BSc (Hons) in Information Technology
Year 2
Data Structures and Algorithms – IT2070

Lab Sheet 2 – Queues 2023

Question

i) You are required to build the following QueueX class in your program.

QueueX
- queueArr[] - maxSize - rear - front - noItems
- QueueX (int s) - insert(int j) - remove() - isEmpty() - isFull()

ii) Write a main program to create an object called *mainQueue* with 5 elements of the QueueX class. This is used to store transactions IDs

iii) Allow the user to input 5 transaction IDs from the keyboard and store them in *printerQueue*.

```
Enter transaction ID 1: 145
Enter transaction ID 2: 666
Enter transaction ID 3: 112
Enter transaction ID 4: 598
Enter transaction ID 5: 123
```

iv) You are required to send these transactions to separate PCs based on the transaction ID. Transactions sent to PC1 contains even transaction IDs and transactions sent to PC2 contain odd IDs. Create two objects called *evenQueue* and *oddQueue* to store these details.

PC1 = EVEN
PC2 = ODD

```
(Eg: ID 666 is sent to PC1 and ID 123 is sent to  PC2 )
```

v) Write the code to remove the numbers and display the result as follows.

no % 2 = 0
even

PC1

```
Transaction 666
Transaction 112
Transaction 598
```

PC2

```
Transaction 145
Transaction 123
```