BRAC University

Department of Computer Science and Engineering

CSE 220: Data Structures

Lab 02

Program

You have to implement a waiting room management system in an emergency ward of a hospital. Your program will assign an Id number to a patient in a first come first serve basis. The lower the id, the sooner the service will be provided to the patient.

Your program will contain the following methods:

RegisterPatient(): This method assigns an Id (which is auto-generated) to a patient and register him/her to the system.

ServePatient(): This method calls a patient to provide hospital service to him/her.

CancelAll(): This method cancels all appointments of the patients so that the doctor can go to lunch.

CanDoctorGoHome(): This method returns true if no one is waiting, otherwise, returns false.

ShowAllPatient(): This method shows all ids of the waiting patients in SORTED order. (Hint: use the sorting methods learnt in class using the appropriate data-structure for each task) [Sorted according to their names]

Task 1

Solve the above problem using a circular array based queue.

Task 2

Solve the above problem using a linked list based queue.

You need to have a **Patient** class so that you can create an instance of it (patient) by assigning name (String), age (integer) and blood group (String).

Write a **WRM** (waiting room management) class which will contain above methods.

Write a **Tester** class that will interact with user and take information about Patients. You will pass this information to **WRM** and create instances of **Patient** in **WRM** and call the methods of **WRM** class.

Tester Class Options:

1. Add Patient – print Success or Not
2. Serve Patient – print Name of Patient being Served
3. Show All patient – print all patient in Lexicographical Order
4. Can Doctor go Home? – Print yes or no
5. Cancel all Appointment – print Success or Not

Plus, you need to have a working queue obviously.