An-Najah National University

Faculty of Engineering and Information Technology

جامعة النجاح الوطنية

كلية الهندسة وتكنولوجيا المعلومات

Computer Engineering Department

Software Engineering (10636312)

Refactoring and Testing Assignment (25 points)
Individual

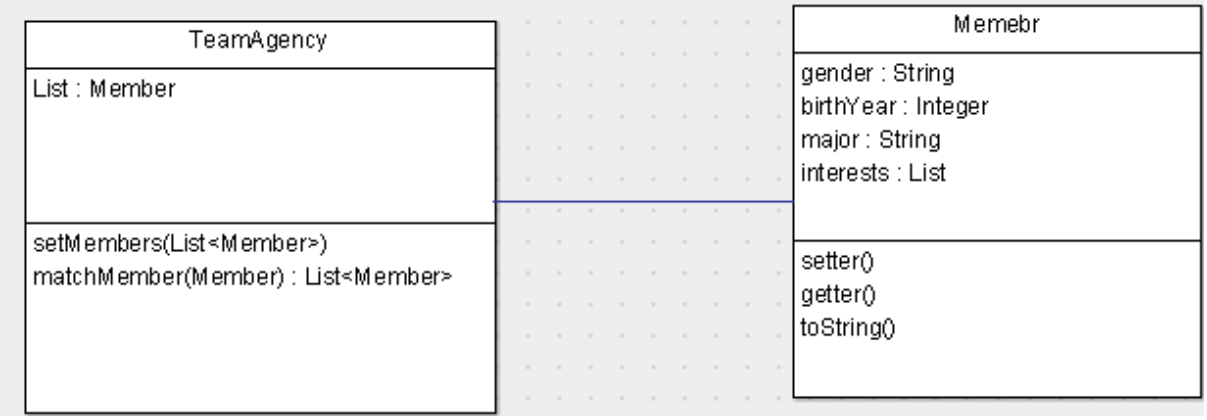
A. Refactoring

The code may have **bad smells**, so it needs to be refactored.
Refactoring: is the process of restructuring existing code without changing its external behavior.

1. By using your favorite IDE (Eclipse, Netbeans,..), your task is to refactor the following class diagram design.
   The code is found on Moodle in section RefactoringAndTestingAssignment, it follows exactly the UML Class diagram shown below.

   The method ***List<member> matchMember(Member m);*** includes all logic in one method.
   The business logic behind this method is to take a member variable as parameter and search every member in the member list that match the inserted member according to the following conditions:
   Member A matches member B if:
   1. have the opposite gender
   2. age difference should be less than 5 years
   3. the member A and B should have at least one interest
   4. the member A and B should have the same major

   If member A [Female, 2003, ComputerEng,{Swimming,Sport}] and member B [Male,2000,ComputerEng,{Reading,Programming,Sport}], then there is a match



- To achieve the concept "**separation of concerns**" and the concept of "**delegation**"
  Your work should focus on the following three refactor methods
  a. Move
  b. Extract Method
  c. inline

B. Testing

By using white box testing, find the probable bugs in the attached code.
The code is found on Moodle under name TestingTask.java
The program find the largest two numbers among a set of numbers.

After that write a short report (maximum 8 pages) to include the following:

For task1: Refactoring

1. The refactored code(.java code), in the same document
2. The new refactored class diagram (image)- like the above
3. Discuss **briefly** 4 advantages of the new refactored design

For task2: Testing

1. Include a design table that used to derive your test cases
2. Include a table that contains your real data set
3. Fill the following table as follow.

erroneous code	Insert the erroneous code here(already given)
Test cases	Insert your derived test cases here
Correct code	Insert the healthy code here

4. Include the percentage of Coverage that was generated by your test cases as image/screenshot

   a. You need EclEmma java code coverage plugin.(Eclipse→ help→ marketplace→ in search text field write eclEmma and install it→ restart Eclipse)
5. Upload your report on Moodle

Good Luck