoring/winning/losing conditions here. This section is divided into two parts: the Minimum Viable Product (MVP) Section which includes all the features that need to be in the game and the Expandable Section. The Expandable Section details features that would be nice to have if the team has more time to devote to the project.

MVP Section:

Single Player Campaign:

- General Description:
  - This feature allows players to experience the world of Aldebaran through a story driven campaign. Players choose a hero character and select missions to play through. These missions will be unlocked sequentially per hero character and unravel a story that will expose the conflicts that erupt between the three races. There is no particular order to the stories but it will give players a greater overarching view of the world itself. Players can traverse a basic over world with their hero character in each mission, allowing them to interact with NPC's and explore Aldebaran itself. Unlocking new tasks to complete and challenges that will stem from the game modes already offered. Throughout their adventure, players will battle with NPC's and experience more difficult challenges as the story progresses.
  - Further Specifications:
    - A player can pick which hero's story to play through in a non-linear fashion.
      - Missions can only be unlocked sequentially after a character is selected.
    - A player doesn't have to finish off one characters story if they wish to switch between them.
    - The Overworld can be explored through nodes that a player would choose between in order to move. NPC's could exist at those nodes, those would be what a person would talk to or interact with.
    - Battles would occur when choosing to interact with an NPC at a node.
These battles could originate from the other modes in a game and could be slightly tweaked to accommodate the single player campaign.

- **Expandable Components:**
  - Since all the over worlds and missions are self-contained, don't flow into each other, it allows us to add on more missions as the game continues.
  - People could invite their friends to fight "boss battles" with them. It would allow them to make battles harder, encourage social interaction, and create a co-op mode.
  - Add some sort of progression mechanic, if there isn't then it will be hard for the player to feel like they are earning anything useful.

- **Why it's important:**
  - This is an important component of the game because it will help introduce new players to the game. Ideally, the progression in difficulty will make it so that new players can slowly get better at the game before trying to compete with the community. Furthermore, the later levels will challenge more experienced players which would allow them to train themselves without resorting to competitive modes.

- **Basic Storyboard:**

(Figure 1) The Player would click on the Campaign button in the main menu. This gives them the Campaign screen.
(Figure 2) After they click on a Character Portrait that would represent a race, they can choose a specific mission.

(Figure 3) The player is then taken to the Overworld for that mission. They can explore the area by traveling to the nodes with their character. By interacting with things that are on the nodes they can participate in battles or learn more about the story.
**Matchmaking:**

- **General Description:**
  - This feature allows people to play with/against each other, even if they aren't friends on the social network. The feature will allow the player to pick the game type they wish to play, then wait for the system to find a game for them. After this happens the player will be able to play through the game type with this new person. When this battle ends, the player can then leave matchmaking, choose to have a rematch, search for a new game based on the previous criteria, or change the game mode that the person wants to search with.

- **Further Specifications:**
  - The way the system will match people will correspond to their rank within a given game type.

- **Expandable Components:**
  - Expand what can use matchmaking, make it faster.
  - Make it so that people can send a friend request after the battle.

- **Why it's important:**
  - This system will allow people to play against people they don't know. This means that if none of their friends are on they will still have a chance to play. Basically, this feature allows people to lay against human players whenever they choose.

- **Basic Storyboard:**

(Figure 4) The User starts off on the title screen. Navigates to the "Join a Game" button.
(Figure 5) The User is brought to the "Join Game" Screen

(Figure 6) The User then selects what mode they want to search for.
(Figure 8) The game begins to search for the best available game for the User. The loading spinner on the bottom is there to indicate that the system is working.

*Invite/Challenge Friends to Matches:*

- **General Description:**
  - This allows people to invite people to a match either as a ally or as an enemy. Basically, this feature will allow all the users to invite their friends over the social network to games that they'd like them to play in. This way a person is free to play against or with people that they know, rather than total strangers.

- **Further Specifications:**
  - You can only invite a friend that is currently online.
  - A person will only be able to invite the amount of people a game mode supports to a single match.
    - 1v1 will only allow a person to invite 1 friend.
    - 2v2 will only allow a person to invite 3 friends.

- **Expandable Components:**
  - Allow people to invite as many people as they want to a match. Then the other people can spectate and the loser can choose who to face next.

- **Why it's important:**
- It will allow a community to develop among a group of friends over a social network. This will mean that our game can be played in order to bring friends together, which is the point of making a game social.

- Basic Storyboard:

(Figure 11) This is the title screen and a User has to click on "Create a Game" in order to invite them to a game they aren't currently in. The main reason why this doesn't happen in a game is because the matches are too short.
(Figure 12) This will allow a User to create a game. On the left side, the User can invite as many friends as he/she wants. Their online status is displayed on the table. A checkmark means that they are invited; however, no invitations get sent out until "Create Session" has been pressed.

**One versus One Multiplayer:**

- **General Description:**
  - This is the basic game mode in Puzzle Defense. Two people fight each other on the play field in an attempt to destroy the opponents' resources without losing all of their own. They can make attacks and shields by making matches of 3 or more horizontally or vertically. There will be a variety of characters from each of the 3 different race and a library of spells a person can choose before going into battle.

- **Further Specifications:**
  - A person should be able to choose their race, the character from that race, and the spells they want to use.
  - Each person will only be able to choose 3 spells to use.
  - A person should be able to create a game.
  - A person should be able to use matchmaking to find a game.
  - A person should be able to invite a friend to the match.

- **Expandable Components:**
  - Spectating
  - Making it so that there are more choices for spells.
  - Create a handicap feature.
- **Why it's important:**
  - This is the core gameplay of Puzzle Defense, therefore this component is a high priority. This is the game without any twists or other game modes and was what everyone liked during the prototyping stage. Therefore, it is imperative to have this in the game.
- **Basic Storyboard:**

(Figure 13) When a player beings to play a game of Puzzle Defense, they first have to select a character.
(Figure 14) After they select a character, the player will select what spells to use in a game.

(Figure 15) After the spells are selected, the player can now play in a game where they create attacks to wipe out their opponent’s resources.
When the player wins, they can choose to have a rematch. This will cause the game to go back to Figure 13’s Character Selection screen. Otherwise, they get sent back to the main menu if they press "Continue".

Expandable Section (Non-MVP):

**Ranking for multiplayer:**

- **General Description:**
  - The feature will rank people according to their performance in each of the game types. People can check what rank they are through their statistics page and it should show up via a logo next to their name. This feature will be used in all matchmaking sessions, tournaments, and any other feature that would require strangers to face each other.

- **Further Specifications:**
  - The way we will get a person's rank will most likely be a system that weighs a person's Win, Loss ratio to the number of games they played. That way people are still ranked by skill but this rank can never go down, only up.
  - There will be a different rank for each game type.
  - These ranks will be tied to your social network account.

- **Expandable Components:**
o Creating a single universal rank that will give people a better overall idea of a person's skill level.

- Why it's important:
  o It allows us to match people up with opponents of similar strength, allowing for a more competitive and exciting match. Without this system, we'd have a harder time finding battles that people would enjoy playing and it would be all random chance.

- Basic Storyboard:

(Figure 9) The User always starts on the Title Screen but he presses "Profile" this time.
(Figure 10) The Profile Page is selected and the User can check all of their states via the table on top. The true ranking doesn't affect the game until it is played single player though.

**Tournament:**

- **General Description:**
  - This is a multiplayer feature where people can create a tournament that people will play through. A person can either create a tournament themselves or try to join one. In either situation, the system will randomly select who is fighting who within the tournament's current roster. The roster can consist of people who were looking for a tournament and wanted to join or friend's that have been invited. There can even be a mixture of both that way people can fill out larger tournaments. People can fight their scheduled opponent if they are both on at the same time or they have scheduled a time to play. People will continue playing each other until a person is crowned a winner.

- **Further Specifications:**
  - Going to need a page where people can schedule a match for their opponent or be able to check when they are available.
  - The tournament can only be either a 1v1 or 2v2 match ups.
The creator of the tournament should be able to specify how long they want each round to last. It should also check who has been logging on more that way it will choose that player as the winner. This way it will avoid both players being dropped out from the tournament.

- Expandable Components:
  - Make it so that the tournament can use more game modes.

- Why it's important:
  - It adds another competitive layer to the game and allows people, close friends especially, to see who the best among their group is.

- Basic Storyboard:

(Patient 17) The User starts on the Puzzle Defense title page and selects the “Tournaments” button.
(Figure 18) This brings up a list of all the tournaments that the User has been invited to. The User can click on one of those tournaments.

(Figure 19) After clicking on a Tournament the User is brought to this page. While here, they can change the proposed time on their match, accept the time another person has proposed through
the "Challenge Accepted!" button. However, if both people are online then they can choose to play now. Otherwise the actual match handles exactly the same as Figures 13-16 but Figure 16 doesn’t have the option for a rematch.

**Survival:**

- **General Description:**
  - The mode does away with having an actual opponent to face and instead pits the player against endless waves of orbs. Since letting orb touch a resource will harm it, the objective of this mode is for a player to last as long as they can before all of their resources are destroyed. As the player continues to play in this mode the intervals between the waves of elemental orbs will grow shorter.

- **Further Specifications:**
  - There must be a timer so the player can see how long they lasted.
  - The intervals between waves must decrease by **every** seconds.
  - A player cannot use spells in this mode.

- **Expandable Components:**
  - This can be made into a multiplayer mode if need be, it is basically the single player version of the co-op mode.

- **Why it’s important:**
  - Allows people to play the game by themselves and increase their proficiency with the basic mechanics.

- **Basic Storyboard:**
  - Same as the sequence of Figure 13 - Figure 16 but with only one player in the selection screens and playing field. Furthermore, the winning conditions are different because all they have to do is defend their own resources and try not to lose all of them for as long as possible.

**Two versus Two Multiplayer:**

- **General Description:**
  - This is a twist on the 1v1 game mode in Puzzle Defense. The only difference is that each side is now shared by two people, with both of those people sharing resources. The four people fight each other on the play field in an attempt to destroy the opponent’s resources without losing all of their own. They can make attacks and shields by making matches of 3 or more horizontally or vertically.
There will be a variety of characters from each of the 3 different race and a library of spells a person can choose before going into battle.

- Further Specifications:
  - If two people are on the same team they have to be able to choose what race they want to be before choosing characters.
  - The resources are shared and so people have to be the same race.
  - A person should be able to choose their race, the character from that race, and the spells they want to use.
  - Each person will only be able to choose 3 spells to use, these will be separate from their partner.
  - Both people share the same spell meter.
  - A person should be able to create a game.
  - A person should be able to use matchmaking to find a game.
  - A person should be able to invite their friends to the match.

- Expandable Components:
  - Make it so that the teams can be uneven.
  - Expand it so that way it can be larger than 2v2.

- Why it's important:
  - It allows groups of friends to play together instead of only a pair. This increases the amount of people that will play the game and hopefully create a community.

- Basic Storyboard:
  - Same as the sequence of Figure 13 - Figure 16 but with extra players in the selection screens and playing field.

Cooperative Play:

- General Description:
  - This mode would allow people to fight against a powerful computer opponent as a team. It draws from the same basic gameplay from the 2v2 versus mode except it becomes a 2v1 mode where the team of one is the computer. The computer will also be considerably more powerful than the two people and twists will probably be added into the gameplay to produce a larger challenge. This will be reminiscent of boss battles from the single player campaign.

- Further Specifications:
  - Friends can invite each other to play this.
  - A person will be able to create a co-op match.
  - A person should be able to join a co-op match.

- Expandable Components:
  - Make it so that more than 2 people can face off against the computer.
  - Create a co-op survival mode.
Why it's important:
- Allows people to cooperate in a match as opposed to always having to compete with one another. It expands our install base and allows people to work together without having to face powerful human opponents. Sometimes this is good for people that just want to practice with a friend. This means that it expands the audience that the game can appeal to.
- Basic Storyboard:
  - Same as the sequence of Figure 13 - Figure 16 but with extra players in the selection screens and playing field.

King of the Hill:
- General Description:
  - It builds on our traditional 1v1 mode and makes it so that people can spectate during the match. The people spectating are put in a queue and whenever one person wins the fight, they are forced to face the next person in the queue.
- Further Specifications:
  - The queue should only be about 5 - 10 people long.
  - There should be a way to communicate while in the queue, maybe voice chat or Instant messaging.
- Expandable Components:
  - Create a bigger queue
  - Allow people to affect the game from the queue
- Why it's important:
  - Allows people to play the game continuously, if that's all they wish to do. This means that people that really like our game can constantly face strong people without having to wait for another match.
- Basic Storyboard:
  - The basic concept is that when a person is participating in a match they go through the same cycle as Figures 13 - 15 but the buttons for Figure 16 say "Continue" and "Quit". "Continue" will cycle the winner to the next player and the loser gets put back on the queue. "Quit" takes the player back to the main menu.

Character customization:
- General Description:
  - This is basically where a person can customize how all of their characters look. It allows them to personalize their particular character set with different clothes, color palettes for characters, etc.
- Further Specifications:
There should be a specific screen dedicated to this.

There should be 3 different areas a person can customize:
- Head
- Upper body
- Lower Body

Each character should have three of each.

There should be multiple color palettes for each, 3 maybe?

Color Palettes can be mixed and matched per section?

- Expandable Components:
  - Create more clothes
  - Micro transactions?

- Why it's important:
  - It allows people to have a larger sense of ownership from their roster of characters.

- Basic Storyboard:

(Figure 20) The User starts out on the Title page and then selects "Profile".
(Figure 20) After arriving on the profile page, the User selects the "Customize Characters" button.

(Figure 21) Now the User can select a character and modify their outfit based on what the User prefers. When a person is done, they select "Back" and this should automatically save all the information that was changed by the User.
**Multiple game board modes:**

- **General Description:**
  - This will build off of the core puzzle defense mechanics but change the play field. Introducing new elements to the game that wouldn't be there before.
- **Further Specifications:**
  - This is pretty wide open but the Arena is one example of an idea.
- **Expandable Components:**
  - All the things!
- **Why it's important:**
  - It allows us to create types of gameplay that utilizes the basic underpinnings of puzzle defense but ultimately changes what they're used for. This means that it expands what the game has to offer. Allowing for more experiences for experienced players and maybe a reason to try the game for new players.
- **Basic Storyboard:**
  - This section would require completely new wire frames and specifications that are not feasible to implement at the current moment. It would require a new screen to show how the entire game would be laid out; furthermore, we need to specify rules for each new game mode.

**Asynchronous play:**

- **General Description:**
  - This would build off of the 1v1 play but it would allow people to play at their leisure. There would be a screen devoted to all the asynchronous games a person is a part of. This mode would be turn based and people would have a certain number of moves they could make before their turn was up. Otherwise it is still about destroying your opponents resources while protecting your own.
- **Further Specifications:**
  - Each attack would have a charge counter, to give the person time to put a shield up.
  - Each collection, throw, swap, toggle, shoot, sacrifice, etc. would count as an action.
  - Players would have a limited number of actions (let's say three) that they could use per turn.
- **Expandable Components:**
  - Don't know right now.
- **Why it's important:**
- Allows people to play the game on their own time and they wouldn't have to wait for friends to be on in order to play against them. Also allows for more thought when playing the game.

- Basic Storyboard:
  - This section would require completely new wire frames and specifications that are not feasible to implement at the current moment. It would require a new screen that would be specifically used to keep track of what Asynchronous games a User would have going on. Also, the rules for what a person could do during the game would be drastically different. This would be because it would have to be turn based in order for asynchronous to work.
10. Player Characters (PC’s)

- Name: Emerald
- Gender: Female
- Age: Teen
- Traits: "Head-Strong Willed"
- Personality: Over Reliant on Magic. Adventurous, Social Person, Oblivious, Courteous, Kind Girl, Polite
- Physical characteristics: She is over reliant on her fashion clothing, searching for originality.

Beliefs:
- Concerned about their traditions in the Witch culture, yet doesn't let tradition distract his curiosity.

Bio:
Emerald lives a healthy and prosperous childhood. Despite being small and not physically strong, she was still accepted by her peers because of her natural gift in using magic. She is an outgoing person, often participating in parties and magic duels against other female witches to impress the handsome male noblemen witches. When she is magically drained, her way of resting is laying down on the grass near the elemental lake near of her forest town as she stares at the night sky. She observes how the elemental faeries behave in their natural environment in order to understand how to develop better spells. One day, at the witch academy, her teacher, Ms. Marbella, gave a lecture about other elemental lakes in different locations from the witch forest. Fascinated by Ms. Marbella's lectures, that next day she skips school in order to explore the forest in search of legendary wells of elemental energy.
- Name: Lara Hook
- Gender: Female
- Age: Teen
- Traits: "hooks with the cables", she likes zip-lining around the city.
- Personality: Spunky girl, tomboy, sporty, athletic, energetic, outgoing, blunt, thrill seeker.
- Physical characteristics: - reddish hair, crackles, olive green eyes.

Beliefs:
- She knows what she wants.
- She "borrows" gadgets from other steam inventors, and chooses to return them.
- Behaves like a “magpie” taking things that interest her, even if she shouldn’t.

Bio:
She is a lower class citizen from the steam-punk metropolis. Her parents didn't finish engineering
school, leading to a less than ideal lifestyle in this capitalistic society. Most of her life, she was encouraged to go to school to study steam engineering, but she failed her math and physics classes because she prioritized her social life and zip-lining sports activities. She won several zip-lining sports competitions during her school years. Her interest right now is to travel to the middle class and upper class sections of the steam-punk city and find interesting gadgets for her personal use. However, in order to use several of the gadgets that she borrows, she requires a sufficient amount of elemental faerie energy in order to use them, so she explores all over the world to hunt down elemental faerie lakes.

- Name: Lucy
- Gender: Female
- Age: Teen/ younger looking
- Traits: Innocent
- Personality: Curious, Naive, Open minded. Easily surprised.
- Physical characteristics: - blonde hair, Baby blue eyes. Fragile, yet persistent.

Beliefs:
- She doesn't like learning from books.
- She is curious, but she is easily scared of the unknown.
- She wants further explanation as to why events in the game world occur.
- She is fascinated by the other cultures, which leads to a lot of awkward situations.

Bio:
She is the youngest daughter of the prestigious "Highwing" Family. During her childhood, she was struggling learning how to fly, which her parents were kind of worried that she might not developed as fast as her peers. As a result, she was mostly overprotected by her parents and was kept sheltered at home. Most of her childhood, she was treated like a princess, with servants managing all of Lucy's education. She struggles to learn how to read angelic scripts, which didn't help when she had to read them in front of her strict mentors. She is interested in the material presented in her classes about the Angel’s history, but asks a lot of questions that make her mentors annoyed causing them to punish her with more homework. One day, she went on a tour with her mentors to the capital city for a ceremony where she accidentally gets lost in the crowd of people. Frustrated by her strict education and the over protectiveness of her parents, Lucy wanders around till she stumbles upon the edges of the Utopian city. She walks to the edge of the floating city, observing the expansive world that stretches out below her. Lucy needs to know more about what’s below and decides to take a leap of faith to the world below.
11. Non-Player Characters (NPC’s):

- **Dinosaur Rebel, Raw.**
  - Reptile / steam-punk soldier who works for General Solidor. He is one of the few last survivors. He gets lonely sometimes.

- **Beer drinking Cowboy. Mr. Sandstorm.**
  - Travels the desert area horseback-riding. Loves to drink beer in the steam-punk pub, and occasionally gets into fights. He is a good friend of Raw.

- **Corporate Fat Cat, Maquiavelos.**
  - A fat anthropomorphic cat whose decision making process revolved around making profit. He is the CEO of Trains-Travels services business.

- **Border Patrol Steam-Punk Soldier, Brent.**
  - A bored steam-punk soldier who patrols the border entrance of the Steam-punk metropolis.
  - Usually sleeps on the job-site, and he is doing it to feed his low -class family.
  - He really wanted to go to culinary school academy, but cannot afford it.

- **Zeppelin Pilots Engineer, Mr. Pawlina.**
  - Owns the largest zeppelin mechanical shop in the steam-punk city.
  - He is a really chill person, and fun to hang around with.
  - Has problem with women.

- **Really cute Witch Baker, Ms. Mickie.**
  - She owns a bakery shop in the Idyllic Witch Forest.
  - She has a bubbly personality.
  - She summons a bread Golem, called Breadnought.

- **Pyromaniac Fireworks shop witch owner, Mr. Hothead.**
  - He owns a firework shop in the Idyllic Witch Forest.
  - He loves explosions.
  - His shops supplies light and fire effects for several social witch events.

- **Well Respected Witch teacher, Ms. Marbella.**
- She is one of the few witch survivors from the past tragic event that caused the existence of the Angels race.
- She is half wing angel, but she hides her past in order to better guide her witch students.
- She is well respected, and highly admired by boys and girls. Boys want to date her, and Girls want to be her. She makes sure that everyone pays attention in her classes, and demands a lot of work from her witch students.

- **Well Respected War Veteran Steam-punk Engineer, General Solidor.**
  - He is a well-recognized politician, engineer, military officer.
  - He is a powerful leader, with high prestige, savvy, smart, and has a dry sense of humor.
  - He loves to smoke.
  - He lost both his son and his leg in one the civil wars. He has a mechanical leg to replace it and an empathetic side to him.
  - He acts like an Irish warrior, who you don’t want to mess with.

- **Well Respected Angel Father-Figure, Mr. Weiber.**
  - Really cool grandpa.
  - Older citizen, Patient, Soft spoken.
  - Knows everything, almost.
  - Prefers to allow people to learn from their experiences

- **Highly Educated Smart Angel Sister, Mr Midwalker.**
  - Nerd, her world revolves around facts, and not personal opinions.
  - Stuck up, smart, but oblivious.
  - Does not have that many social skills, which she might present herself to others in a negative manner.

- **Angel Division Military Captain, Sontz.**
  - Oversee the border of the largest elemental faerie lake
  - Commands other angels servants, and he specialize in espionage
  - Way too serious, he never jokes around.
  - He takes everything too literal.
  - He prefers to send other to fight for him.

- **The Blind Harp Musician, Sonra.**
  - She is an Angel.
  - She is Blind.
  - She uses Echolocation
- She plays her harp music to aid in figuring out her surroundings, acts as a form of echolocation or sonar.
- She does not see eye to eye to with other angels.
- She is curious about what is not being said to her based on world events.

- **Pimp Daddy, Sugar Mage, Eddie**
  - He is in pursuit of all types of women; all around the game world.
  - High Stylin', profilin', limousine riding, jet flying, kiss-stealing, wheelin' n' dealin' son of a gun~!

- **Steam Engine Robot, Makeytron.**
  - A brain in a Robot steam engine suit, who was also several affected during the past tragic witch event.
  - He fell one of the making elemental pools and got trap for a few decades before he submerge to the surface thanks to some Steam-punk miners. While summered, his body deteriorated, but his brain was constantly consumed by the elemental faeries.
  - He knows everything about the elemental faeries, but has problems compiling his messages to human language.
  - During his childhood he wanted to be Neo from the Matrix.

- **Savy Old Storytelling Mage, Dimitry**
  - He is a senile old witch who keeps telling stories to everyone who will listen about what he did during his youth.
  - Everyone believes he is making his story up.
  - He has the longest beard in the witch society, and when asked about why he has not trimmed his beard, he will start retelling his favorite beard story, which changes ever time.

- **Super Faerie, Akemaj.**
  - It is the most power full elemental faerie in the game world
  - Lives in the center of the world, below the largest elemental faerie lake.
  - It is taking a long nap.
12. Story:

*Story Synopsis:*
The world is running out of magic, the steampunk's have expanded too fast, and the witches move to counter them. In their strife they attract the attention of the angels, who notice that something more is going wrong with the world. The tension escalates, and the three sides are poised for war. Can the 3 heroes stop this conflict, and if they're very lucky, find the hidden cause of this.

*Complete Story:*
The witches were the first race to ever exist in this world, and they formed a great empire. But long ago a group of witches came together with the goal of gaining even more knowledge of magic. Something went wrong, many died and the witch kingdom started its collapse. But a small group of the witches changed into the first angels. They left behind the witches and went to the sky.

Much closer to the present some witches began to experiment with developing technology to supplement their magic power. However technology was seen as an abomination, a perversion of nature. They banished those witches who had done so, and stripped them of their magic. These former witches were forced from the forests, and became the ancestors of the modern steampunks, a fact that the steampunks have not yet forgotten.

In one of the magic pools, an ancient fairy has finally been disturbed from its slumber. The steampunks had taken its pool, and started to pollute and use it up. It decides that all of these races that use fairies as slaves should not be allowed to do so. And so it goes off on a warpath to cause as much damage to witches and steampunks as possible.

In a land far from the forests, a desert with nothing living in it, another ancient creature stirs. The dinosaur wakes and looks at the sky, the day has finally come. He stretches and starts walking towards a cloud of steam hanging over a city far in the distance.

The angels see patterns in the magic, and start putting together a team to investigate the issue. Especially since they are starting to have some of their magic drain away, which eventually could cause a crash of their floating cities. They will not stand by while the witches and steampunks take the magic they need to live.

Small scale battles start to happen between the witches and steampunks. Encampments start being destroyed on both sides, the super fairy is responsible. The angels go after the armies on both sides. The witch boy meets the angel girl and they team up. The steampunk girl and the dinosaur meet and she joins up with him to go find the super fairy.
The heroes get stopped several times and win conflicts. They meet up and finally realize that the super fairy is what causes many of the border incidents. They decide to go stop it. The dinosaur protects them from the pursuing armies so they can go deal with the super fairy without getting captured by the more shortsighted armies.

The heroes succeed and are able to put a stop to the fairy's rampaging. The armies of the three races stop attacking when they see the heroes coming back with the super fairy. And they all lived happily ever after.

**Backstory:**
Tensions between races have been high, and a series of incidents at the borders have caused the tensions between the witches and steampunks to escalate. The angels have tried to intervene, but only made the situation worse.

The witch boy has decided to explore the wild, partially because he doesn't want to do his next large project, but mostly because he is fascinated by the elements in nature. And he is slightly interested in the steampunk technology and the angels, though he thinks they might be just a myth.

The steampunk girl is on the run from her latest heist, not only did she manage to successfully steal a steam gun, but she was able to skip supplementary lessons as well. Two birds down with one stone. But this time maybe she went too far. She is going to have to run for a lot longer than normal to escape these pursuers.

The angel girl is playing on a low cloud when she sees a group of witches moving through the edge of the forest. She decides that she is going to see what they are up to. She follows along and eventually gets bored enough that she just walks right up to the group, and asks them what they are doing. They look at her like she's crazy.

**Narrative Devices:**
The story will be told from the viewpoint of 3 different characters all running parallel at the same time. The player will be able to choose any character to progress their story, and all the characters stories will intertwine. This will allow different tones of storytelling to be integrated together to further emphasize the cultural differences between the 3 races.

The player will be able to unlock additional parallel stories with multiple main characters by progressing each individual characters story far enough.
13. The Game World:

The World:
The Game World is a fantasy setting, where faeries, magic, witches, humans, and angels all exist. Magic is used by all 3 races but is a limited resource in this world, something that all 3 races know. The magic in this world is concentrated in pools, or magic wells filled with water. These pools are the gathering places for faeries, which are used by each race to fight.

Witches:
The witches are a tribal society that is rooted in tradition. The witches had a kingdom to themselves long ago, and to this day hold onto fragments of their former glory, from attitude towards other races, to their style of dress. The witches believe that everything has value, that they should live with nature, and waste nothing. The witches have a very community centric mentality.

All witches are capable of using magic, and thus every witch is able to fight. However witch populations are fairly small in comparison to humans.

The witches goal is currently to gather as much magic as possible to prevent the proliferation of the steampunks. The witches view technology as unnatural which causes tension with the steampunks.

The witches were the first race on the planet and controlled a great kingdom. Any witches that were experimenting with technology were banished, and their magic stripped from them. These former witches kept working with technology and eventually formed the steampunk society.

The color palette and visuals of the witches will be gothic lolita dress for females, and a more court noble style for males. The colors will be forest themed, with natural tones and shimmery effects. The colors include darker colors, green, purple, blue, and brown.

Steampunks(Humans):
The steampunks are the newest civilization by far out of the 3 races and are very much an industrial revolution and forward progress culture. As they are steampunk, they use steam powered incredible technology, everything from airships to generators that use magic water from the pools.

The steampunks see themselves as the new great empire, one that is replacing the witches. Because of this they see themselves as having the moral high ground in relations with the witches.
And the steampunks are ambitious, to the point where the ends justify the means.

The steampunks are not completely united, there are factions within the race. One of the factions believes that they should join with the witches and combine the powers of each race, and forgive the past trouble. A different faction believes that the steampunks should take over the witches, and the witches still need to pay for the banishment they did to the steampunks long ago.

Steampunk society is ruled with a republic system of government, which has lead to ruthless politics. Everything must be for forward progress, and each city state is its own republic.

Steampunk technology is very gadget oriented with a sort of hodge podge of different pieces of technology that are working together. Many steampunks have goggles that allows them to see magic.

The art direction and visuals for steampunks will have a very heavy gear theme. The color palette will consist of metallic tones, copper, steam, and possibly turquoise or emerald.

Angels:
The Angels a divine and self-righteous race. They do not consider themselves holy, but they do consider themselves holier than the steampunks and witches. The have a very regal culture.

The angel society works with a rule by a council of elders system. It is also a social taboo to tell a lie, so angels lying is a very rare thing to happen. A lie by omission is far more common. The angels tend to say only what is necessary or what that person needs to know.

The creation of the angels is shrouded in mystery, but it is hinted that it was a bit of a dark origin. Only the elders know for sure what happened.

The angels make use of magic with statues instead of generators or crystals.

The artistic direction of the angels is sort of toga style clothing, more flowing robes. Halos and headwings along with jewelry to decorate the head of the angels will be there. Elders will have halos, which indicate seniority and experience, and are developed with age. The color palette will include pearl, cream, crystal blue, and yellow. Sunset, night, and dusk colors will also appear. Sky colors, and the colors in a thunderstorm will be used to complement the normal colors.
14. Media List:

**MVP:**
The following consist of a detail list of all the art assets required for the minimal viable product.

**Technical Game Art Assets:**

- Game Interface:

1 - Official Puzzle Defense Title Screen:
   - Intro Game Screen Logo.
   - Official “Magic Circle” Logo.
   - Loading animation bar.
   - Intro cheerful looping music.

2- Main Menu:
   - Campaign Button
   - Custom Game Button
   - Options

3 - Options:
   - Game Controls Button
     + Game Control Screen:
       - Up
       - Down
       - Action #1
       - Action #2
       - Spell #1, Healing Effect.
       - Spell #2, Shuffle Orbs Effect
       - Spell #3, Remove Orb Effect
   - Audio Button
     + Audio Screen:
- Sound Effects Volume:
  - Toggle check mark
  - Slider
- Music Volume:
  - Toggle check mark
  - Slider
* Video Button
  + Video Screen:
    - Screen Condition:
      - Window.
      - Full Screen.
    - Screen Resolution:
      - 1920 X 1080
      - More Resolutions
* Difficulty Button
  - Easy
  - Medium
  - Hard
4- Campaign Mode:
* Witch Race Logo
  - Witch Font
  - Steam-punk Race Logo
    - Steam-punk Font
  - Angel Race Logo
    - Angel Font
  - World map
- Consisting on the a general overview of the game world consisting containing the Idyllic Forest, the Urban Metropolis, and the Floating Utopia.
- music for class specific.

- Game-play art assets:

1 - Witches:
* At least one Witch character
* one concept art for the Witches.
  - Four to Five Head Proportions minimum
  - Clothes:
    - Female Versions:
      Lolita Fashion Dresses. Includes quality garments, in which the silhouette is of a knee length skirt or dress with a 'cupcake' shape assisted by petticoats, but has expanded into various types of garments including corsets and floor lengths skirts. Blouses, knee high socks or stockings. In addition, they all wear a small unique witch hat that fits with the outfit that they are wearing. Due to living with the nature of their environment, the majority of their clothes is made out of natural fabrics from forest such as leafs and cotton. They wear make up thanks to their magic manipulations.

  - Male Versions:
    Noblemen fashion: blue jacket with wide lapels and a golden trim, the sleeves have large cuffs. Wearing a slim grey shirt with gold buttons. It might be a ruffled shirt, or he may be wearing some kind of crevat. His trousers match his his jacket, being blue with gold trim. Usually wears regular leather boots.

  - Hairstyles:
    - Female versions:
      Most of the women’s hair color consist of dark pink, green, orange or light blue, grey, purple. A few of women had contrasting color highlights. The characteristic of their hair are Long, curly, groovy, sophisticated, dramatic and provocative hair styles.
The hairstyle of the male witches matches with their costumes. Curly, short, with mainly dark color like dark purple and dark blue.

- Color and Tones:
  Include light dark colors, such as purple, orange, green with a small touch that illustrate cheerfulness and playfulness setting.
  * one concept art for the Idyllic Witch Forest.
  - Environment illustrating how the witches inhabit their culture: Idyllic Forest

Natural fantasy bulky forest where leaves vary in color from green, yellow, light blue, purple, and light purple color. The witches inhabit inside big house trees. Their houses are usually two story building, where the tree ramified the house structure. The way to access the top floors of their houses is by climbing a spiral stairway, where the handrail is cover with leaves and flowers. The area is inhabit by friendly forest animals, and also dressed in rich and beautiful flower gardens. Their primary location is in near lakes that contain abundance of elemental faeries for the source of their power. The fairies in these lakes are non-human like shapes, and are basically noticeable big glowing “fireflies” from a distance. One of the most iconic building structured is the Magic Witch Academy, where young witches are educated in the arts of elemental magic. Inside the Witch Academy, there are several elemental faerie pools, where the witch students practice their magic.

* Sprite Art:
  - Moving animation; Up and Down
  - Stunned Animation.
    - Stunned Sound Effects
  - Action 1: Collect Orb Animation.
  - Action 2: Throw Orb Animation.
  - Source of Power: Mana Crystals
    See description of Mana Crystals in the “basic gameplay” section for a visual representation. Their color values can changed depending on the witch, using pastel colors. As they take damage, they crystal
start to deteriorate until they are completely destroyed. During the process of taking damage, they radiate a glowing effect, which symbolizes that the mana crystal is leaking the source of power from the witches by radiating in pulsing particle colors with respect to the color associated by the witch.

- Victory Sprite Animation.
- Defeat Sprite Animation.

2 - Steam-punk:
   * At least one Steam-punk character
   * one concept art for the Steam-Punk.
- Four to Five Head Proportions minimum.
- Clothes:
  -Female:
    They are primarily known because they wear goggles, usually smaller goggles than the steam punk men. Their dresses vary from corsets, leather jackets or raincoats, leather gloves, leather boots, several belts wrapped around their neck, arms and legs, and plenty of gears accessories. They also carry small vapor guns in which the ammo they used is made out of elemental faeries magic.
  -Male:
    Most of the men their head covered in flying headgear, construction hats, or newsboy hats. They wear holster harnes, collar shirt, cargo or overalls pants, heavy Tool-belts, thick boots, and lost of gears and gadgets accessories. A few men with class wear ties and waistcoats to work. The men who work for the government are classified as soldiers who are allowed to carry riffles in which their ammo is made out of elemental faeries magic, The suits of the soldiers are typical desert storm soldier outfit.
  -Hairstyle:
    -Female:
      The hair of the majority of women consist of blonde, brunette, and red-hair of various sizes. Usually they have their hair comb in pigtails, ponytails, Buns, or French Braid.
-Men:
The majority of men’s hair is any variation of brown or dark color. There are also several men with blonde traits. More than half of the total population of men have mustache and long and thick beards. It is a custom to dress some small gears in their mustache and beards

* one concept art for the Urban Metropolis.

Big urban metropolis city, where the majority displays big corporation buildings, and protected by a long and high tech border that protects the city from outside dangers. It displays a lot of movement with transportation for steam-engine trains and a lot of zeppelins ships traveling above the skies. There is a lot of steam smoke coming from this industrial sector, as they are in consisting extraction of power from the elemental faeries wells. Overall, the city has a clear division of the lower, middle and high class economic structure. The majority of the steam punk citizens are classified as lower class, inhabiting urban streets. There are a few rivers of elemental faeries streaming by the sewer. The Middle Class have priority steam engine train transportation, and better access to malls, restaurants, and services. They have better living conditions, but overall the streets display a lot of advertisement. The High Class consist mostly of government, military officials, and entrepreneurs, where their mayor privilege is the floating zeppelins.

* Sprite Art:

- Moving animation; Up and Down
- Stunned Animation.
  - Stunned Sound Effects
- Action 1: Shoot Orb Animation.
- Action 2: Sacrifices Orb Animation.
- Source of Power: Steam-Engines

Basically a small mechanical steam engine consisting of a wheel rotational mechanisms which produces steam power for the steam-punk engineers. As the steam-engine takes damage, it displays a pulsing red gradient shading and spits small steam gas leaks in
random directions. The color and tone of the steam engines is cooper, blue eyes, grey, or silver.

- Victory Sprite animation.

- Defeat Sprite animation.

3 - Angels:
* At least one Angel character
* one concept art for the Angels.

- Four to Five Head Proportions minimum.

- Clothes:

  - Female:

    Silky vibrant dresses or Greek like robes. The older the angle the more noticeable their halo above their heads. They possess a pair of feather wings attached to their backside that they use for flying above the sky. They wear fine gold-like or silver-like jewelry is displayed in their necks, their belts, and their hands.

  - Male:

    They have their bodies covered by long robes, and in the later middle ages they often wear the vestments of a deacon, a cope over a dalmatic.

- Hairstyle:

  - Female:

    The majority of the angel women have long or medium blonde hair, but there are exceptions. Their halo glow overall affects their hair color too.

  - Men:

    The hair color of the male angels is mainly blonde, and they have long hair. Soft, fluffy, and shiny are the characteristics of the hairstyle of the male angels.

* one concept art for the Floating Utopia:
Floating utopia city above the rest of the world, laying below a big and thick cloud, where only those who have wings can gain easy access. The Utopia city consisting of tall elegant building made out of marble and fine tile. Their city is the most cleanest and organized out of the other races. There appears to be a lot of long bridges connecting between different floating cities clouds. The way for transportation is primarily by their angel wings, but they also preferred walking in the city streets. Most of their building, display flags and banners with the angel class with pride.

* Sprite Art:
  - Moving animation; Up and Down
  - Stunned Animation.
  - Stunned Sound Effects
  - Action 1: Swap Orb Animation.
  - Action 2: Toggle Orb Animation.
  - Source of Power: Shrines of Balance
  - Shrines of Balance, or statues of either a set of balanced scales or an angel holding a scale. The statues as they take damage, will start to have more cracks and possibly limbs falling off. But as the damage progress the statues start turning to mist that form a shape of the angel nearby the statue. The colors go from the angelic white marble colors, to a more grey thunderstorm colors when severely damaged.
  - Victory Sprite animation.
  - Defeat Sprite animation.

4 - Game-play Music:
  - Battle Music
  - Victory Theme Music
  - Defeat Theme Music

5 - Elemental Orbs:
- Fire Elemental Orb:
  - Fire Elemental Faerie
  - Projection animation for the Fire Faeries.
- Wind Elemental Orb:
  - Wind Elemental Faerie
  - Projection animation for the Wind Faeries.
- Earth Elemental Orb:
  - Earth Elemental Faerie
  - Projection animation for the Earth Faeries.
- Water Elemental Orb:
  - Water Elemental Faerie
  - Projection animation for the Water Faeries.

6 - Spells:
- Animation for Spell #1, Healing Effect.
  - Pastel Color radiation circle pulsating to nearby Source of Power
- Animation for Spell #2, Shuffle Orbs Effect
  - Shuffles all the elemental orb from the opponents player’s Puzzle Board
- Animation for Spell #3, Remove Orb Effect
  - Removes one type of elemental orb from the player’s Puzzle Board.

- We are aiming to also include the following features:

  - Several Non-Playable-Characters: Anthropomorphic characters, such as the Dinosaur bosses as an NPC.
  - Concept art for the anthropomorphic characters.
  - Overall short bio.
**Future Assets:**

**Medium Priority Art Assets:**

*Technical Game Art Assets:*

- **Tournament Mode:**
  - Background screen.
  - Start Tournament and Back Button.
  - 8 Bracket Tournament.

- **Shop:**
  - Purchase Game Currency.
  - Home Page
    - Item Offer Screen Section
    - Discount Screen Section
    - Featured Item Screen Section
    - Top Seller Items Screen Section

- **Customs Skins for Playable Characters (PC):**
  - Holiday skins and/or costumes to be sold on exclusive dates for the following holidays:
    - Valentines Day
    - St. Patrick's Day
    - Thanksgiving.
    - Halloween
    - Christmas
  - Non-playable characters (NPCS) to be sold as playable Characters (PC):
    - Dinosaur Revel, Raw.
    - Beer drinking Cowboy. Mrs Sandstorm.
    - Cooperate Fat Cat, Maquiavels.
    - Border patrol steam- punk soldier, Brent.
- Zeppelin Pilots Engineer, Mr Pawlina.
- Really Cute Witch Baker, Ms Mickie.
- Pyromaniac Fireworks shop witch owner, Hothead.
- Well Respected Witch teacher, Ms Marbella.
- War Veteran Steam-punk Engineer, General Solidor.
- Well Respected Angel Father-Figure, Mr Weiber.
- Highly Educated Smart Angel Sister, Mr Midwalker.
- Angel Division Military Captain, Sontz.
- Angel Blind Harp Musician, Sonra.
- Pimp Daddy, Sugar Mage, Eddie.
- Steam Engine Robot, Makey.
- Super Faerie, Akemaj.

- Redeem Code Section for special events

- Pets:
  - Official Digital Pets:
    - For the Witches: Broomsticks, stereotypical faeries.
    - For the Steampunks: miniature steam engine robot, a small steam engine train.
    - For the Angels: Dove, Cute Cloud, etc.

- Bundles Gifts

- Back Button

- Profile:
  - Character Avatar Display Screen
  - Win / Lose Ratio per category
    - vs Friends
- vs Strangers
- vs Tournaments
- vs Co-Op Play

- Customization Button:

Character customization for all the three classes.

- Custom Color for the clothing.
- Custom Hair: shape, style, length, color, brightness, styles
- Custom eye color, shapes, style.
- Custom height and weight proportions.
- Specific custom clothing items: For Witches: Custom hats with different styles and shapes.
- For Steam-punks: Custom goggles, headgear, gadgets, and strap belt appearance.
- For Angels: Custom feather with different wigs shapes and styles.
- Custom jewelry for head-crown, earnings, bracelets, and belts.

- Achievements:

Examples include:

<Pwn your friends>

= Win 1, 5, 10, 20, 50, 100 of your facebook friends in matches.

- Unlocks "Best Friends" Title

< Pwn the noobs>

= Win 1, 5, 10, 20, 50, 100 of strangers queues matches.

- Unlocks "Social Champ" Title

Low Priority Art Assets:

- EGGS For the
- Super faerie
- Pimp Daddy
- Elemental Cube Orb

## 15. Sound Assets:

<table>
<thead>
<tr>
<th>Name</th>
<th>When it plays</th>
<th>Link</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collect</td>
<td>a player (witch) collects an orb</td>
<td></td>
</tr>
<tr>
<td>Cant_collect</td>
<td>a player (witch) can’t collect any more, or can’t collect a different color</td>
<td></td>
</tr>
<tr>
<td>Cant_return</td>
<td>a player (witch) can’t return the orbs</td>
<td></td>
</tr>
<tr>
<td>Return</td>
<td>a player (witch) returns the orbs</td>
<td></td>
</tr>
<tr>
<td>Attack</td>
<td>a match goes off for an attack</td>
<td></td>
</tr>
<tr>
<td>Shield</td>
<td>a match goes off for a shield</td>
<td></td>
</tr>
<tr>
<td>Damaged</td>
<td>the health of player is damaged</td>
<td></td>
</tr>
<tr>
<td>Stunned</td>
<td>stunned effect</td>
<td></td>
</tr>
<tr>
<td>Attack_shield</td>
<td>attack fairy collides with shield fairy</td>
<td></td>
</tr>
<tr>
<td>Attack_attack</td>
<td>attack fairy collides with attack fairy</td>
<td></td>
</tr>
<tr>
<td>Heal</td>
<td>player heals their crystal</td>
<td></td>
</tr>
<tr>
<td>New_column</td>
<td>new column is added</td>
<td></td>
</tr>
<tr>
<td>Choose</td>
<td>the selection box moves to another character</td>
<td></td>
</tr>
<tr>
<td>Shoot</td>
<td>a player (human) shoots the orbs to the board</td>
<td></td>
</tr>
<tr>
<td>Sacrifice</td>
<td>a player (human) sacrifice the orbs in his hand</td>
<td></td>
</tr>
<tr>
<td>Change_orientation</td>
<td>a player (angel) changes the orientation of the selection box</td>
<td></td>
</tr>
<tr>
<td>Exchange</td>
<td>a player (angel) exchanges the two orbs inside the same selection box</td>
<td></td>
</tr>
<tr>
<td>Move</td>
<td>a player moves up and down</td>
<td></td>
</tr>
<tr>
<td>Start</td>
<td>a player presses the start button</td>
<td></td>
</tr>
<tr>
<td>Help</td>
<td>a player presses the help button</td>
<td></td>
</tr>
<tr>
<td>Race_decided</td>
<td>the players decided their races and enter the game</td>
<td></td>
</tr>
<tr>
<td>End</td>
<td>the game ends</td>
<td></td>
</tr>
</tbody>
</table>
16. Technical Specifications:

1. Technical Analysis
The game is not developing any new technology or algorithm in this game. The game is using a new web programming language called HTML5 that will replace the web programming language html. The game might involve us to develop our own game engine depending on outside factors such as support from Google and them giving us their own engine that they are developing. If they do not give us a copy of their game engine, then we could use the funds from them to buy a game engine from the web that are being developed by other groups or individuals. The risks in using the new HTML5 web language, is that it is still in development, therefore it is unstable. With the language being unstable, the changes in the language might affect our game in the future. Therefore we will have to update the game to keep up the pace of HTML5.

The platform the game will be on Facebook website and the new emerging social services platform, Google Plus. Along with the use of this platform we will also use the new HTML5 language. HTML5 language is still fairly new and not all web browsers support the use of HTML5 code. Also it is an unstable language since it is still being developed. Our team is considering of using a game engine for our game to run and support the game we are developing.

The technical specs of the controls uses the w,a,s,d keys and the number keys as well. For the menu interface controls, we might use mouse and possible the w,a,s,d controls as well to allow the player to navigate the menu pages.

1. Technical Analysis
   - New Technology being developed?
     - Using html5 to develop our game. Using the new integration of html5 along with javascript to program the game.
   - Major Software Dev tasks (do we need to license anything to get the game off the ground?)
     - Possible need a game engine depending on our game's needs.
   - Risks
     - Stepping into unfamiliar territory of javascript programming and the html5 language.
   - Alternatives that we could use, that would be easier (as a backup probably)
     - Unity engine or the google engine that google is developing.

2. Development Platform and tools we’re using
1. Using google plus and facebook for the development of our game. We will be using the new html5 to develop the game. We might be using a html5 engine that google is developing for google plus. We are using basic editors such as notepad++ for editing.
2. Delivery of the game and how we will do that.
3. Game Engine
Do we have one?
- We don't have a game engine. We are hoping to get one from google who are developing an engine.
- If we do, what are it's technical specs, how is it designed, and how does it handle things such as collision detection.

5. Technical Specs of the Interface
6. Technical Specs of the Controls
7. Lighting Models (don't think our game needs this)
   - Our game won't use lighting models.
8. Rendering System (don't think our game needs this)
9. Internet/Networking Specs
10. System Parameters - Describe all of our maximum parameters and what our system should be able to handle such as
    - Max Players
      - Handle up to six players at once for the arena mode gameplay.
    - How many servers will we have
    - How are we saving games
      - Each accounts through facebook and google plus will have a save file.
    - How are we loading games
    - Can they customize things
    - etc.
    - The game will need to handle lag issues between players or group of players. The system will also need to make sure it cleans up unused memory that are left behind the game so that we can have clean performance. Clean performance as in the smooth running of the game no lagging and missing images due a collection of unused memory that are left behind in the game. The game will also need to handle a history of players versus players as well so that players can check the players who they fought against.

11. Other things might be manuals or installation setup.

The game will require HTML 5 support from web browsers. The install setup will be in the future for updates for browsers such as Mozilla Firefox, Internet Explorer Microsoft, Google Chrome, and Opera. However these updates and setups are not within our control, but instead in the control of the companies that maintain the browsers.