COSC2659
IOS DEVELOPMENT

Assignment 2 Document

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I declare that in submitting all work for this assessment I have read, understood and agree to the content and expectations of the Assessment declaration.

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I. Introduction

Roulette is one of the most popular and difficult games in the casino due to its randomness and impossibility to gain much profit according to mathematics. Although there are many strategies to win the game, it is still difficult to beat the house in terms of profit [1].

To help users be familiar with and understand the mechanism of the roulette game, as well as prevent them from losing much money on the roulette game in the casino, I decided to develop an IOS game app called "RMIT Roulette" to help users experience the roulette game without losing their own money. This application not only allows users to experience the entertainment and excitement of the roulette game but also equips them with valuable knowledge and experience before playing the real roulette game.

II. Description

"RMIT Roulette" is an IOS game app that enables users to play the roulette game by betting some values on the roulette wheel and they will win if the roulette wheel stops at one of the values that users bet. Otherwise, they will lose and their money in the game will be deducted.

To play the game, users need to tap at the button named "Play game" at the Menu View. When the user is redirected to the Game View, users will be asked to enter a username, and if the username is empty or contains only whitespaces, an alert will appear to ask users to enter again. Then, the users can play the game by tapping at the "SPIN" button under the roulette wheel. After that, a sheet will appear for users to choose some values to bet. The number of values users can bet is on the top of the sheet and an alert will pop up if users do not choose enough values to bet. After choosing the values to bet, users can tap at the "BET" button and the roulette wheel will spin. When the roulette wheel stops at one of the values that users bet, users will win and gain some bonus money and scores. Otherwise, they will lose some money, but the scores remain.

III. Features

1. Main features:

The app contains main features such as a Menu View that has 4 navigational buttons including "Play game" button that redirects users to game view, "How to play" button that redirects users to the instruction view on how to play the game, information about all difficulty levels including "Easy", "Medium", "Hard", and information about achievement badges. There is also a "Leaderboard" button that enables users to view the leaderboard of all different usernames with information about the rankings, high scores, and achievement badges. Finally, the app also has a "Setting" button for users to change the theme of the app and the difficulty level of the game. All the navigational buttons contain navigation links to other views, and they use the same View Modifier to have the same custom style.

The Game View includes a Register View for users to register a new username every time they play a new game. There are also 2 yellow status bars to display the current money and high scores that users have, a roulette wheel below and a "SPIN" button to start the game. After tapping at the button, a sheet will appear for users to choose several values to bet. The number of values users can bet depends on the difficulty level of the game. If difficulty level is "Easy", users can bet up to 6 values. They will win if the roulette wheel stops at one of the values they bet, and the money will increase by 1000 and the high scores increase by 100. If the roulette wheel stops only at a number next to one of the values they bet, they still have a small win with the money increases by 100 and the high score increases by 10. Otherwise, users will lose, and the money will be deducted by 100, but the high score remains. It is also the same for "Medium" level, but users can only bet up to 4 values and for the small win, the money will increase by 200, while the high score increases by 20. For the difficulty level of "Hard", users can only bet 2 values, there is no small win, but the high score will increase by 500 if they win. Moreover, users can also gain an achievement badge such as "Pro" badge if the high score reaches 1000, a "Master" badge if it reaches 5000, and a "Legend" badge if it reaches 10000. Theses badges will be displayed in the leaderboard along with each user. In this view, many states and functions are used to display the status of the users, validate the user input and check if users win or lose as well as display it to the users to enhance their experience and the accuracy of the game logic.

The How To Play View contains a Form with several sections to help users understand how to play the games, information about the difficulty levels of the game, and achievement badges they can gain after reaching a milestone. Furthermore, there is also a Leaderboard that uses List to display all the usernames have been registered in the game. The information of the users is loaded from an app's storage called UserDefault by a View Model called "UserViewModel", and it is used by the Leaderboard View to display and sort the users based on their high scores, as well as display the achievement badges each user has.

There are 2 background music, one of them is used on the Game View, the other is used for the other views. Sound effects are also included in some actions such as tapping at button, spinning the wheel, informing users when they win or lose, etc.

The app is responsive and works on all iPhone devices from iPhone 11 to later

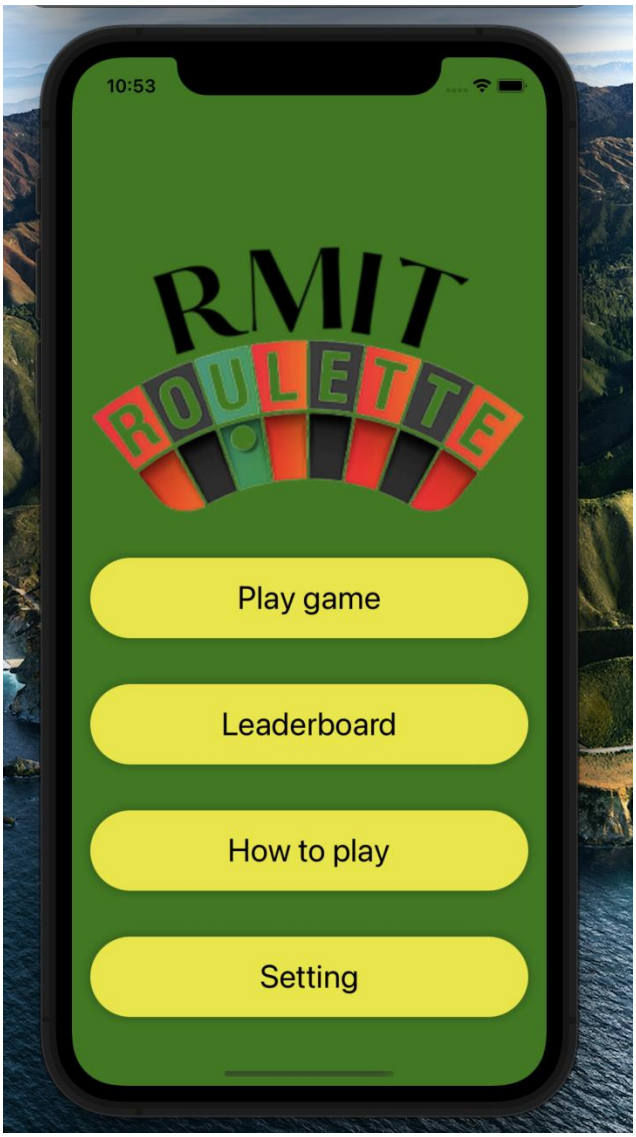
2. Extra features:

To improve the app, I also integrate some extra features to enhance the user experience. For instance, there is a feature to ask users to continue the current game after users exit totally from the app. When users visit the game after exit, the app will display a view at the Menu View to ask users if they want to continue or not. If users choose to continue, the app will redirect them to the Game View and keep the money and high score the last time they exit the app. Moreover, every time the users play a new game in the app, it will ask users to enter a username, so different names will be displayed on the leaderboard as well as their ranking, high scores, and achievement badges. If users

want to modify the setting of the game, there is also a feature for users to change the theme of the game's UI and the difficulty level of the game. Users can tap at the "Setting" button at Menu View to go to the Setting View, where users can change the theme from dark mode to light mode or use the theme mode from the device's system. Users can also choose one of three difficulty levels: "Easy", "Medium", and "Hard" to modify the difficulty levels of the games based on their interests. The

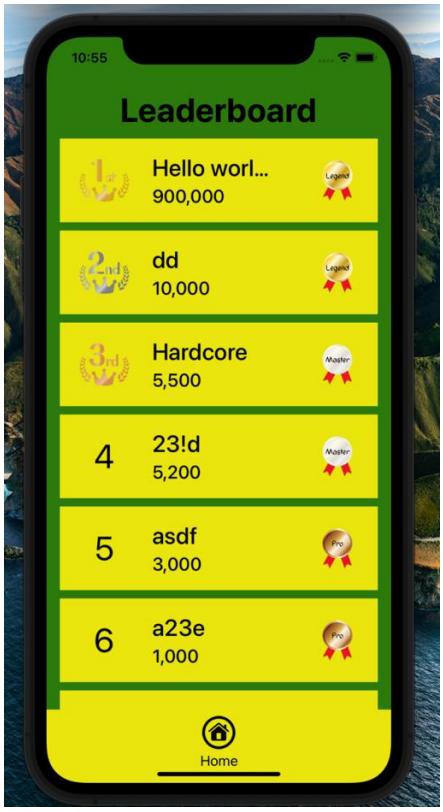
IV. Screenshots of the app

The icon of "RMIT Roulette" app

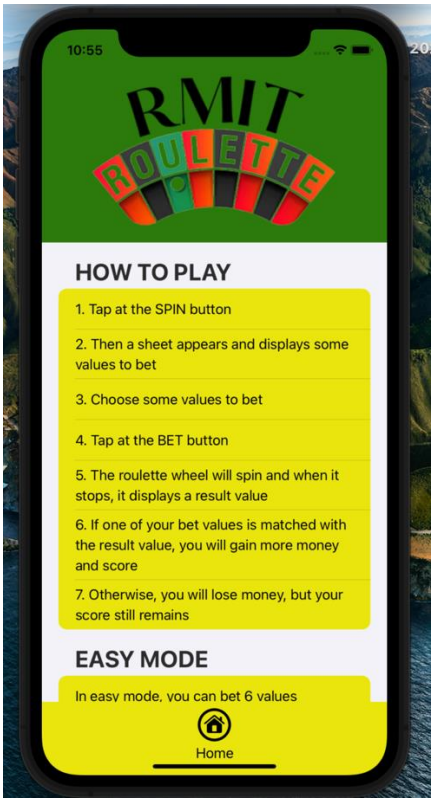


The Menu View of the app

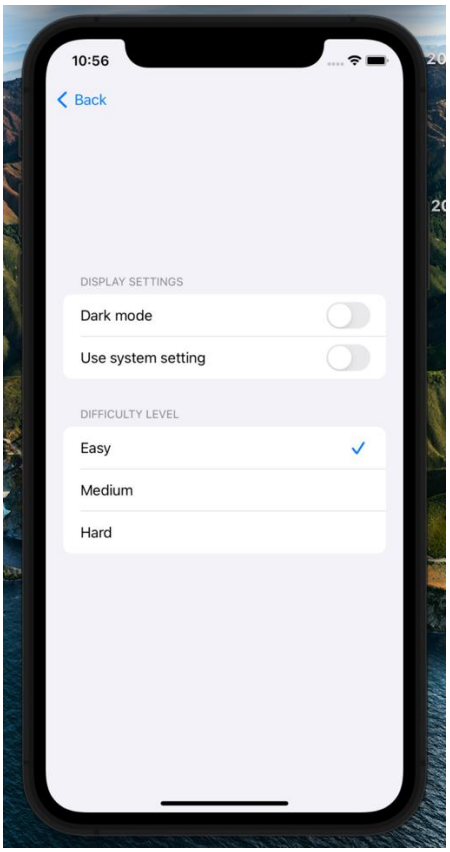
The Game View of the app



The Leaderboard View of the app

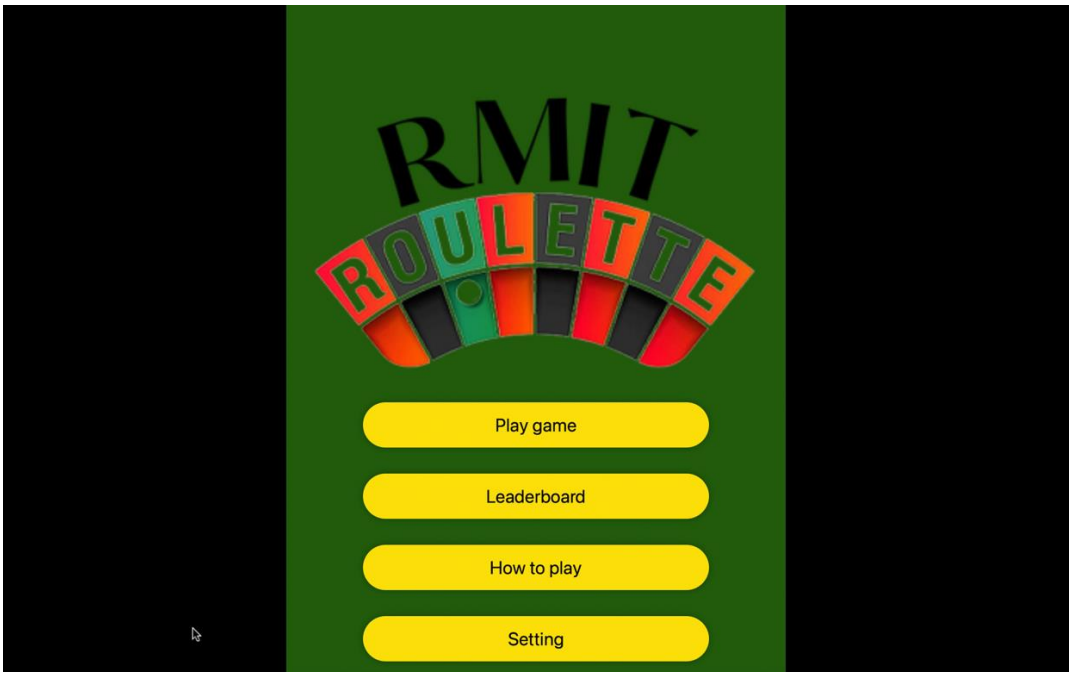


The How To Play View of the app



The Setting View of the app

Interface of the app on iPad



Interface of the app on MacOS

V. Appendix

Link to the demonstration of the application:
https://www.youtube.com/watch?v=vhHYZ8ODUFE

Link to the GitHub repository of the application:
https://github.com/TuanDao2002/RMIT_Roulette

VI. Reference:

[1] Kendall G. “Can maths help you win at roulette?” The Conversation. https://theconversation.com/can-maths-help-you-win-at-roulette-69440 (accessed Aug. 26, 2022)