

1. Topic Name (1 Mark)

Minesweeper

2. Why? (1 Mark)

- **Why have you chosen this topic?**

I have chosen to make the game Minesweeper for three reasons. The first is that it is a game that me and my dad played all the time when I was younger so when I was brainstorming ideas for this project and my dad suggested this, it just felt like a no-brainer. The second is that I felt that the challenging nature of recreating this game using tkinter as the GUI and the fact that the game has very random elements would make this a very fun project to undertake. The third is the potential for evolution down the road, there are a lot of things I can do later on like implement machine learning to solve the game automatically and various other things which will enable me to have something to keep my Python skills sharp whilst I am not in a Python class.

3. Main Goal (2 Marks)

- **You have clearly specified the objective of your project e.g. what does it do?**

The main goal for this game is to create a random “map” layout each time it is played, time the user whilst they play, allow the user to either dig up a tile or flag it if they believe a bomb is there, properly display numbers on the tiles which represent how many bombs are adjacent to each respective tile, keep track of the amount of bombs they correctly flag, inform the user whether they lost or won, display a local leader board at the end of the top 10 attempts by the user which stores their name, the time taken and amount of bombs correctly flagged by the user for each attempt and ranks them in terms of performance.

4. How to Use? (Clear specification of how the user should be able to use the program)

- **You have clearly mentioned the possible user input needed to run your program**

(2 Marks)

1. The user will click the start button.
2. The program will display instructions for how to play
3. The user will select a difficulty from the options: Easy, Medium, and Hard
4. The user will enter their name or alias for this attempt.
5. The program will generate a grid with the size and amount of bombs determined by the difficulty chosen and random bomb locations.
6. The user will be prompted to select their starting location.
7. The user will observe the numbered tiles which show the amount of bombs adjacent to each respective tile.
8. The user will select a tile and either dig it or they can flag it if they believe a bomb is there.
9. This will repeat until the user either wins by flagging all bombs on the map or they lose by digging a tile which has a bomb.
10. The program displays the users stats for the previous attempt.
11. The program displays the local top 10 leaderboard for that difficulty and asks the user if they would like to play again.
12. If the user selects "Play Again" the program will loop back to step 3, otherwise the program will quit.

- **You have clearly mentioned the expected output of your program (2 Marks)**

The output of the program will be a screen that shows the user if they won, the amount of bombs correctly flagged, and the time taken for the attempt. The program will then display the above mentioned leaderboard and prompt the user on whether they would like to play again, or quit the program.

5. Who? (Your group members names and student id) (2 Marks)

- **If you are working on your own you should only mention your fullname and student id**

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I will be working alone.