CIS 651 – Mobile Application Programming

Assignment #1

Due Date: 02/03/2024 (11:59 PM)

Problem (100 points)

Develop an iOS Quiz application (called myQuiz) that shows addition expressions when the user touches a "Play Again" button, and shows the corresponding solutions when the user touches a "Solve" button. The two numbers (consider them to be integers) to be added in the expressions should be randomly generated between 0 and 100 (`random()or arc4random_uniform()` can be used for random number generation). The expressions and solutions should be displayed using labels.

Requirements (100 points)

1. (10) You must adhere to the MVVM model, that is, you must implement a quiz model that holds your quiz data and the truth data will be reflected on your view via the SwiftUI framework VM.

2. (15) When the view of the application first loads, the expression label should say "Expression", the Solution label should say "Solution", and the "Play Again" button should just say "Play" (since the user has not played the quiz yet) -- however, this button title should change to "Play Again" for subsequent rounds.

3. (15) The two randomly chosen integer numbers that make up the expression should be stored using two `optional Int` variables.
    a. Note, your program should overall make good use of "**optionals**" to address scenarios where variables may or may not have values. Note, for example, it is possible that the user touches the "Solve" button when the Expression label does not have a valid addition expression-- in this case the solution label should continue displaying "Solution".

4. (10) The solution of the expression should be implemented as a **computed property**.

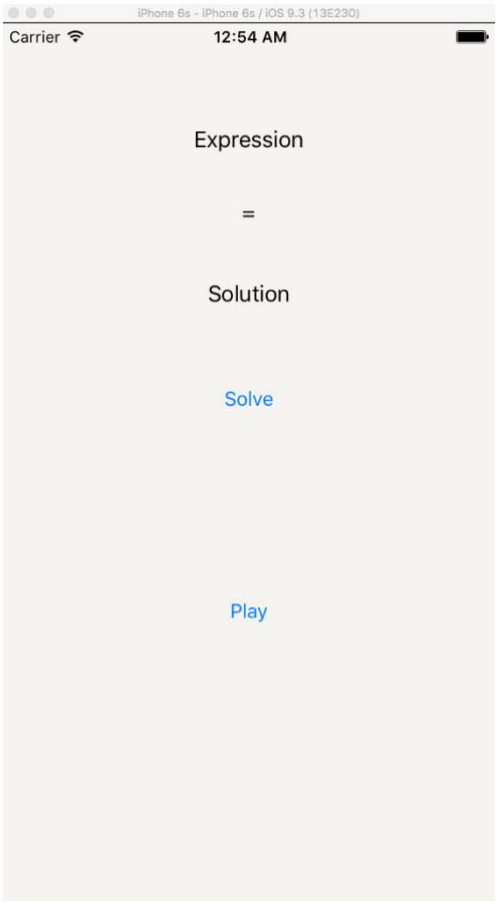
5. (10) Add a Total Counts label, putting it on the left of the Play/Play Again button using stacking view and making use of property observer **didSet**(), which displays the number of rounds the user has played the game.

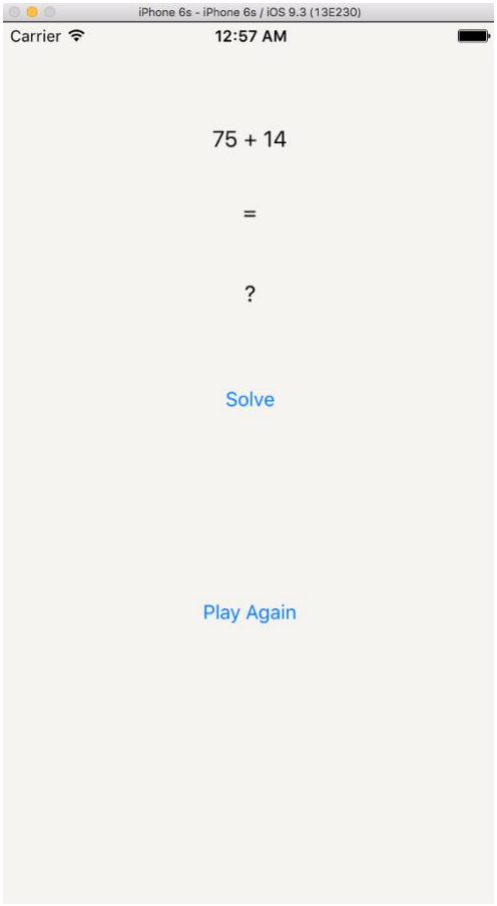
6. (5) Name the "ContentView" struct appropriately (do not use the default generic name).

7. (20 – 10 per orientation) Your application will be tested on iPhone and iPad (iPhone/iPad types flexible depending your IDE), with both Portrait and Landscape orientations.

8. (10) Design/find your own Icon for the application (of size 120 X 120 pixels).

9. (5) For general UI and code quality.





Provided above are a set of sample screenshots of myQuiz (Note these are only examples. You are encouraged to design your own layout). The figure on the left shows the view of the application when the view first loads. The figure on the right shows a sample view when the user starts playing. Touching the solve button displays the solution of the expression (in place of the "?").

Note: You will implement it with SwiftUI this time. You will implement myQuiz via Flutter/PWA later in the course. You are welcome to implement it via Flutter/PWA to earn 200 points max now instead of later, if you've learned the technology outside the class.

Deliverables

- Record your screen to show your code, icon, and running app (show both orientations and two devices)
- Submit video and zipped project folder (after cleaning as described in submission instructions under Assignment folder) containing the files of myQuiz using Blackboard as follows.
  1) Log onto Blackboard.

2) Click on Assignment 01.
3) Browse and upload the desired file from your computer into Blackboard.
4) Submit the assignment.