

## Java-3 Assignment-3 (Array)

Array coding questions:

① Find the largest &amp; smallest Element.

o Give an array, Find the smallest and largest element in it.

```
Ans - Public class MaxSmallArray {  
    public static void main (String [] args) {  
        int [] arr = { 3, 7, 5, 2, 8, 10 }  
        int min = arr[0];  
        int max = arr[0];  
  
        for (int num : arr) {  
            if (num < min) {  
                min = num;  
            }  
            else {  
                max = num;  
            }  
        }  
  
        System.out.println (" Largest Element are  
                             : " + max);  
        System.out.println (" Smallest Element are : "  
                             + min);  
    }  
}
```

### ② Reverse an Array:

```
Ans- public class ReverseArray {  
    public static void main (String[] args) {  
        int[] arr = {1, 2, 3, 4, 5};  
        int left = 0;  
        int right = arr.length - 1;  
  
        while (left < right) {  
            int temp = arr[left];  
            arr[left] = arr[right];  
            arr[right] = temp;  
            left++;  
            right--;  
        }  
        System.out.println("Reverse Array: " + Arrays.  
            toString(arr));  
    }  
}
```

### ③ find the Second largest Element.

```
Ans- public class SecondLargest {  
    public static void main (String[] args) {  
        int[] arr = {1, 10, 12, 34, 35};  
        int first = Integer.MIN_VALUE;  
        int second = Integer.MIN_VALUE;  
  
        for (int num : arr) {  
            if (num > first) {  
                second = first;  
                first = num;  
            }  
        }  
    }  
}
```



```
else if
```

```
(num > second || num < first) {
```

```
    second = num;
```

```
}
```

```
}
```

```
System.out.println("Second Largest: " + second);
```

```
}
```

```
}
```

#### ④ Count Even and odd Numbers

Ans - Public class CountEvenOdd {

```
    public static void main (String [] args) {
```

```
        int [] arr = { 2, 5, 7, 8, 9, 11, 12 };
```

```
        int even = 0;
```

```
        int odd = 0;
```

```
        for (int num : arr) {
```

```
            if (num % 2 == 0) {
```

```
                even ++;
```

```
            }
```

```
            else {
```

```
                odd ++;
```

```
            }
```

```
        System.out.println("Even Count: " + even);
```

```
        System.out.println("Odd Count: " + odd);
```

```
    }
```

```
}
```

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⑤ find sum and Average.

```
Ans - public class SumAverage {  
    public static void main (String [] args) {  
        int [] arr = { 1, 2, 3, 4, 5 };  
        int sum = 0;  
  
        for (int num : arr) {  
            sum = sum + num;  
        }  
  
        System.out.println ("Sum : " + sum);  
        System.out.println ("Average : " + (double)sum  
                               / arr.length);  
    }  
}
```

⑧ Merge Two Sorted Arrays (without Extra Space)

```
public class Merge Sorted Arrays {  
    public static void merge (int [] A, int [] B) {  
        int p = A.length; int q = B.length; int i, j, k = 0;  
        int [] result = new int [p + q];  
  
        while (i < p & j < q) {  
            if (A[i] < B[j]) result[k++] = A[i++];  
            else {  
                result[k++] = B[j++];  
            }  
        }  
        while (i < p) result[k++] = A[i++];  
        while (j < q) result[k++] = B[j++];  
  
        System.out.println ("Merged Array : " +  
                             Arrays.toString(result));  
    }  
}
```



```
Public Static void main (String [] args) {  
    int [] A = {1, 3, 5, 7};  
    int [] B = {2, 4, 6, 8};  
    merge (A, B);  
}
```

(18) Print a Matrix

o Given an  $m \times n$  matrix, print all its elements row-wise

Ans - Public class Print Matrix {

```
Public Static void main (String [] args) {  
    int [][] matrix = { {1, 2, 3}, {4, 5, 6},  
                        {7, 8, 9} };
```

```
    for (int [] row : matrix) {
```

```
        for (int num : row) {
```

```
            System.out.print (num + " ");
```

```
        }
```

```
        System.out.println();
```

```
    }
```

```
}
```

```
}
```

(19) Transpose of a Matrix:-

o Given an matrix, return its transpose (Swap rows and columns).

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Ans - Public class Transpose Matrix {

public static void main (String [] args) {

int [][] matrix = { {1, 2, 3}, {4, 5, 6}, {7, 8, 9} };

int rows = matrix.length, cols = matrix [0].length;

int [][] transpose = new int [cols] [rows];

for (int i = 0; i < rows; i++) {

for (int j = 0; j < cols; j++) {

transpose [j] [i] = matrix [i] [j];

}

for (int [] row : transpose) {

for (int num : row) {

System.out.print (num + " ");

}

System.out.println ();

}

}

}