**Hungry Shark’s Maintenance Plan**

**Team Shake Shark**

December 1, 2019

**Team Members**

Qingyang Dong

Jialei Zhou

Ziwen Wang

Feishian Tzeng

**Abstract**

The Software maintenance plan of Hungry Shark is responsible for continuous maintenance of game itself and spread the expectation of this game in the future development. Moreover, the idea of this game is to raise the awareness of ocean environment, which is a globe issue that occurring and influencing our plant in various way. We believe that the important part of programming is the humanities which added by programmer, and we hope our program can influence people and make the world better.

**Maintenance**

The objective-orientated programming (OOP) is applied on the entire program, which the maintenance can be perform faster than any other type of programming style. However, there are 45% of the code that are done in one file and 55% of the code are disturbed unequally in seven different files and the maintenance can be divide into three parts.

**1.1 Software Maintenance Part**

Since we use pygame as the platform to build the game, and as both computer language python and its wrapper SDL (cross-platform development library) pygame are upgrading and evolving.

This part requires maintenance to update the syntax and logic changed due to language evolved in the future. Moreover, in the responsive to client complain. The necessary changes such as game logic need to be made in this part, to suit client needs.

**1.2 Media Maintenance Part**

The game consist music and sounds are 8-bit (chiptune) music which released under the Creative Commons Attribution 4.0 (CC-BY) license, and pictures that are used in the game are cited in the WorkCited section. To keep the game running in a legal condition under federal copyright law, which requires maintenance to update the new licenses and correct citations for every element in the game.

**1.3 Game Theme Maintenance Part**

In order to keep humanity throughout game itself, this part of maintenance need to focus on the content of the game which suit the real-world changes such as what if there is less environmental pollution what changes can be made to this game? Some sorts of question that keeps theme in the line with the initial goad when we are creating this game.

**Cost of Maintenance**

It is essential of keep a game update, however the real-world question is everything will cost money. In order to keep everything under the budget and also update the game to suit the changes that section one discussed, the cost of maintenance is being divide into two parts.

**2.1 Cost for Hiring Developers**

图片包含 屏幕截图

描述已自动生成

Source 1: <https://www.codementor.io/blog/cost-of-hiring-full-time-and-freelance-software-developers-1nqgg7b19d>

As this bar chart (source 1) shows, to hire software developer can be as high as 240 dollars hourly for a high range developer or as low as 10 dollars hourly for low range developer. Moreover, as can be seen the large cost gap between region and the high opportunity cost of hire developer between ranges. Beside the qualities of each developer has in different regions and ranges, we are considering hire low range developer in North American. First, considering the program we have is a very light-weight python game, itself does not need any large update overtime. Second, even low price of developer may consider as very attractive, however to maintenance it oversea could leads to legal issue such as copyrights. Thus, to hire a developer will bring our budget from 0 to approximately 40,150 dollars per year (as if work two hours per day).

**2.2 Cost of distribution platform**

According to Pavel Drotár, there are five steps to release a game on Steam:

1. Register a legal entity (company) as a developer, complete with bank account information so that Steam can send you your earnings.
2. Pay the 100$ fee for publishing your game on Steam Direct.
3. Agree on price, provide promotional videos and images, description of the game for the store page, register moderator accounts for Steam game forums, decide on the structure of the forums for the game.
4. Deliver the game files to Steam (as per instructions which you will receive).
5. Set the release date.

Since the program is python game, the cost of distribution is 100 dollars for publishing the game on steam direct, and the purpose of this game is purely educational. Therefore, we consider this game is free for everyone to download.

**Expectation**

图片包含 屏幕截图

描述已自动生成

Source 2: <https://www.statista.com/chart/12211/the-countries-polluting-the-oceans-the-most/>

We need to fight for the clear ocean, it is the goal that we make this program. We believe that with the maintenance of this game no matter just a little bit each day, a lot kids will understand what is happening and to know what to do for our mother earth and we can work together to bring those number (Source 2) down!