***CSC 3020***

***Java Programming***

**Spring/Summer Term 2022**

**Project**

**100 points**

**Due 07/25/2022 (11:59 P.M.)**

**Requirements:**

* In a word file:
  + Analyze each problem; outline the problem and its solution requirements. (Describe the problem including input and output in your own words.))
  + Design an algorithm to solve the problem. (Describe the major steps for solving the problem.)
* Using java IDE, or notepad, implement the algorithm and use comments.
* Test the code for each problem and verify that the algorithm works; include a screenshot of the program output.

**Restrictions:**

You must work individually. Use only material from class or from the textbook All code must be the work of the individual. Do not share your code or copy from external resources.

**Submission**

Submit .java CODE files and one word file (Include screenshots and your description); upload all files to the Canvas by the due date. DO NOT Email your files. And do not submit file in .zip format.

**PROJECT**

In this project, you will design various classes and write a program to computerize the billing system of a hospital.

1. (5 points) Design the class Person. Two common attributes of a person are the person’s first name and last name. The typical operations on a person’s name are to set the name and print the name.
2. (5 points) Design the class Doctor, inherited from the class Person with an additional data member to store a doctor’s specialty. Add appropriate constructors and methods to initialize, access, and manipulate the data members.
3. (10 points) Design the class Bill with data members to store a patient’s ID and the patient’s hospital charges such as pharmacy charges for medicine, the doctor’s fee, and the room charges. Add appropriate constructors and methods to initialize, access, and manipulate the data members.
4. (6 points) design the class Date. Three common attributes of a date are month, day number, and year. Some of the operations that need to be performed on a date are to set the date and to print the date.
5. (12 points) Design the class Patient, inherited from the class Person with additional data members to store a patient’s ID, date of birth, attending physician’s name, the date when the patient was admitted in the hospital, and the date when the patient was discharged from the hospital. (Use the class Date to store the date of birth, admit date, discharge date, and the class Doctor to store the attending physician’s name.) Add appropriate constructors and methods to initialize, access, and manipulate the data members.
6. (12 points) Write a program to test your classes. Print patient’s name, attending physician, admit date, discharge date, and all charges to console window and to a .txt file as shown below. (use patient’s first and last name for file name; if patient’s name is Sam Sam, the output file name should be SamSam.txt.).

Sample output - left : Console Window, right: text file

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