Final Project Milestone 1

Project Description

Course: DGL-204

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As I took the time to consider what I may be interested in doing for this final project I was pulled towards another passion of mine, gaming. Throughout my programming studies thus far we have intermittently returned to the concept of simple games to program. These games range from dice games such as “Pig” in CPS-100 Java, to card games such as Texas Hold’em (which we explored in this course). Simple games such as these are great exercises for new programmers working to understand key concepts, as they provide a ruleset for us to recreate and a gameplay loop to program. I have always quite enjoyed, and benefitted greatly, from working through these “game” programming problems as they appeal to a strong interest of mine. I find the difficult concepts we are learning much more digestible when they relate to my interest in gaming.

For that reason, I have decided to focus my final project towards a game-room style application. I want to apply the techniques we have developed in this course, and the knowledge I have gained throughout my studies, to create an app with a collection of simple games to choose from. I hope to someday involve myself in the video game industry and would love to add a related project to my portfolio.

To accomplish this task, I will be exploring games that are well suited to this type of application. I plan to include a small selection of card, dice, and simple board games. My initial thoughts on games that would fit well into this style of application include Yahtzee, Uno, and Checkers. All of these games are simple enough to translate into programming (I think) using the methods and techniques we have explored in this course. As I work to further develop this idea, I will be considering the addition of other games and whether or not they are feasible for this concept. I wanted to provide a fully featured idea here, but I will adjust the overall offered “content” of this app, as I determine the amount of time I have available to me for completion.

I have included a simple flow-chart interaction mock-up with this submission to further communicate the overall interaction path. To supplement this, I will also provide a description here. Upon starting the application, the user will be presented with a few different options to select from. The initial selection will be whether the user is playing alone (against a computer), or if they want to play multiplayer (This will mean two players on a single device, but I would be interested in exploring online connectivity outside of this course). Upon making this selection, they will be presented with the various game options (currently Yahtzee, Uno, and Checkers). When a game selection is made, the user(s) will be presented with the gameboard or beginning state of the game. Gameplay will then begin and continue through the exchanging of player turns. The user(s) can play until a winner is found or they decide to quit. At the end of a game, or when the user has decided to prematurely exit, the final score will be displayed and then the user can restart the current game, select a new game (with the current players), or quit to the main selection screen. For this project I will be working to provide the required back-end to make this idea “function”.

For the implementation of my idea, I am lucky, as games like these share some characteristics. I should be able to adapt and reuse these characteristics between them. I will use classes, structs, enums, and protocols to develop the various structural pieces for the games. These pieces will be represented differently based on the number of players, and game selection made by the user.

In general, these games all share the requirement of a gameboard (or location) where you track important information and the game “takes place”. I can try to manage the different implementation of these game boards, by extending a general gameboard class or perhaps creating protocols to track whether the game is a dice, card, or board game. As far as per-game objects (cards, dice, game-pieces) are concerned, I can determine the required objects dependant on the gameboard we are using. Additionally, player class objects can be created to track important player details that will be carried across different games (with extensions made as necessary for different game types). I am also hoping I can implement some score keeping functionality to keep track of wins and losses across the different games played during a session (prior to quitting to the main selection screen).

Implementing this idea will require me to “program” a computer player in the absence of a second player. Due to the simplicity of these games, I should be able to determine a “turn loop” for the computer character based on the current game state and related game objects. I am hopeful that I can accomplish this successfully with the skills we have learned. Overall, I plan to do my best to create the features I have described and achieve a functional product.

In conclusion, I hope to bring a fun and enjoyable gameplay experience to the user. I will be doing my best to implement my idea in the “cleanest” and most straight forward way as possible. I will use the concepts we have learned to create modular code that can be re-used across my entire application as needed. My main goal for this project is to follow a passion of mine and create a product in the realm of “gaming”. I plan to use this project to further explore gameplay mechanics, and the programming involved with creating simple game applications. Hopefully this will be a good foundation to build on skills for the future.

Interaction Flow Chart:

Diagram

Description automatically generated