CS446102 Software Engineering Homework 1 (Group Exercise)

(Notes) Two or three students should work as a team to finish question 1, while the whole group (6 to 7 students) should work as a team to finish question 2.
（註）第 1 題若為 6 人的組別，請以 2、2、2 人為一組作答，若 7 人的組別則以 2、2、3 人為一組作答;第 2 題請以整個小組為一組作答。檔案上傳的格式請參照第 1 題最後的說明，可將第 2 題的答案文件放入相同的壓縮檔中。

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1. (20%) Develop a grade system (GradeSystemProject.doc) using the **myAgile method** described in the myAgile.pptx file:
   Please pair your group members off in this exercise.
   If the number of your group members is seven, please also separate into three little groups.

   What you need to do (refer to GradeSystemProject.doc):
   1) Use Eclipse to develop the Java code which is readable including the **source code**, **header**, and **pseudo-code**. (1. Notice that the data structure of **aGradeSystem** cannot be **LinkedList** and you can create new functions except 顯示成績(Show the grade) ,顯示排名(show the rank) ,更新配分(update weights) and 離開選單(exit)
   2) Use JUnit to develop two **unit test codes** for each method and at least two **integration test codes.** (also need headers)
   3) Use eUML2 to get the **UML class diagram** automatically.

   What you need to hand in:
   1) (12%) The whole Eclipse project (including grade system **source code**, **header**, **pseudo-code**, **test code**, **.ucd** file generated from eUML2)
   2) (5%) Relevant documents (including **user manual**, **acceptance test cases** and **architecture design**)
   3) (3%) A file recording **the time** you spend on the following items for each method. (Unit: hour) [excel file]
      i. Unit test cases planning (test code header writing)
      ii. Unit test coding (test code writing)
      iii. Pseudo-coding, tracing to debug, and header writing
      iv. Source coding
      v. Unit-testing (including integration).

Pack all of the above files into a single .zip file:
<StudentID>_<StudentID>.zip or <StudentID>_<StudentID>_<StudentID>.zip

- <Eclipse project folder>
- Documents.doc
- Time.doc

For details, please refer to the myAgile.ppt and GradeSystemProject.doc files.
For your information, please refer to the JUnit.ppt and eUML2.doc files.

2. (20%) Your company is about to start a new project to develop a new software system. This project will use (for the first time in the company) test-driven development (also called test-first development) making use of the JUnit test framework to develop the project. The company management has asked you to access the use of test-driven development on this project and make a recommendation on whether or not to use is in other projects. Explain how you might assess the costs and benefits of using test-driven development, and what considerations you should make in designing the assessment exercise. Make sure that you describe and justify:
   (a) The type of study that you propose (experiment, case study, survey, or combination of methods)
   (b) Any hypotheses
   (c) Study variables
   (d) Study plan/design