**CS 114 Assignment 6**

**Topic: Queue (4 points)**

**For each task, submit the source code with detail comments electronically (no hardcopy).**

1. **2 points**

**Write a main queue program to**

1. **Using java Random object to generate a random number in between**

**1 to 5.**

1. **Use the random number generated from step (a) to read this number of records from input file test.dat into first queue array one record at a time.**
2. **After the number of records read in equals to the random number or reach to End-Of-File, stop the input process.**
3. **If it is NOT EOF, starts to de-queue ONE element from first array then simultaneously en-queue to the 2nd queue else go to step (f).**
4. **After dequeuing & enqueuing one element from first array to second array, regenerate another random number and then start the (b) again.**
5. **At the end, print both array.**
6. **2 points**

**Use java.util.LinkedList to simulate a queue service line in the bank sequentially (in the order of customer arrives then teller serves customer).**

1. **Assume there is only one service line.**
2. **The maximum number of customers arrive to the bank is 5.**
3. **The maximum number of tellers can serve the customer is 4.**
4. **Use Random() function generate number of customers enqueuer to the service line ( in between 1 to 5) and number of tellers can serve to dequeue the service line (in between 1 to 4).**
5. **Assign a continuous customer number to each customer when he/she join the line and display the message “Customer xxx joins the line”.**
6. **When the teller serves the customer, display “Customer xxx is being served”. If the line is empty, display “Teller waiting”.**
7. **Simulate the cycle for 10 times.**