PROJECT #7

The Problem

This is your final project for the course 😭. You have options for this! Your first option is to build any application you want, however you do have to approve this project with myself (Lucas, ldd49) before trying to build it. This is a great opportunity to test out what you've learned in the course. If you have no creative ideas you would like to pursue, we have a backup project for you which is to build a Minesweeper game. If you don't know what this is, A you missed out on life, B you should find an online version and play now! The rest of the writeup will speak to this second option.

You have to seriously think about the design of this application! Think about how you want to model the individual squares and the board, both as data and on screen. How will you display each square on screen? How will you handle when a square is selected? How can you determine the number of squares that have mines around the one you have selected?

Requirements

1. Your first step is to place the individual squares on screen. Your game should be a square board, so start with a game that is a 8x8 grid of minesweeper squares. You will not want to do this in the storyboard, this should be done programmatically! This means the squares should be created with whatever content you want and the action and target programmatically.

2. Once you have squares on screen, you'll want to have a way for those squares to trigger an action to see if the square is a mine or not. If you trigger a square that has a mine, the game should end. Each square you activate should say how many squares surrounding it have mines. Playing the game online or elsewhere will show what you need to do in this step.

3. Make sure there is an option to start a new game. This can simply be a button that generates a new random board.

Challenge Problems

1. When you have selected all the squares without mines, the game should notify you that you have won.

2. Most minesweeper games have a timer to indicate how many seconds have passed since you've started the game. When the user wins the game, the score should be recorded at the current high score for the game.

3. Have different difficulties. You can add this by simply changing the board from and 8x8 grid to a 10x10 or a 12x12 etc.

4. Implement the feature in Minesweeper where if you select a square it will also uncover any adjacent squares that are not next to any mines. Most of the implementations will have this, but it is not required for you to implement.

Suggestions

Think about the model information each square should contain. How will you determine how many squares surrounding the clicked square has mines? The mine square views should be UIButtons, this will make it easy to use a label or an image to represent a mine or a number on the square. Buttons also can trigger actions so you should programmatically setup the button to trigger an action when it is tapped. If you can programmatically create your buttons (not using interface builder), you can also use UIView’s tag property to give unique identification to each square.