CPT106 C++ Programming and Software Engineering II

Individual Project

Fundamental of class and object

Project Number	3
Contribution to Overall Marks	30%
Release date	30 April 2024
Submission Deadline	30 May 2024, 23:59

How should the work be submitted?

SOFT COPY ONLY !
(MUST be submitted through Learning Mall so that we can run your programs during marking.)

Assessment Overview

This assessment aims at testing some basic concepts of C++ programming and coding in the software development environment (**Visual Studio**). To distribute the workload of the individual project more evenly throughout the whole semester, we divided it into 3 smaller individual projects for you to complete separately. This is the third individual project.

What should be submitted?

Only your C++ source code file (.h and .cpp) should be submitted to Learning Mall (LM). Your grade will also be given through LM. There are several steps for you to note：

1. You should create a solution named "CPT106Solution".
2. Create a project named "Project 3".
3. Create CPP and header files.
4. Include clear comments in your code to make it easy to understand.
5. **Only submit the .h and .cpp files** to the LMO.
6. ALL programs MUST compile and run in one of Visual Studio environments in VS2013/2016/2019/2022.

Project 3 (100)

Luck Draw

You are asked to program a game called Luck draw in C++. This game is played by two players (you and computer in this assignment). The game and its rules are described as the follows.

- To play this game, every player must set up an account first with positive balance say the starting deposit is 5000. This means that you have to set up a data base (a file) which records the players' information, for example, name, gender and account balance etc. and the program is supposed to be able to track the balance changes as the game is going.

- This game is played on a game board as shown in Fig. 1. This game board consists of 38 squares. Each square has a price tag (this price may be generated randomly within a price range say from 10 to 300) for the player to go through except for the left top corner square "GO" and right buttom corner square "JAIL"(each game starts from the square "GO" for both of you and the computer).

- You and the computer take turns to roll a dice. The outcome of each rolling (a random number within the range of 1 to 6) decides how many squares you / computer can advance in a clockwise/ anticlockwise direction on the board. (you move in clockwise and computer moves in anticlockwise)
  - If the player lands on the "JAIL" square, the player fails.
  - If the landed square is not "JAIL", and the player does not have enough balance to pay the price of squares advanced by the player, the player fails. Otherwise, the player moves to the square and player's balance is deducted by the price of these squares.

- You and the computer continuously roll a dice to advance in squares in a a clockwise/ anticlockwise direction on the board, respectively.

- The game ends when either one of the players fails or declares bankruptcy (the balance <=0), or you have chosen to quit the game.

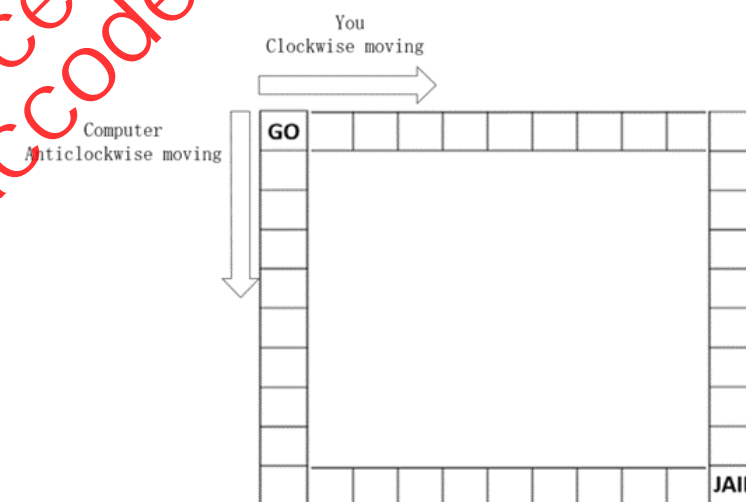- Print out the winner and the remaining balance when the game ends.

Fig. 1. Game board

Marking Scheme

Class definition	70%
Comments	10%
Correctness & Robustness	20%