

Tower Defender: Problem Statement

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Contents

1	Revision History	3
2	What Problem are you trying to solve?	4
3	Why is this an important problem?	4
4	What is the context of the problem you are solving?	4
4.1	Who are the stakeholders?	4
4.2	What is the environment for the software?	4
5	How are you going to solve the problem?	5

1 Revision History

Date	Developer	Change	Revision
September 20, 2017	Toni Miharja	Revision 0 initial draft.	Revision 0
September 21, 2017	Stanley Liu	Initial draft, team meeting	Revision 0
September 23, 2017	Stanley Liu, Toni Miharja, Zhi Zhang	Final draft, team meeting, latex formation	Revision 0
December 8, 2017	Zhi Zhang	Corrected grammar, added table of contents and revision history table.	Revision 1

Table 1: Revision History: Problem Statement

2 What Problem are you trying to solve?

As means of relaxation and refreshment, entertainment surely is an important part of many peoples lives. With the rise of technology, increasingly more people resort to video games on their laptop or phones as a way to pass time and entertain themselves. As developers and gamers ourselves, we aim to create a fun and intellectually stimulating game for the general public to enjoy. The game that we are creating will not only be a way to simply pass time; it will also help the user keep their brain active while having an enjoyable time.

3 Why is this an important problem?

While often underestimated, brain exercises to maintain brain health is highly paramount. Research has shown that actively sharpening the brain is key in preventing problems associated with dementia. With the increasing onset of dementia, as mentioned by Dr Vaibhav Tyagi, a renowned geriatrician, it is highly important for people to continually exercise their brain as early as when they are thirties. We believe the best way to do so in a fun and effective way is through games which the users can play during their leisure time.

4 What is the context of the problem you are solving?

4.1 Who are the stakeholders?

Multiple people will be related to the reproduction of this game. These people will include project leader, project developer, project tester, project advisors, and consumers. To be specific, the project leader, developer and tester are different roles assigned to team members. The project advisors are the teaching assistants and the professor for the course **3XA3**. The consumers will be the users who play the game after the launch and we are targeting teenagers and young adults specifically.

4.2 What is the environment for the software?

The users will be able to easily play the game by running an executable file. Acknowledging the importance of ease of use of the game, we believe an executable file is the easiest to access by users of all operating system. This requires us to export our game file to a

compiled binary executable as originally the user will have to get both python 2.7 and ~~pygame~~ **Pygame** installed to run the game.

5 How are you going to solve the problem?

With this problem in mind, we aim to create a game that encourages the user to think but at the same time is fun. Games that stimulate thinking, also dubbed brain games, bring many benefits to the users. They do not serve merely as a way to pass time; they encourage the user to learn the rules, apply them and win the various stages of the game in increasing difficulty. To put it simply, playing brain games for the brain is akin to doing aerobic exercise for the body.

As gamers ourselves, we note that one of the most popular game around that is both fun and encourage thinking ~~is~~ Tower Defence game. The theme of the tower defense game is mostly known as the classic war theme, with placing defensive structure like soldier, cannon or fortress on players territories to obstruct enemy attackers. It is widely known to be intellectually challenging and highly enjoyable by the gaming community. It challenges the gamers brain, making them think, remember the various rules of the games, and ultimately ~~strategize~~ **strategies** to win the game.

Moreover, to make the game more fun and enjoyable for the general public, we aim to design the game with middle-earth theme, leveraging on the extreme popularity of fantasy series like Lord of the Rings with people of most generation. The main feature of the game will involve defending a tower using dragons of different attributes(**fire, ice and poison**).Different types of dragon will have a type advantage over certain type of enemies, dealing more damage to the enemies by a designated multiplier.As the difficulty increases, the dragons can be upgraded by using the gold that the user earn from the enemies.We believe this theme will make our game unique and interesting for our users.

With the regards to the development of the project, ~~pygame~~ **Pygame** is going to be used. We would use the incremental and iterative software development method to break the original project into separate parts and have each developer working on it. For implementation, we will start with writing a simpler version of game, then develop it in depth. Meanwhile, we will collect customer feedback from our classmates in the course by having them play our game. We recognise that the process of the software development is the most important, not just completing the code. Hence, we aim to take care of every detail and encourage plenty of team communication to make sure everything is clear along the way.