COE528 (Fall 2016)
Project

Analysis/Design/Implementation/Testing

Deadline: Nov 29, 2016, Tuesday, 12pm (noon).

1. You must do this project in a group of 2 or 3 students. All team members of a group will receive the same marks for their project.

2. Select a topic for your project. You **must** submit your project topic and group details to the TA in the week of (Nov 14-) during your lab session.

3. Develop the UML diagrams for your project using Violet UML Editor (3 kinds – **Use Case** Diagram(s), **Class** diagram(s) and **Sequence** diagram(s)).

4. Your project must include at least 5 classes. For each class, you must:
   a) write the Overview clause stating the responsibility of the class and whether the class is mutable or not. Provide this as javadoc comments.
   b) write the abstraction function and the rep invariant as javadoc comments.
   c) provide the necessary clauses (e.g. effects, modifies and requires) for each method as javadoc comments for the method
   d) implement the abstraction function in the toString() method
   e) implement the rep invariant in the repOk() method

5. Your project must use at least one design pattern.

6. You must provide at least ten test cases. You must test at least one unit of your project. A unit may be a procedure (i.e. a static method) or a class. You must create JUnit Test class(es) that automates each of the ten test cases.

7. A written **report** has to be generated per group. The report should not exceed 6 pages. Use Times New Roman font size 12. You **must** provide the names, student IDs and section numbers of each group member in your report. Your report **must** include the following five parts:
   - Problem description
   - Functional Requirements: In this section describe at least two use cases of your Use Case Diagram. You should follow the template provided in the file "Modeling.with.UML.pdf" for describing use cases (see slide number 26 titled "Template to describe a use case" in that file).
   - Design: Provide rationale for using the design pattern. Refer to your UML class diagram and indicate the part(s) that form the design pattern.

- Testing: Provide a table describing the test cases. The table format is given below:

  For testing unit _____:

Test case ID	Test case Description	Whitebox/ Blackbox

- If you use any external sources such as books or papers, you must list them under a section named "References".

8. You **must** give a demonstration of your project to the TA during your last lab session. The demonstration should include successful compilation, execution and testing of your project application. The report will be assessed not only on their technical or academic merit, but also on the communication skills of the authors as exhibited through the report.

Submitting your project

You must submit your project electronically before the deadline.

You must include the standard cover page, duly filled and signed by all the group members, with your submission. The cover page can be found on the departmental web site: Standard Assignment/Lab Cover Page

It is assumed that the project is done on a Departmental computer in your coe528/project/ directory. Please ensure that the source code files can be opened, compiled and executed in the lab environment before submission. Please ensure that the Violet UML files and the report can be opened and read in the lab environment. To submit the project, you should do the following:

```
cd coe528
zip -r project.zip project
submit coe528 project project.zip
```

There should be ONLY one submission per group.

The **`project.zip`** file should contain:

- the **report,**
- **Violet UML files** and
- the **implementation** of the project (i.e. *.java files including the JUnit test files)
- Javadoc for all the classes