# Sorting Array

# Assignment Questions

## Assignment Questions

1. **Write a program to sort an array in descending order using bubble sort.**

   **Input Array {3,5,1,6,0}**
   **Output Array: {6, 5, 3, 1, 0}**

   **Ans :-**

```
import java.util.*;
public class Assignment1_Q_one {
    public static void main(String[]args){
        Scanner sc = new Scanner (System.in);
        System.out.println("Enter the number of elements present in
this array");
        int n = sc.nextInt();

        int ar[] = new int [n];

        System.out.println("Enter the numbers present in this array");
        for (int i=0 ; i<ar.length ; i++){
            ar[i] = sc.nextInt();
        }

        for(int i = 0 ; i< ar.length ; i++){
            for(int j=0 ; j<ar.length-i-1 ; j++){
                if(ar[j] < ar[j+1]){
                    int temp = ar[j];
                    ar[j] = ar[j+1];
                    ar[j+1] = temp;

                }
            }
```

```
        }

        System.out.println(Arrays.toString(ar));
    }
}
```

**Output :-**

**Enter the number of elements present in this array**
**5**
**Enter the numbers present in this array**
**3 5 1 6 0**
**[6, 5, 3, 1, 0]**

2. **WAP to sort an array in descending order using selection sort**

   **Input Array {3,5,1,6,0}**
   **Output Array: {6, 5, 3, 1, 0}**

   **Ans :-**

```
import java.util.*;
public class Assignment2_Q_two{
    public static void main(String[]args){
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter the number of elements present in
this array");
        int n = sc.nextInt();

        int ar [] = new int [n];

        System.out.println("Enter the numbers present in this array");
        for(int i=0; i<ar.length ; i++){
            ar[i] = sc.nextInt();
        }

        for(int i = 0; i<ar.length ; i++){
            int min_ind = i;
            for(int j=i+1 ; j<ar.length ; j++){
                if(ar[min_ind] < ar[j]){
                    min_ind = j;
                }
            }

            if(min_ind != i)
```

```
            {
                int temp = ar[i];
                ar[i] = ar[min_ind];
                ar[min_ind] = temp;
            }

        }

        System.out.println(Arrays.toString(ar));

    }
}
```

**Output :-**

**Enter the number of elements present in this array**
**5**
**Enter the numbers present in this array**
**3 5 1 6 0**
**[6, 5, 3, 1, 0]**

3. **WAP to sort an array in decreasing order using insertion sort**

   **Input Array {3,5,1,6,0}**
   **Output Array: {6, 5, 3, 1, 0}**

   **Ans :-**

```
import java.util.*;
public class Assingnment1_Q_three {
    public static void main(String[]args){
       Scanner sc = new Scanner(System.in);
       System.out.println("Enter the number of elements present in
this array");
       int n = sc.nextInt();

       int ar[] = new int [n];

       System.out.println("Enter the numbers present in this array");
       for(int i=0 ; i<ar.length ; i++){
            ar[i] = sc.nextInt();
       }

       for(int i = 1 ; i<ar.length ; i++){
        int j = i;
```

```
            while (j>0 && ar[j] > ar[j-1]){

                int temp = ar[j];
                ar[j] = ar[j-1];
                ar[j-1] = temp;

                j--;
            }
        }

        System.out.println(Arrays.toString(ar));
    }
}
```

**Output :-**

**Enter the number of elements present in this array**
**5**
**Enter the numbers present in this array**
**3 1 5 6 0**
**[6, 5, 3, 1, 0]**

4. **Find out how many pass would be required to sort the following array in decreasing order using bubble sort Input Array {3,5,1,6,0}**

   **Ans :-**

- **To Sort any array in decreasing order we required the n-1 pass where n is the number of elements present in this array**
- **So in this case the n = 5**
- **So the number of pass required will be n-1 = 5-1 = 4**

5. **Find out the number of iterations to sort the array in descending order using selection sort. Input Array {3,5,1,6,0}**

   **Ans :-**

- **To find the number of iteration to sort the array in decreasing order**
- **There is the Generalized form to find the number of iteration in the selection sort will be equal to n * (n-1) / 4**
- **Where n for this case will be equal to number of element present in**

**this array will be 5**

- **Therefore  the number of iteration will be n * (n-1) = 5 * (5-4) / 4 = 5**