ITEC2610-A Fall2020 *Assignment Two*

In: October 26^{th}, Before Class

1. (30 marks) Modify the `Student` class (presented to you) as follows:

   (a) Each student object should also contain the scores for three tests.

   (b) Provide a constructor that sets all instance values based on parameter values.

   (c) Overload the constructor such that each test score is assumed to be initially zero.

   (d) Provide a method called `setTestScore` that accepts two parameters: the test number (1 through 3) and the score.

   (e) Also provide a method called `getTestScore` that accepts the test number and returns the appropriate score.

   (f) Provide a method called `average` that computes and returns the average test score for this student.

   (g) Modify the `toString` method such that the test scores and average are included in the description of the student.

   (h) Create a driver class `main` method to exercise the new `Student` methods.

2. (30 marks) Write a class called `Course` that represents a course taken at a school. Represent each student using the modified `Student` class from the previous question.

   (a) Use an `ArrayList` in the `Course` to store the students taking that course.

   (b) The constructor of the `Course` class should accept only the name of the course.

   (c) Provide a method called `addStudent` that accepts one `Student` parameter.

   (d) Provide a method called `average` that computes and returns the average of all students test score averages.

   (e) Provide a method called `roll` that prints all students in the course.

   (f) Create a driver class with a `main` method that creates a course, adds several students, prints a roll, and prints the overall course test average.

3. (20 marks) Design and implement a set of classes that

   (a) Define various types of reading material: books, novels, magazines, technical journals, textbooks, and so on.

   (b) Include data values that describe various attributes of the material, such as the number of pages and the names of the primary characters.

   (c) Include methods that are named appropriately for each class and that print an appropriate message.

   (d) Create a main driver class to instantiate and exercise several of the classes.

4. (20 marks) Modify the `Firm` example from week4 lecture such that all employees can be given different vacation options depending on their classification.

   (a) Provide a method called `vacation` that returns the number of vacation days a person has.

   (b) Give all employees a standard number of vacation days (14), then override the method in the various employee classes as appropriate.

   (c) Modify the driver program to demonstrate this new functionality.

What to submit

- A PDF file including pages in the following order,
  - (A cover page) with print-out of
    - Your Name/ID, and
    - The statement: *I have read and understood the Academic Honesty Statement specified in the course outline, and I have adhered fully at all time to the academic honesty rules and policies laid by the instructor, the School of Information Technology and York University Senate's Academic Integrity Policy.*
  - (Question 1 source code and sample outputs)
  - (Question 2 source code and sample outputs)
  - (Question 3 source code and sample outputs)
  - (Question 4 source code and sample outputs)
- A zipped file containing the source codes for questions. (Your program will be evaluated on correctness, conciseness, and neatness (readability)).