**15-112 Final Project Description**

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**Project Name:** Extreme Mini Golf

**Project Description:** It is a Mini Golf game which consists of many different types of game modes. I plan to include 10-12 golf courses with approximately 3-4 courses per difficulty level that are easy, medium and hard. Furthermore, there are two ways in which you can play this game, which are Single player and Multiplayer.

In Single player, the user has to unlock all the courses by obtaining stars in the previous levels. The first level would be unlocked by default. The user has the option to change the colour of the ball and to change his name. The user will adjust direction and power to direct the ball into the hole. There will also be a count of the score as each ball is hit. The score for each hole will be updated onto the scoresheet and can be viewed at the end of the level or on the main menu.

In Multiplayer, I plan to include the option of playing with a second player on the same device which would include turns between them. One player would start after the other. The two players have to select the colour of their balls to differentiate. In this mode, the levels would be unlocked by default so there will not be any stars. Instead the number of shots will be recorded and updated onto the score sheet. The player with the least shots wins.

I also plan to include an option of playing against A.I if it turns out to be feasible. This would be the same as the multiplayer above, the only difference being that it would be against AI.

I will also include an option of time trials where a single player has to hit the ball into the hole under a time constraint. Every time a level is finished, the time is saved and if at some instance the time to complete the level is less than the previous high score, the high score would be updated.

Regarding the difficulty, I will be adding special features into the courses to increase the level of hardness. For example, enclosing a course with water on the sides and if the ball drops in it, you start from the beginning but with the same shots. Rocks, moving objects, fake holes and troughs can be used to increase the difficulty. I might also implement slopes.

**Interface:** The first page would include a picture, title and menu that has the options to play single player or double player and the instructions of the game. When the single player is pressed, there would be options for single mode or time trails. Inside the single mode would be a list of icons representing each of the levels and the scoreboard for the game in progress if the game is not exited. In the time trails section, there would be a high score section that shows the top times for completing each level inside each level.

When a level is selected, the user will be prompted to enter a name and choose a colour for the ball. For single mode, the stars collected will be shown.

In multiplayer mode, the user will be asked to choose between 2-Player mode and Versus AI. When pressed the names and the colours of the balls have to be chosen and they can then proceed to choosing the levels.

**Gameplay Interface:** I would be implementing a 2-D layout for my golf courses with a boundary edge to ensure that the ball can bounce off. In difficult courses, I may remove the walls and add a lake or some discontinuity to make it hard. The user would have to press the ball and possibly drag the mouse to set the power and direction. Once the button is released, the ball is shot. Then either the second player does his turn or the original user takes his next turn. Beside each course, I will indicate the par (number of expected shots to complete the level) and the current shots hit as well. If it is a time trail, then a timer would replace the shot counter. To implement the stars, I will place the stars at some spots in the course that the player may be able to cross. If the ball hits the star, it is captured.

**Libraries to be used:** I plan to use Pygame, Tkinter and Turtle in this project.

**First Milestone:** I expect to be able to present a version of my project to my CA with all the levels developed, with the single and multiplayer modes finished. However, the AI part may take longer so may or may not be developed in time to give the demo. I should be done with the scoreboard and keeping track of the high scores and the stars collected. I should be completed with the interfaces for the game.

I plan on adding additional features like better graphics/animation and obstacles later on to include in my final project. The time trails and AI part would be developed by the time the final project is due.