

PRN – 54

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Write a Java program to

- a. Perform insertion sort
- b. Implement queue using array

- a. Perform insertion sort

```
package com.insertion.demo;

public class Insertion {

    int[] arr= {4, 6, 7, 2, 0, 1, 3, 8};

    public void result() {

        for (int i=1;i<arr.length;i++) {

            int temp=arr[i];

            int j=i-1;

            while(j>=0 && arr[j]>temp) {

                arr[j+1]=arr[j];

                j--;

            }

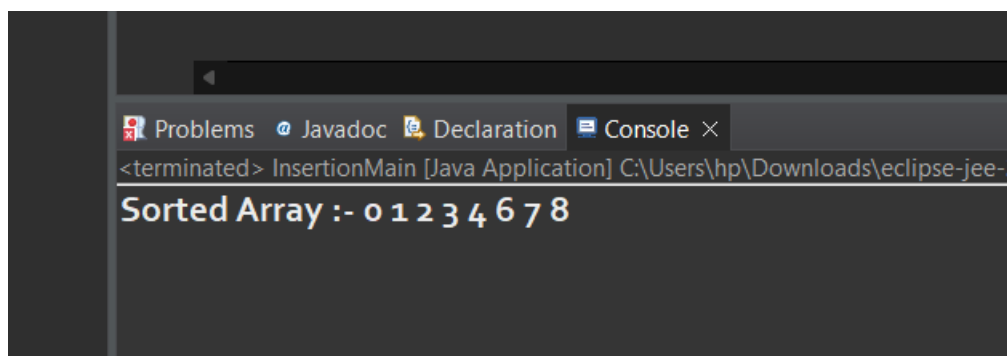
            arr[j+1]=temp;

        }

        System.out.print("the sorted array is :");
```

```
for(int a=0;a<arr.length;a++) {  
  
    System.out.print(" "+arr[a]);  
  
}  
  
}  
  
};
```

```
package com.insertion.demo;  
  
public class InsertionMain {  
  
    public static void main(String[] args) {  
  
        Insertion s = new Insertion();  
  
        s.result();  
  
    }  
  
}
```



The screenshot shows the Eclipse IDE's Console window. The title bar includes tabs for Problems, Javadoc, Declaration, and Console. The console output shows the application has terminated and displays the sorted array: "Sorted Array :- 0 1 2 3 4 6 7 8".

```
<terminated> InsertionMain [Java Application] C:\Users\hp\Downloads\eclipse-jee-2019-03-  
Sorted Array :- 0 1 2 3 4 6 7 8
```

b. Implement queue using array

```
package com.insertion.demo;

public class Queue {

    static private int front, rear, capacity;

    static private int queue[];

    public Queue(int c) {

        front = 0;

        rear = 0;

        capacity = c;

        queue = new int[capacity];

    }

    // at the rear of the queue

    static void queueEnqueue(int data) {

        if (capacity == rear) {

            System.out.printf("\nQueue is full\n");

            return;

        }

        else {

            queue[rear] = data;

            rear++;

        }

    }

}
```

```
return;

}

// function to delete an element

static void queueDequeue() {

    if (front == rear) {

        System.out.printf("Queue is empty\n");

        return;

    }

    else {

        for (int i = 0; i < rear - 1; i++) {

            queue[i] = queue[i + 1];

        }

        rear--;

    }

    return;

}

// print queue elements

static void queueDisplay()

{

    int i;

    if (front == rear) {

        System.out.printf("Queue is Empty\n");
```

```
return;

}

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

    System.out.printf(" %d ", queue[i]);

}

return;

}

}
```

```
package com.insertion.demo;

public class QueueMain {

    public static void main(String[] args) {

        Queue q = new Queue(4);

        q.queueDisplay();

        // inserting elements in the queue

        q.queueEnqueue(20);

        q.queueEnqueue(30);

        q.queueEnqueue(40);

        q.queueEnqueue(50);

        // print Queue elements

        q.queueDisplay();

        // insert element in the queue
```

```
q.queueEnqueue(60);

// print Queue elements

q.queueDisplay();

q.queueDequeue();

q.queueDisplay();

}

}
```

```
23
24 // print Queue elements
25 q.queueDisplay();
```

Problems Javadoc Declaration Console ×

<terminated> QueueMain [Java Application] C:\Users\hp\Downloads\eclipse

Queue is Empty
20 30 40 50
Queue is full
20 30 40 50 30 40 50