bASS 9: EFENSE

Post-Mortem Report

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# *Design History*

Ver.	Date	Author(s)	Comment
1.0	10/14/17	Swapnil Tutis James Filip	Initial game design established and agreed upon.
1.1	10/23/17	Filip	Post alpha Revisions: - Cut the number of planned levels from 6 to 3 to focus on a more polished user experience. - Changed timeline to include time for polishing the UI and core gameplay mechanics. Pushed later level development into later weeks. - Player movement changed to include 'wasd' option. - Added a short tutorial level before the first level to introduce new players to the mechanics of the game.
1.2	10/30/17	Filip	- Simplified the resource system so that instead of a gold and mana resource we have a "flow" resource. This resource will be used for building towers and using abilities - Major rebalancing of levels
1.3	11/07/17	Filip	Post-beta revisions: - Added option for left click for attacking - Added range indicator for tower placement - Added tooltips - Redefined artwork & sprites of Modern era
1.4	11/14/17	Swapnil Tutis James Filip	Final tasking revisions: - Refactored final weeks goals to accommodate more for quality of life and balance changes - Generalized final week goals to allow for feedback systems and possible dynamic level reworks

Alpha Results

How clear are the rules of the game to understand?
8 responses
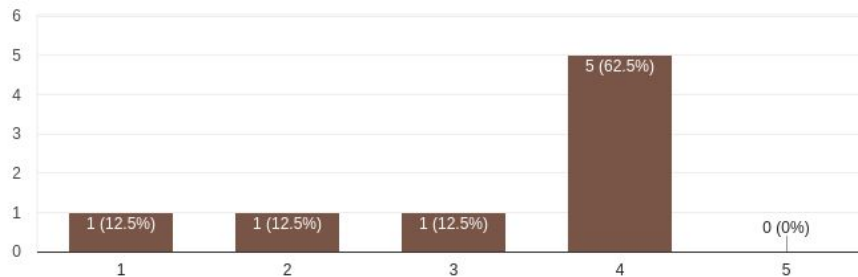
The initial question in our alpha survey asked our users the most basic question after first playing a game; how clear they found the rules/instructions for Bass Defense7. We, as the developers, understood that Bass Defense was different from traditional tower defense games. Therefore, we knew that the users would make certain assumptions that were true about tower defense games, but not necessarily for Bass Defense. Therefore, we specifically felt required to ask them for feedback.

The results showed that the instructions were mostly clear, but there was room for improvement. Although a majority of the respondents said that the game was easy to understand (62.5%), there was a significant minority that said that the game was difficult to understand. We had a mix of different types of gamers that came to play our game during the alpha test. In the observations we made during the play test we noticed that we noticed that the players with less experience playing tower defense games had a difficult time understanding the game while those with more experience found the game's rules to be intuitive. We concluded that the minority of respondents that said the game was difficult to understand where the players that had little experience playing games. Thus, we decided we needed a more polished UI to help them understand the game.

How difficult was the game?
8 responses
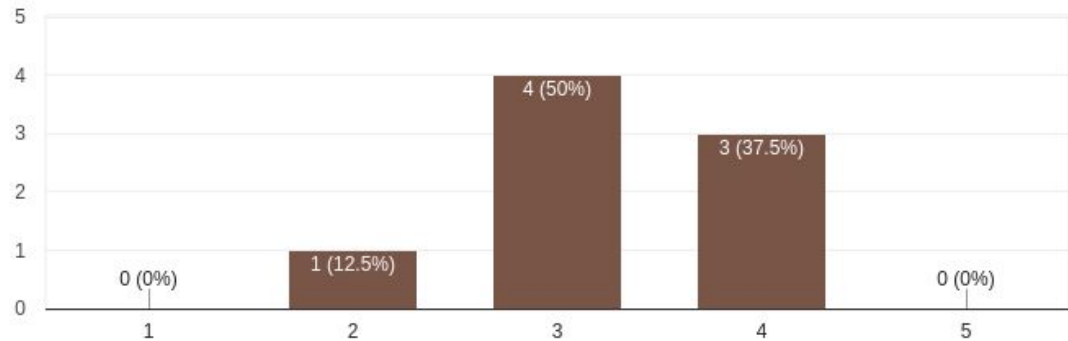
We were curious if the game was challenging enough for the players to figure out a strategy to be able to complete the level. We had the users attempt Bass Defense for around five minutes and tell us how difficult they found it. The scale for difficulty starts at 1 and ends at 5 and is from lowest to highest difficulty, respectively.

The difficulty of the game averages in between a 3 and 4. However, this is an ideal difficulty as we do not want to game to be too tough nor too easy. We believe the difficulty ratings we received were due to a lack of understanding of game mechanics rather than actual gameplay. During the play test, the players that were more experienced with tower defense games were able to figure out the controls and mechanics of the game This caused them to complete the level smoothly. Those who struggled with the controls and mechanics had a difficult time completing the level. We were able to make two conclusions from this.

The first conclusion being that there was a problem communicating the mechanics and controls to new players of the genre. This is what led to the perceived difficulty in the game. We decided we needed to implement a more polished UI to better explain the controls and mechanics of the game.

The second conclusion we made was that once an experienced player figured out the controls and mechanics, the game became too easy. We thought that once we make the game controls more understandable, most players would begin to find the game to be too easy. We needed to rebalance the levels to make it more challenging.

Was the theme of "History" apparent?
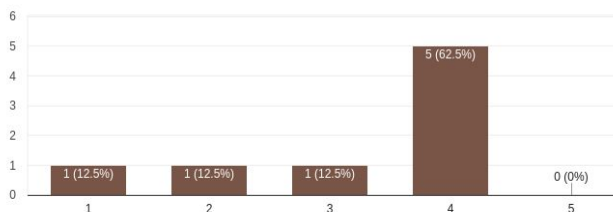8 responses

- Yes
- No

87.5%
12.5%
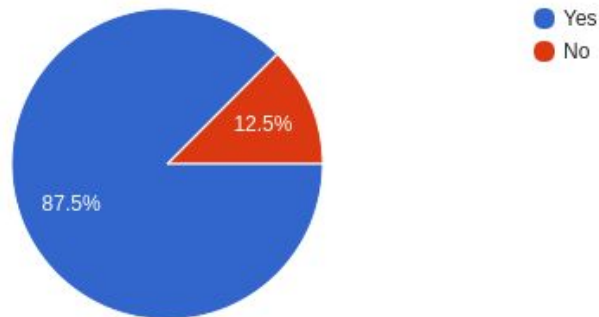
As the theme of this game is history, we believed it was of utmost importance to ensure that the players feel the historical relevance. Our plan was to start with the early stages in human musical talent by using the primitive instruments as towers. As the levels progressed into the future, we changed the instruments and the themes of the level to match the environment at that point in history. We believed this is a great idea, and our users also seemed to think so too, which was to our satisfaction.

Beta Results

Alpha

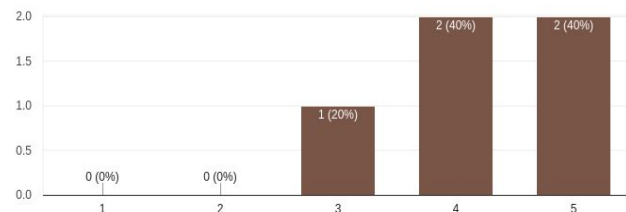How clear are the rules of the game to understand?
8 responses

Beta

How clear are the rules of the game to understand?
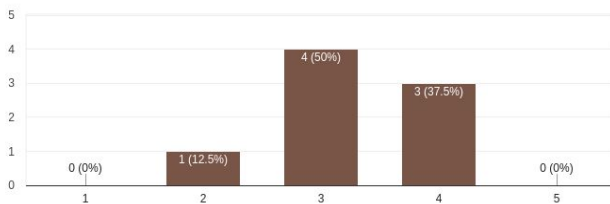5 responses

Similar to our alpha survey, our first post game question asked how clear the player found the rules, "1" being difficult, and "5" being very clear. Having the same question on our post-alpha survey allowed us to notice a rightward trend towards the controls being more clear. This was valuable feedback because it confirmed that our

changes to the UI and controls helped make the game more accessible. From the text followup for this question, it seemed that many people were still uncertain about the tower-placement UI and mechanics. We had decided that more UI polish was needed for an even better user experience.
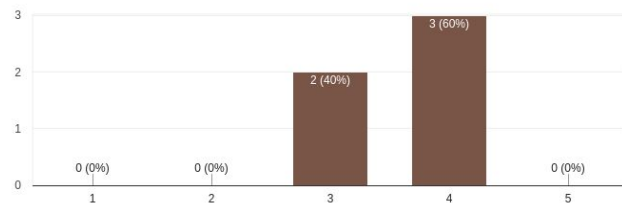
Alpha   **Beta**

How difficult was the game?
8 responses

How difficult was the game?
5 responses

After having played the game for at least five minutes, the distribution of difficulties were as shown, 1 being very easy, 5 being very difficult. This difficulty metric was indeed reflective of most playthroughs we saw. Compared to the alpha however, we had a less dispersed range of answers, meaning the difficulty was scaling better in the subsequent waves than before. The difficulty became more skewed to the right indicating that game became more harder for the players since the alpha.

Did the game get difficult at the right pace?
5 responses
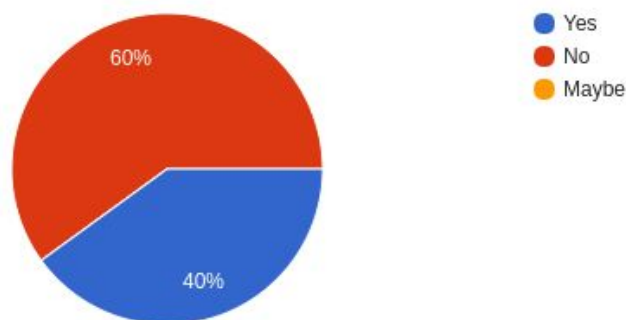
This graph shows that most players felt the game did not get difficult at the right pace. These results looked very similar to our alpha playtest results. We feel that according to our player feedback, the addition of more waves in the prehistoric era led to a more

gradual difficulty curve that is more enjoyable to players. Nonetheless, 100% of players stated they would attempt more levels.

Was the theme of "History" apparent?

5 responses
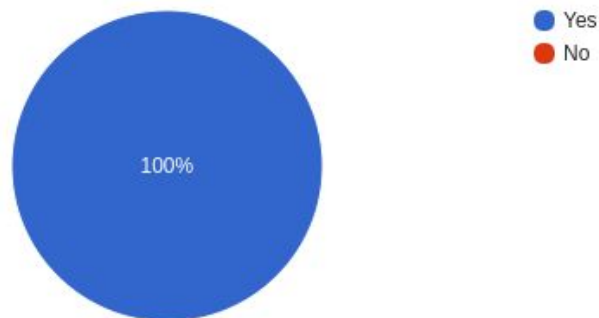
All players saw the theme of history as apparent, stating "musical history" and "music" as the most evident historical themes. From the qualitative aspect, our post game survey shows that for many players, their favourite aspects of Bass Defense were the variety in buildable structures, the ability for the player to attack directly, and the original music/artwork.

On the other hand, many players' least favourite aspects were the player movement, and the rate at which the difficulty increased. A point noticed in many game playthroughs were suggestions for adding additional UI elements for tower placement, and adding feedback for various player/enemy effects. We also had a number of complaints about the character movement. Since the alpha we had added the option for using the keyboard to move around the level, instead of having movement solely controlled by the mouse. Some also felt that the movement of the player was unresponsive and too slow.

Design & Development

The design and development changes made to the initial ideas of Bass Defense played a pivotal role in the final product. The key features of the game represent both the introspective design process followed, and the greatest strengths of the developers. Before starting this project, the entire team had extensive experience in group projects and what skills and practices were necessary to ensure success of any team.

Our team made efforts to maintain a scrum-like development process. Each week, we would define development milestones which we would like to have done, and at the end of each week we would adjust future goals given our experiences from the previous week. Such a development process allowed us to keep a consistent development pace and allowed for a great deal of introspection on how previous week's work and design decisions.

What Worked

The most significant contributing factor to success was the fact that we worked on the management and structure of the project. From the beginning, we made it clear as to what is not only needed for the success of this game, but also what is important to each developer. We set up a clean design for the game, and had that lead to proper development as the semester progressed. Alongside, the theme of history was something that we did not want to stray away from.

The player attack mechanics and abilities kept the game pace constant; as compared to standard tower defenses where there is often a lull in the pace. We believe our specific structure and communication skills lead to a perfect game for this course that matched all the requirements listed by the instructor.

With proper planning, came proper technical implementation. The classes, which are written in C#, are able to dynamically create new levels assuming the artwork is provided. We wanted to ensure importance was placed on this dynamic design as we wanted to create multiple levels. Therefore, we wanted to create a system where we

were able to easily do this to ensure the proper deadlines and milestones were met. The demos were one of the most heavily graded aspects of the course.

We believe our demos went very well and were always well prepared ahead of time. We ensured to have working copies of the game on all the laptops of the team ensured one was able to make it to class or not have the game working in-demo.

Our favourite part of the game, which also happens to be many user's favourite, is the dynamic music. When we say dynamic music, we mean in-game music that is played according to the towers placed on the map. For example, if we are in the modern era and there is a guitar tower placed on the map, the user will be able to hear a guitar playing in the background. This guitar soundtrack alongside other towers that are placed has the ability to generate creative music that can be very satisfying to listen to.

Finally in the list of pros, a subtle point but one we really made sure to pay attention to is the colours of the maps. We wanted to make sure the colours on the map contrasted well with another to ensure objects on the map were easily identifiable and the game had a great overall feel.

What Did Not Work

Although we believed this would be the biggest pro of the game, map generation turned out to be a concept that took developer time, but was not well represented in the game. Our idea was to implement a system that intelligently created maps using mathematical calculations and bits of computer science graphing theory. These concepts put together were aimed to create consistently clean and fun maps for the user. Although we were able to generate maps, we believe they were of a lower quality to the hard coded maps created by the developers. We believe more time could have been spent on this feature to really be able to showcase the work to the user.

Currently, the way the movement system works for the artificial intelligence in the game is to have a grid of nodes being generated. Each node detects the nature of the terrain underneath and determines if an enemy can walk through it. We use a path finding algorithm to determine a path for the enemy to take to the base. In our opinion, we have over engineered this system. The plan initially was that enemies would be able to dynamically change its path to avoid the player and that the player would move around

the grid similar to the AI (i.e. avoid obstacles, find the most efficient path). We scrapped both these ideas during development. It would have been simpler to make the paths generate their own nodes.

The system in which the user interface is created is not built optimally as the integration is separate from the map. We believe the tooltips and ability bar should be integrated into the script code to be more easily refactorable.

The overall story of Bass Defense shows a clear transition of music throughout history, but we believe a better approach exists. One approach would be to create a story of sorts with the story transitioning through history with the same character to help the player feel more involved and a part of the story.

From the project proposal we had envisioned that this game would partly be a base building game, hence the name 'Bass Defense'. Through the development process, we wanted to implement this feature at some point. However, base building was always pushed back due to other features being a higher priority. Our goal was to first to create a complete game with some features completed, then to polish the game so that it is up to our quality standards. Finally, add more features if there was more time. Although we did have time to implement basic base building, we could not implement a wide enough variety that still met our standards.

The final issue we had was a non-efficient artwork generation process.There were times where we plan to create certain artwork, which a member of the team would draw out, but then not have that artwork used. This was due to the idea being decided not to be implemented as a feature. Therefore, there would be "wasted" artwork that was created but never integrated. We believe whenever possible, one should only create the assets once a feature of the game is finalized.

Future Directions

The development of Bass Defense has the potential to head towards multiple directions in it's future. The purpose of this project was to build a game that each of our developers would be happy to play, and we have done just that. However, as any piece of software can always be improved, we believe Bass Defense is no exception.

We believe the biggest area of improvement is the artwork. The artwork seems to be a bottleneck for the look and feel of the game. We believe hiring a game designer/artist would be highly beneficial to improve the gameplay, as well as the feel of the game.

Likewise, we would enjoy implementing a more immersive story driven experience. Having gameplay interleaved with relevant cutscenes giving additional story points would lead to players feeling a stronger connection to both their character and the gameplay. In addition the cutscenes would be able to explain the historical relevance of a certain historical period.

After artwork, a feature that can be worked on is the random map generator. We believe work can be done to make the generator a popular feature to players so they would feel more in control. This feature is also very cool in terms of implementation as the feature is exciting since there is a lot of computer science theory involved.

With many players having little experience with mouse-centric RPGs, we feel a more involved and well produced tutorial experience would allow for all players to enjoy the game as much our veteran players. Creating a tutorial screen with animated GIFs instead of text could more clearly explain the mechanics of the game before the player begins a level.

An additional gameplay feature we feel is worth exploring includes our base building system. Our initial ideas of the base building system were too ambitions for the scope of the initial project, and we would love to explore the results of more unique buildings.

Overall, the mechanics of the game are the strong points of this game and do not need as much work as the polishing of the artwork and smoothing of the gameplay. Alongside, smoothing out the music and how it sounds together will make this game stand out from all it's competitors and other tower defense games in it's genre.

Attribution Table

Name	Contribution (%)	Justification
Filip Fabiszak	25	UI
James Khan	25	Game Development
Swapnil Shah	25	Artwork
Tautvydas Navickas	25	Map Generation