

Exam 2 Programming Project

1. In this program, you are going to simulate your current classes. You need to create a class for each of the following class types:
 - a. Computer Science
 - b. Biology or Chemistry or Physics
 - c. Math
 - d. English or Creative Writing

You should also have a parent for each of these class types.

You are to read in a single file (that you create) containing the class type, the name of the class, a short description of the class, the number of credits, and the average time spent studying (in minutes). You should have at least 2 courses for each class type (try to think one class for each semester).

The parent class should have at least one method called study(). All children should override this method. In the study method, the name, description, and study time should appear.

Once the classes are populated, you are to put them all into a single array or ArrayList using the parent's type. Then, randomly pick one from the list and "study". Your program should display the information as well as keep track of how many times you have studied for that course.

The program should repeat this process 200 times (imagine you study almost every day in the semester – that is what you should be doing...). Then, display the total of how many times you studied for each course and the total time spent studying in each course.

Specifics:

- a. Create 4 classes that extend a parent class
 - b. Create a file that contains information about each class – have at least 8 entries
 - c. Read in the file and populate the correct classes with the information given
 - d. Put all instances of the classes into a single array or ArrayList.
 - e. Randomly choose one instance from the array (ArrayList) and print out the course information
 - f. Track and display the number of times the course was studied and how many minutes were spent studying. (running total)
 - g. Repeat steps e-g 200 times.
 - h. Print out the final totals at the end.
2. In this program, you are to create a new program that allows people to purchase the new Surface Studio. To do this, you are to read in a file (that you create – please have a minimum of 5 people in your file) that contains the following fields: First Name, Last Name, Date Signed up. You are to use the following format for the date in your file. *Hint* use the formatter below to create a date object.

```
String test = "31-12-1969 23:00:00.000";
```

```
DateFormat formatter = new SimpleDateFormat("dd-MM-yyyy HH:mm:ss.SSS");
```

```
Date date = formatter.parse(test);
```

You are to use an ArrayList to store your people.

You are going to create a system that will sort these people using either InsertionSort or SelectionSort (your choice) based on the following criteria:

- a. Sort by date signed up. You must sort using the Date Object.
- b. This is a console application
- c. You must implement the Comparable interface in your Person class.
- d. You cannot have more than one compareTo method.
- e. The sorted list should appear in the console.