GIT Department of Computer Engineering
CSE 222/505 - Spring 2015
Homework 07
Due date: April 27 2016 – 08:00 AM

Part 1.

1. What are the requirements to develop the following simulation with java? There will be a need of a queue data structure which is obviously, a priority queue. Information about the arrival of the customers will be given in an input file. Each line of the file contains the items (arrival time, transaction duration). There is 3 types of the customers: The priority order of the customers: customer 1> customer 2 > customer.3

Here is an example; few lines of an input file.

Arrival Time	**Transaction Duration**	**Customet Type (Random sequence)**
00 30	10	customer 1
00 35	05	customer 2
00 40	08	customer 3
00 45	02	customer 1
00 35	05	customer 1
00 50	05	customer 1
00 55	12	customer 3
01 00	13	customer 2
01 01	09	customer 2

1. Use priority queue and implement your priority queue class with your input files. Your priority queue stores any type data (Use data1.txt).
   Contruct enqueue, dequeue methods without using any function that is defined in java libraries.
2. Assume, the system does not stop in 24 hours. In every 20 hours, show the number of gold, silver and bronz customers that are served (Use data2.txt).

Part 2.

2. In an university, a research asistant has an academic and a student card. Meal service wants to combine these two cards. They need some information to identify the worker. Each card has unique barcode. A research asistant barcode number is between 1000-5000 and an academic barcode number is between 5000 and 15000. Name and Surname can belong to more than one worker in the university.

1. What is your suggestion for this problem? Write an equals method that return true if two cards belongs to the same asistant.

2. Construct your algorithm and write a hashcode method that satiesfied the hashCode contract. Make sure you do not have any collision.
3. Create input file with 500 inputs and test it according to 1 and 2.

RESTRICTIONS:
- Use maven standard Project template
- Use only hash table data structure
- Can be only one main class in project
- Don’t use any other third part library

GENERAL RULES:
- For any question firstly use course news forum in moodle, and then the contact TA.
- Use maven project management tool. And upload maven project into moodle.
- Code the Project in Java programming language. Java must be 1.8.* or bigger version.
- Any java IDE can be used in coding process.
- Implement all interfaces class
- Add all javadoc documentations for classes, methods, variables …etc. All explanation must be
meaningful and understandable.
- Implement clean code standarts in your code;
o Classes, methods and variables names must be meaningful and related with the functionality.
o Your functions and classes must be simple, general, reusable and focus on one topic.
o Use standart java code name conventions.
- Register github student pack and create private project and upload your projects into github.
- Your appeals are considered over your github project process.
- You can submitting assignment one day late and will be evaluated over forty percent (%40).
- Create report which include;
o Your name, surname, studentid
o Detailed system requirements
o The Project usecase diagrams (extra points)
o Class diagrams
o Problem solutions approach
o Test cases
o Running command and results