Programming Project 1

How Much Do You Want?

Due: 4/14 (Sun) 11:59pm

In this programming project, you will implement a strategy in a how-much-do-you-want (얼마면 되겠니) game.

How-much-do-you-want Game

An Offeror and a Responder play a game. At a game, the Offerer is given by $100, and offers a portion of the money to the Responder. The Responder either accepts or rejects the offer. If the Responder accepts, the Offeror and Responder get money according to the offer. If rejects, both get nothing. For example, if the Offeror offers $20 and the Responder accepts, the Offeror gets $80 and the Responder gets $20. If the Responder rejects, both get no money.

You are playing a series of game sets with another player. In one set, you play as an Offeror once and switch the role (two games in one set). You will play many game sets with the same player. So, you will have a chance to guess the other's strategy and evolve your own.

Your job is to derive your own strategy to get as much money as possible, and implement it using C++ programming. To help, the history of your and the opponent's offers and decisions will be given.

A full league will be played for all possible pairs of players. Each pair of two players will play 1,000 games. All students and four dummy players (Scrooge, Teresa, Junhee, and Colin) will play in the league, which means you will play against your classmates.

Important Note

1. You should change the filename of `Player_2017000000.h` to `Player_<your student id>.h`, and properly include to your program. The class name also should be `Player_<your student id>`. It is very important to include all students in the league.
2. You should implement your codes in `offer()` and `accept()` of `Player_<your student id>.h`. Do not create an additional cpp file. It is to make it easy to manage the codes of many students.
3. Whenever you modify a header file, you should "rebuild" to compile the program. Just "compile" won't reflect your changes.

Object-Oriented Programming, Junhee Seok, Korea University

Please answer the following problems.

1. Explain the strategy of four dummy players, Junhee, Colin, Scrooge, and Teresa in the given program. Run the league only with them. Who is the best player among four? Explain the result.

2. Explain your strategy that you implement in the program.

3. Provide the result of the league including Scrooge, Teresa, Junhee, Colin, and you. You need to provide the screen capture. Explain the result if you can.

4. This game reflects some aspects of "justice" in our society. For example, an employer and an employee can be considered as an offerer and a responder. The given money to the offerer is the earning of the company. The employer shares the earning with the employee by making an offer. If the employee thinks the offer is fair, he/she will accept it and work for the employer to make the company better. If the employee think the offer is unfair, he/she will reject and punish the employer by damaging the company (for example, he/she can go on strike). However, if the employee is very reasonable, which means putting less value on the fairness, he/she will accept any offer because accepting the offer is always more beneficial than rejecting it.
Please evaluate your strategy if it is reasonable rather than just, or the other way around. If you want to contribute to the fairness of offers, which can be interpreted as justice in our society, rather than to get a high score, what will be your strategy as an offerer and as a responder? You don't have to implement it. Just describe what you think.

Please submit

1. Program file `Player_<your student id>.h`
2. Answers of the above problems.
3. Screen capture for problem 3.

to the TA via jyoonkim@korea.ac.kr

If you have any question for this project assignment, please contact me or TA.