CSC3610 – "Advanced Programming"-

Fall 2018 - Group Project

***Overall Project Description***

Overall Description – You must work in a team of 3-4 people to develop a Java-based application that helps manage a business or organization. This application should meet the following requirements:

R1. - A GUI (Graphical User Interface) using JavaFX is required. The interface should include multiple operations, such as login/register, Crate or update a records, and create a report (such as an invoice or customer transaction history).

R2 – The interface should support an administrative mode and users mode.

R2.1. This user mode should include should allow non-privileged actions such as record a transaction, update a transaction and output a report.

R.2.2 – The admin mode should allow privileged actions such as change employee data and add/delete employees.

R3 – The group must document every aspect of the project that includes:

R3.1 – The UML diagrams of the classes

R3.2 – The Unit test and overall test plan

R3.3 – Description of how you use the items in R4.

R4 – Your application must use and demonstrate:

R.4.1 – Use of these data structures:

Arrays, ArrayLists, Linked Lists, Stacks, queues and hashes

R.4.2 – at least one iterator and comparator

R.4.3 – capability to validate data fields upon entry

R4.4 – use of a database for data storage and retrieval

R4.5 – Use of specific search and sorting methods that include: Binary searches, bubble sort, merge sort, quick sort and heap sort.

R5 – Your application must include at least 2 specific classes, for example

R.5.1 – Employee Class - containing at least first name, last name, title, level (e.g., regular employee, support staff, supervisor) and their salary.

R5.2 - Customer class that will include first name, last name, date of visit, product, description of their reason for visiting the organization, and an array of 4 Customer objects.

R5.3 – Product Class that contains the product description, part number, and details (such as dimensions and weight).

R5.4 – A data structure description that details how your project is using each of the required data structures from R4.

R6 – Volume of data – You will need to populate at least 25 records for each class described in

R7 – Application reports – You need to demonstrate at least 3 reports that show sorted database information relevant to the business. For example, a sorted list of customer transactions for the month of May or a sorted list of employees by start date.

R8 – Project Documentation – All projects are expected to produce working code and a set of documentation that describes: the class architecture, the database architecture, how the data structures are used, the specific test cases developed, and how used source code control, a description of the role and code developed by each person. (It is expected that each person has a significant role and can describe their portion of the code developed.)

***A suggested real-project.***

I would like to get at least 1 group working on the following:

Brisa Barraza ( [bbarraza@aurorafoodpantry.org](mailto:bbarraza@aurorafoodpantry.org)) from the Aurora Food Pantry is looking for a volunteer database to help manage their volunteers.

They need 3 basic functions:

1. The ability to register their volunteers. They need to track
   1. Last Name, First Name, Birthday, address, affiliation (e.g., company or organization), phone number, DOB, (if retired) , email,  emergency contact: name and phone, Last updated by field
2. The Hours each volunteer works: Last Name, First Name, total hours (quarter increments) and date worked
3. Search -> Show the hours by Company, User, Court Ordered, Start date and end date.

***Extra credit if you can develop an app that they can really use.*** (This probably means contacting them to verifying the requirements)