

**CSE 2001 - Data Structures and Algorithms**

**LAB SHEET3**

**package XYZ;**

**import java.util.\*;**

**public class Queue {**

**int SIZE = 5;**

**int items[] = new int[SIZE];**

**int front, rear;**

**Queue() {**

**front = 0;**

**rear = -1;**

**}**

**boolean isFull()**

**{**

**if (front == 0 && rear == SIZE - 1)**

**{**

**return true;**

**}**

**return false;**

**}**

**boolean isEmpty()**

**{**

**if (front == -1)**

**return true;**

**else**

**return false;**

**}**

**void enqueue(int element)**

**{**

**if (isFull())**

**{**

**System.out.println("Queue is full");**

**}**

**else**

**{**

**if (front == -1)**

**{**

**front = 0;**

**}**

**rear++;**

**items[rear] = element;**

**System.out.println("Insert " + element);**

**}**

**}**

**int dequeue()**

**{**

**int element;**

**if (isEmpty())**

**{**

**System.out.println("Queue is empty");**

**return (-1);**

**}**

**else**

**{**

**element = items[front++];**

**System.out.println( element + " Deleted");**

**return (element);**

**}**

**}**

**void display()**

**{**

**int i;**

**if (isEmpty())**

**{**

**System.out.println("Empty Queue");**

**}**

**else**

**{**

**System.out.println("\nFront index-> " + front);**

**System.out.println("Items -> ");**

**for (i = front; i <= rear; i++)**

**System.out.print(items[i] + " ");**

**System.out.println("\nRear index-> " + rear);**

**}**

**}**

**public static void main(String[] args)**

**{**

**Queue Q = new Queue();**

**System.out.println("Initial Stack Empty : " + Q.isEmpty());**

**for(;;)**

**{**

**System.out.println("Enter 1: enqueue 2: dequeue 3:dsplay 4: exit");**

**Scanner sc= new Scanner(System.in);**

**System.out.println("Enter the option ");**

**int ch= sc.nextInt();**

**switch(ch)**

**{**

**case 1: System.out.println("Enter the value to be inserted into Q");**

**Scanner sc1= new Scanner(System.in);**

**System.out.println("Enter first element ");**

**int val= sc1.nextInt();**

**Q.enqueue(val);**

**break;**

**case 2: Q.dequeue();**

**Q.display();**

**break;**

**case 3: Q.display();**

**break;**

**case 4: System.out.println("Invalid choice ");**

**return;**

**}**

**}**

**}**

**}**