COSC2659 – IOS Development

Assignment 2

Application Report

Individual

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1. Introduction

Pokemon is a familiar animated series that we are attached to as we grow up. As a child, I've always enjoyed the series and now that I have the chance, I want to make something about Pokemon. Based on the requirements of the project, I want to make something light but also enjoyable for both me as a developer and the player who will play my game. So after considerable contemplation, I've come to a decision to make a Pokemon memory card flipper game. But there's more to my memory card flipper game than your normal old-fashioned memory card game. In your gameplay, you will encounter various ways and combinations to spice up the game and achieve new highscore.

2. Gameplay

The core gameplay of the game still revolves around the basic memory card game: you choose two cards, if it's a match you will get points, if it's not then you will need to remember the position of the cards you just flip to make the correct decision next time. The special part about this game is about the combos system to make the game more interactive and requires more thinking about the order of how you flip your card and the possible combinations you can get to get more points.
The combos system is very simple: In this game there are 3 elements, each pokemon will have their matching elemental orb : Fire, Water, Grass (based on the 3 starter pokemon you get each generation of the pokemon game/series). Each time you get a matching pokemon, you will store their element in the elemental combo bar. After you get 3 elemental orb, you will trigger a combo. Each time the combo succeeds you will have a special orb, if you get both the orb you will get even more points. The points you get will be based on whether you have : 3 of the same element, 3 different elements, 2 same element and 1 others, whether you get both of the special orbs or not. More details about points multiplier and combo you get is specified in the tutorial section of the game. Each time you start a game, you can enter your name and configure the settings in the Setting of the game, each difficulty is different by how much time to get when you flip a card. Each game has 5 rounds, and after you pass a round, the timer will be reduced another 2 seconds. In the hard difficulty, you will start with 15 seconds, so in the final round you will only have 7 seconds to work with.

3. Main Features

3.1. Welcome View

Figure 1
In this view, the user will be greeted with a pokemon-based background and button design, in addition to the infamous Route 1/2 Kanto region background music .
This view contains several button that will redirect the user to other views of the application:

- Game view: Where users can play the game.
- Continue view: where users can continue their previous game.
- Leaderboard view: where users can see their high score and achievements.
- How To Play view: where users can see the tutorial for the game and see how the points get calculated.

- Setting view: where users can set their user and difficulty for the next game they play. This view also contains the function for switching between light/dark mode

This view is created by a combination of other views and some basic functions like TabView, Buttons for functionality and design purpose.

3.2. Leaderboard View

Figure 2

Display a list of high scores and achievements of users. This view is implemented by using a TabView to display two sub-view: Achievement View and Leaderboard View, each view displaying their respective field.

Data related to this view is controlled and managed by 2 classes : AchivementManager and LeaderboardManger class. These two classes contain methods and functions for storing data and retrieving data for this view to use them for display purposes.

3.3. Game View

Figure 3

This is the main view and the most important view of the system. This view is created and managed by the TableModel object to handle various actions like save, flip cards, check matching cards, populate data, and handle multiple game logic. This view also contains multiple pokemon card views to visualize them for the user to click.

The pokemon card view is also managed by the pokeCardModel to handle the related action to the card. The data for the card is imported in from a json file call “poke-data.json” , this file stores data necessary to generate a pokemon card like : name, image name, elements, id,...

3.4. Game Setting View

Figure 4

This view purpose is to display multiple game difficulty options for users to choose. Each difficulty will have their associate multiplier and timer count. Also there is a text field for users to input their name for the save file.

3.5. How To Play View

Figure 5

The How To Play View is a combinations of multiple separates fill that users will navigate between using a TabView. In there users will have a details instructions about:

- How to flip a card
- Explain about how combos work
- Explain about the multiplier of the game, combos
- Explain about the difficulties
- Explain about how the timer works

4. Advance Features

4.1. Save and Resume

The save and resume function is implemented in this game by using a SaveNotes class that will handle the save and extracting data function of the application using UserDefaults. In this class there are multiple functions for storing various data like player current points, the board current states,... to construct the same exact state of the game when the users decide to continue their game.

4.2. Game Progression and Levels

The game handles game progression by having 5 rounds in a game, after each round, the players will have less time so the difficulty is increased, this function is directly managed by the table.

4.3. Toggle Theme Setting

Figure 6
This function is implemented in the DifficultyView in the setting. By storing the current colorScheme of the application, we can get the current state of the device whether it is light/dark mode and switch to the others. In the whole application, the system is designed to accommodate both light/dark modes so the users won't encounter any problem when they switch between the two.

4.4. Language Setting

Figure 7
This function currently supports two languages : Vietnamese and English. You can change the language in the setting. This function is create by a variable store in the UserDefaults so the app can know which language is currently using

5. Out Of Scope

This project does not implement an AI for the user to play against since card match games are single player games.

6. Further Development

There are a lot of improvement and ideas that could be interesting to develop further. One of the ideas is to develop a versus mode where player will play against an AI. In that mode the core game play will still be matching cards base on your memory, but instead of just trying to combo and get a high score, you will play against an AI and you will have a health bar, when

you get a score you will deal damage to the opponent, if one health bar drop to zero, the game will end an the score will get calculated. But since there is time limitation and the scope of work will be too much for individual work, this idea is put on hold and were not developed in this project.

7. Reference

[1] *Pokémon database* (no date) *Pokémon Database -- the fastest way to get your Pokémon information*. Available at: https://pokemondb.net/ (Accessed: 06 September 2023). (Datas and images usage)
[2] (No date) *Free game sound effects download - pixabay*. Available at: https://pixabay.com/sound-effects/search/game/ (Accessed: 06 September 2023). (Audio usage)
[3] *Top free game assets* (no date) *itch.io*. Available at: https://itch.io/game-assets/free (Accessed: 06 September 2023). (Game assets usage)
[4] *Rmit.instructure.com*. Available at: https://rmit.instructure.com/courses/121597/modules (Accessed: 06 September 2023). (Knowledge and example)

[5] Github repo: https://github.com/AnVuGia/asm2-ios.git

8. Appendix

Figure 1

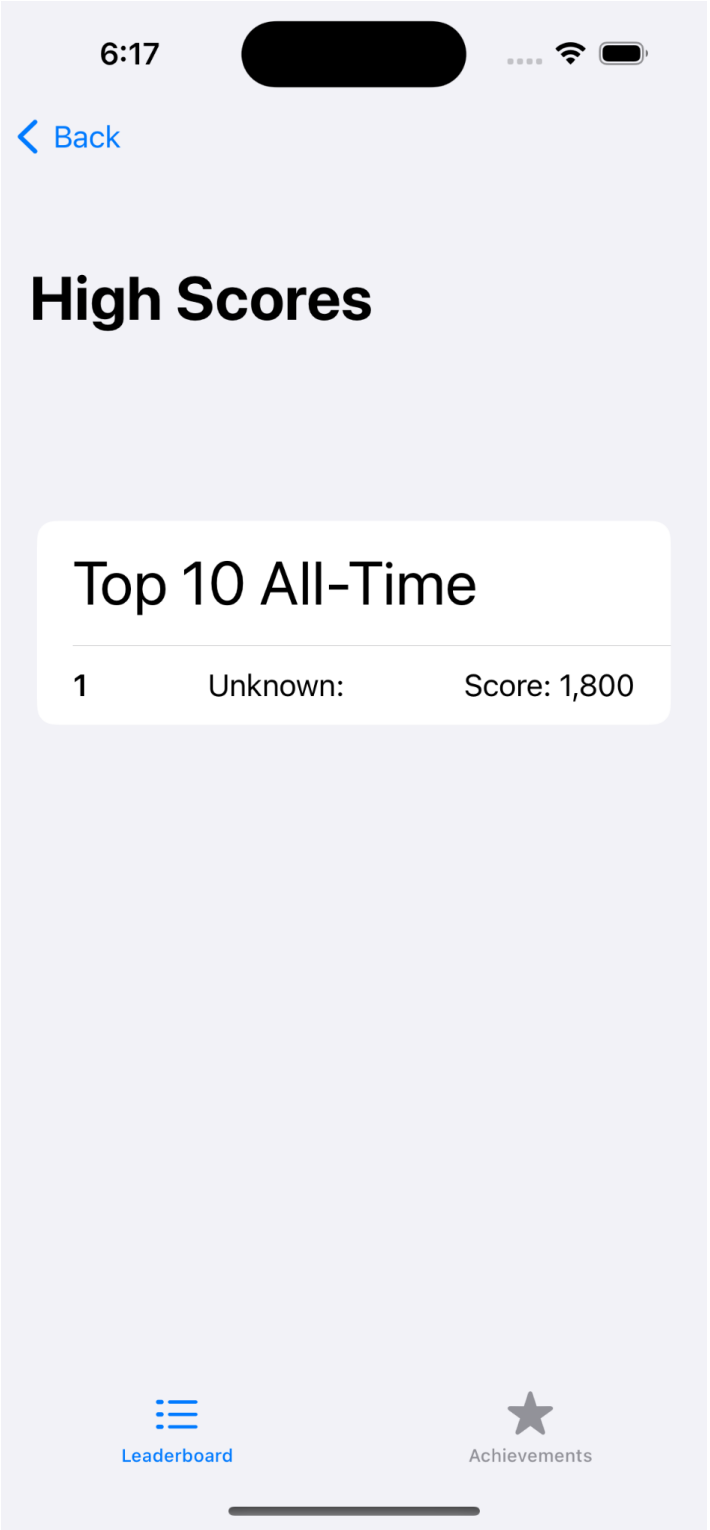
6:17
Back
High Scores
Top 10 All-Time
1
Unknown:
Score: 1,800
Leaderboard
Achievements

Figure 2

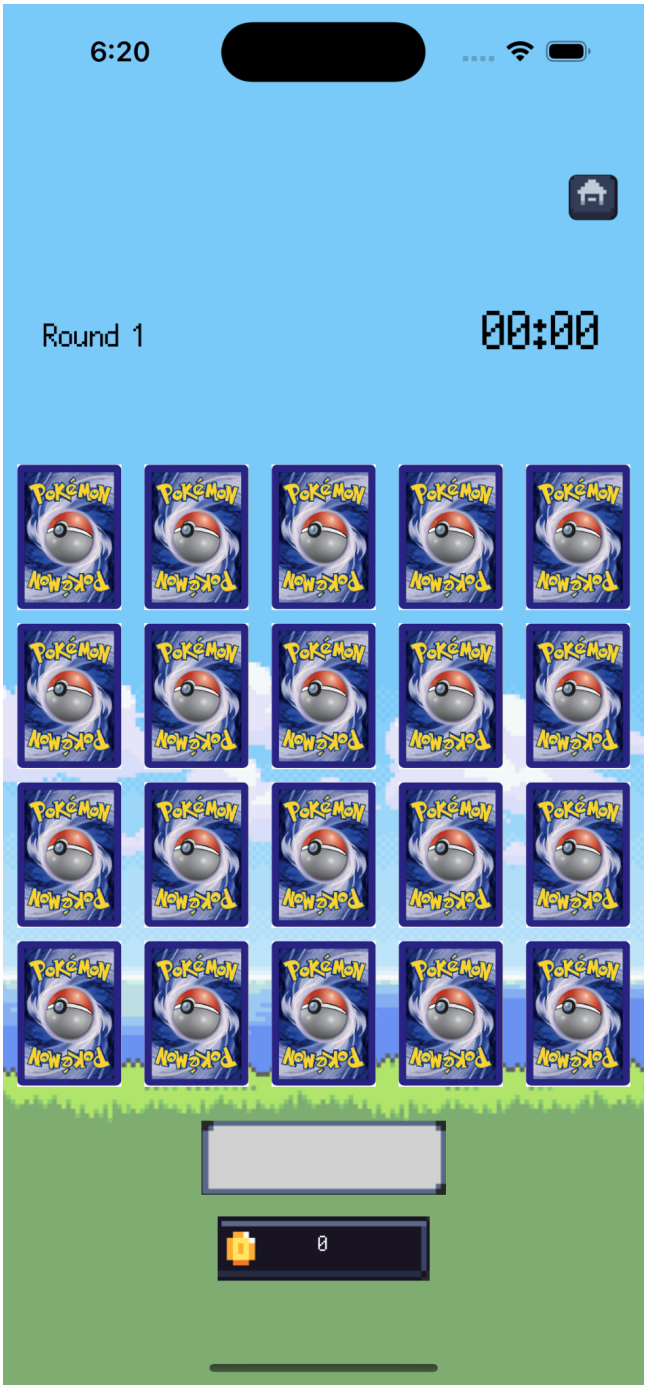

Figure 3


6:26
Back
Current difficulty: Easy
Enter your name
An
Easy
Normal
Hard
Theme:
Light
Current Language: ENG
ENG
VIE

Figure 4

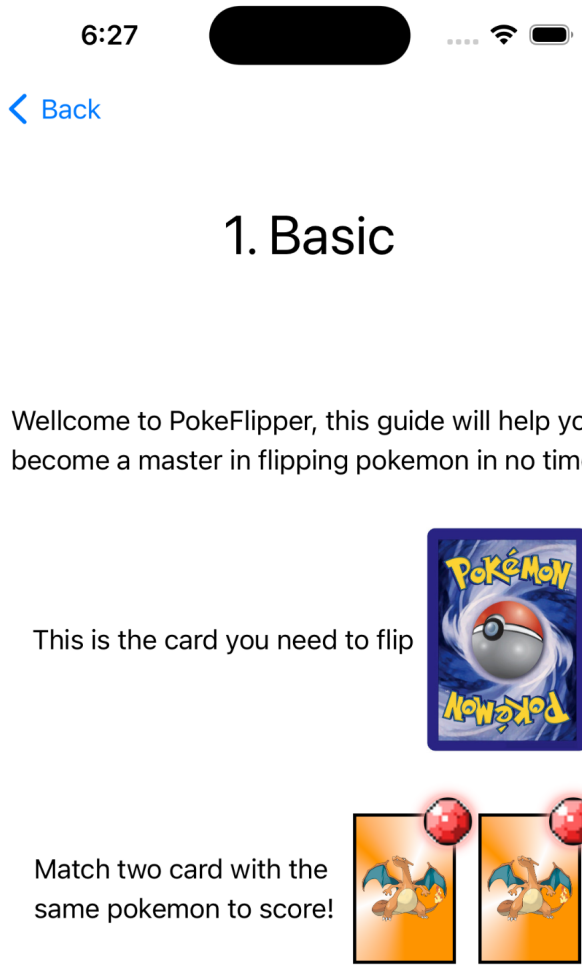
6:27
Back
1. Basic
Wellcome to PokeFlipper, this guide will help you become a master in flipping pokemon in no time!
This is the card you need to flip
Match two card with the same pokemon to score!
So Easy!

Figure 5

2. Combo!

Since it's boring to just flip pokemon, why don't we spice things up by using combo?

This is the combo bar! 

Each time you score, you will get a matching element! 

You can get 3 of the same kind to get a special multiplier! 

But there is more!

Figure 5.1

6:28

Back

2.1 More Combo!

If you get 3 different kind of element, you will get a Chaos orb!

If you get 3 of the same kind of element, you will get a Resonance orb!

If you get a combo that is not in the combo, you will get a Resonance orb, if you already have a Resonance orb, you will get a Chaos orb instead!

If you get both orbs, the next combo you make will have a massive multiplier!

Figure 5.2

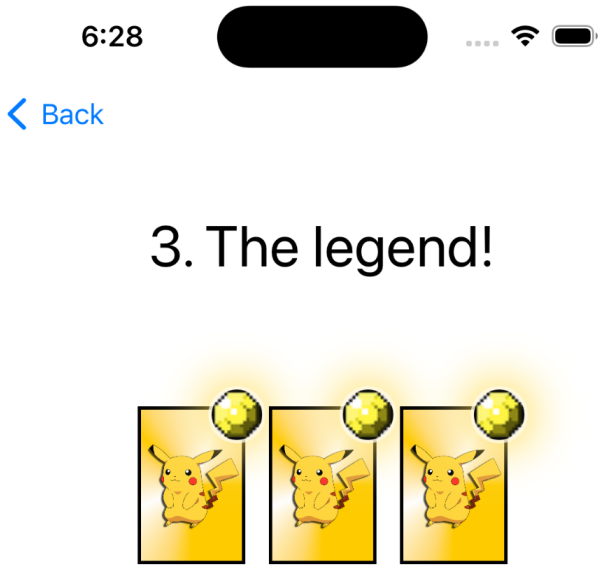

Figure 5.3

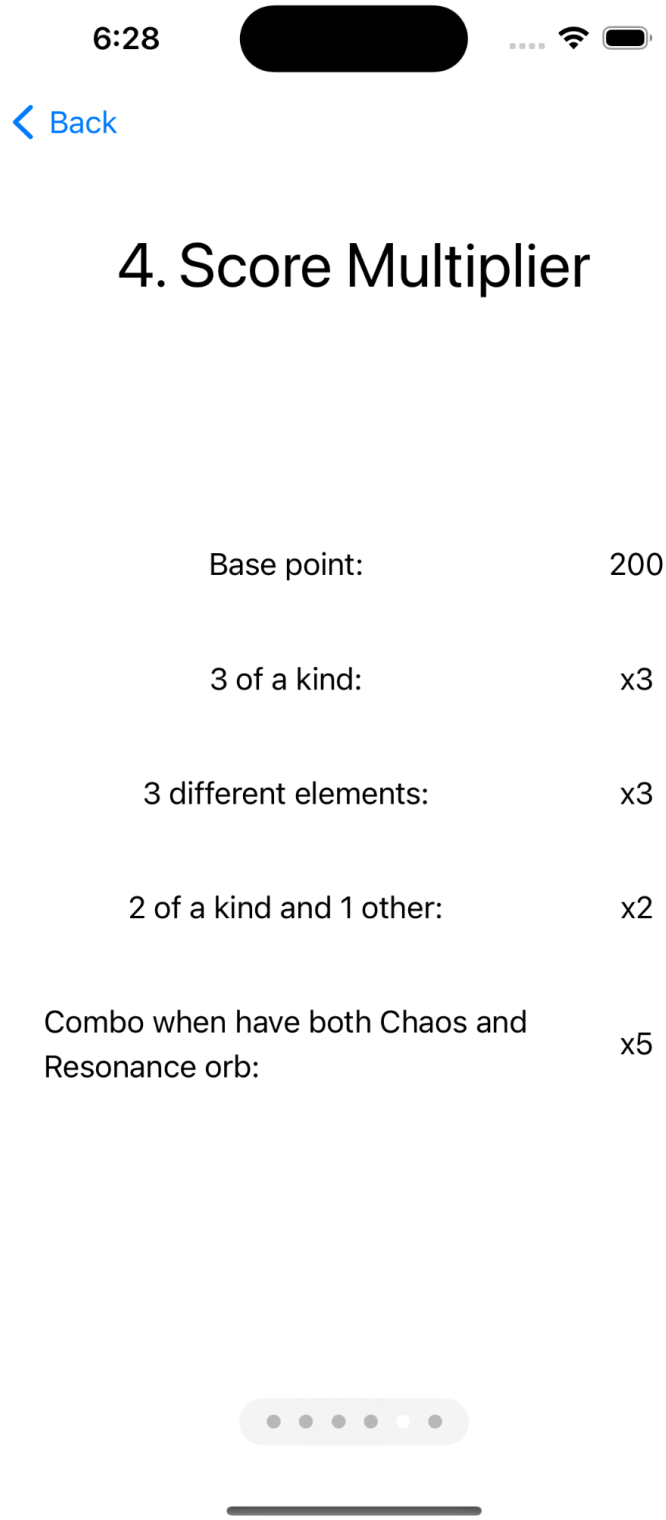
6:28
Back
4. Score Multiplier
Base point: 200
3 of a kind: x3
3 different elements: x3
2 of a kind and 1 other: x2
Combo when have both Chaos and Resonance orb: x5

Figure 5.4

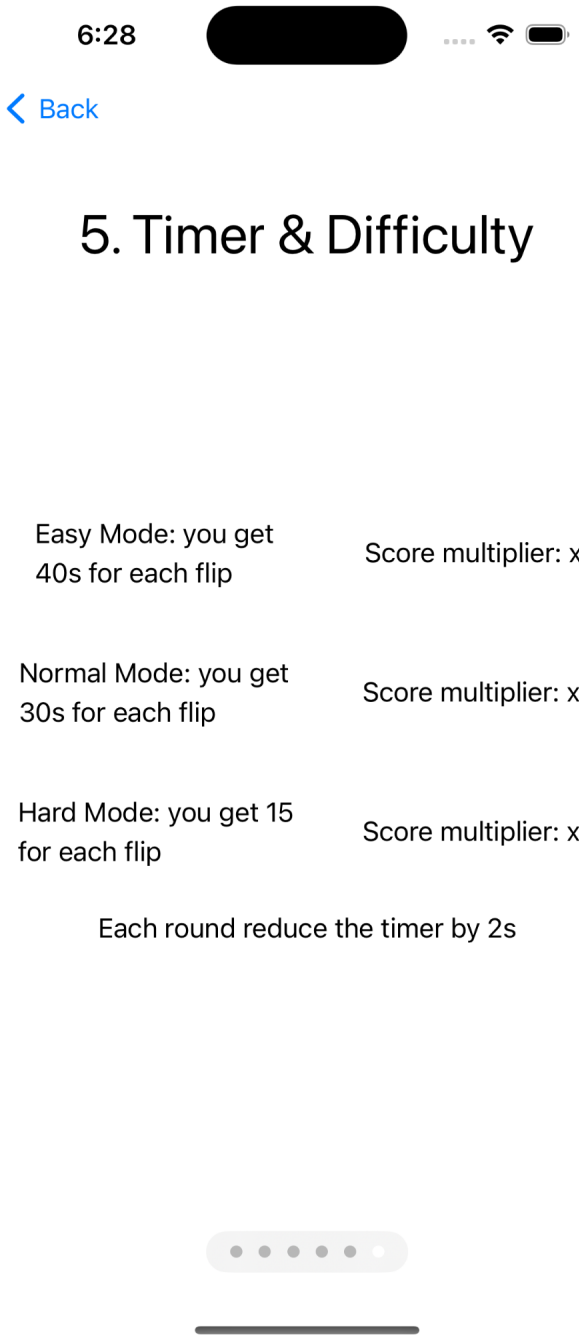
6:28
Back
5. Timer & Difficulty
Easy Mode: you get 40s for each flip
Score multiplier: x1
Normal Mode: you get 30s for each flip
Score multiplier: x2
Hard Mode: you get 15 for each flip
Score multiplier: x4
Each round reduce the timer by 2s

Figure 5.5


6:26
Back
Current difficulty: Easy
Enter your name
An
Easy
Normal
Hard
Theme: Light
Current Language: ENG
ENG
VIE

Figure 6

Figure 7