Anusha Bhat (anushab)

15-112 R

April 26th, 2022

15-112 TP Design Proposal

*TP3 Update:

Playable game and implemented pathfinding. Also, updated graphics for better aesthetic (e.g. redesigned the start, instruction, and menu pages, and edited images in the restaurant page).

****TP2 Update:**

No changes in style of the game. Improved game infrastructure but do not have path finding and still have a few bugs in the code.

Project Description:

My project is "Paradise Diner", and it is based on the games Penguin Diner and Flo's Diner. There is one player who acts as the waiter, and customers enter the restaurant periodically. To fully serve a customer, the waiter must seat them, get their order, and deliver the food. A customer enters with 5 hearts indicting their patience level and if not served in a timely fashion, they will lose their hearts as their patience decreases. Once a customer loses all of their hearts/patience, they will exit the restaurant. The goal is to serve as many customers as possible with the game ending as soon as one customer is lost or when there are too many customers waiting in line.

Competitive Analysis:

Although this game operates fairly similarly to Penguin Diner and Flo's Diner, it has one key difference: levels vs. one round. Penguin Diner and Flo's Diner operate by having the player advance through several levels, however, my game will only have one round. A score can be kept each round so a player can play the game as many times as they want to beat their own high score (note that high scores are not stored in the program). There is also no source of income and ability to buy upgrades or furniture in my version of the game, unlike in Penguin Diner.

Structural Plan:

The final project will be organized into one python file. The functions written will be split into 3 sections according to Model-View-Controller (MVC). I will include model functions at the start which will keep track of things such as images for the graphics, score, location of the

waiter, and which page is currently open (home, instructions, menu, or the game page). I will also include the pathfinding algorithm and Customer class in the model section. Next, I will include controller functions to keep track of movement based on key and mouse presses and to keep track of time to execute game functionalities for the customers. Finally, I will include view functions that draw the graphics of the game.

Algorithmic Plan:

The most complex parts of the game is the pathfinding used for moving the waiter around the restaurant and the functionalities regarding the customers. For the pathfinding, I plan on using the Dijkstra algorithm. For the customers, I plan on using timer fired to call helper functions that can carry out the game functionalities, as well as writing a customer class that can track things such as a customer's order.

Timeline Plan:

By TP 1 I aimed to have the instructions page, the menu, the home page, and the restaurant's graphics working. I also implemented collision prevention between the waiter and the tables, a game over message, and a way for the player to restart the game. By TP 2, I plan to have a working game, i.e. I should have the customer functionalities working, a game that can end, and score tracking. By TP 3, I plan to finalize the aspects of my game and implement pathfinding.

Version Control Plan:

For each TP deadline, I will create a new python file specific for that deadline. I will transfer the code from the most recent deadline to the new file without changing any past files. This way I can reference past code in the event of a bug, or if a previous version was more effective at a particular function. In addition, I will back up all TP related files to my external storage hard drive. A picture of the drive is included below.

Module List:

I will not be using any modules in this project.