

# OOP LAB

## Lab 1 Assignment Submission

**SWAMIRAJU SATYA PRAVEEN VARMA**

**200905044**

**CSE SECTION B**

**ROLL.NO 10**

**1) a. Write a method isPrime to accept one integer parameter and to check whether that parameter is prime or not.**

**b. Using this method, generate first N prime numbers in the main method.**

**CODE:**

```
import java.util.Scanner;
```

```
public class PrimeNumber
```

```
{
```

```
    static boolean isPrime(int num)
```

```
    {
```

```
        if(num<0)
```

```
            return false;
```

```
        for(int i=2;i<=num/2;i++){
```

```
            if(num%i==0)
```

```
                return false;
```

```
        }
```

```
        return true;
```

```
    }
```

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

```

    {
        Scanner sc = new Scanner(System.in);System.out.println("Enter a
number: ");

        int num = sc.nextInt();
        if(isPrime(num))
            System.out.println(num+" is a prime number");
        else
            System.out.println(num+" is not a prime number");
        System.out.println();
        System.out.println("Enter the limit upto which you want prime
numbers: ");

        int limit = sc.nextInt();
        System.out.println("Prime numbers upto "+limit+" are:");
        for(int i=2;i<=limit;i++){
            if(isPrime(i))
                System.out.print(i+" ");
        }
        System.out.println();
    }
}

```

}

**Sample Input/Output:**

```
student@dslab: ~/200905044/Week1
File Edit View Search Terminal Help
student@dslab:~/200905044/Week1$ java PrimeNumber
Enter a number:
23
23 is a prime number

Enter the limit upto which you want prime numbers:
25
Prime numbers upto 25 are:
2 3 5 7 11 13 17 19 23
student@dslab:~/200905044/Week1$ java PrimeNumber
Enter a number:
25
25 is not a prime number

Enter the limit upto which you want prime numbers:
15
Prime numbers upto 15 are:
2 3 5 7 11 13
student@dslab:~/200905044/Week1$
```

2) Arrange the elements in ascending and descending order using  
Bubble sort method.

CODE:

```
import java.util.Scanner;

public class BubbleSort
{

    static void BubbleSortAscending(int n, int[] a) {
        for(int i=0;i<n;i++){

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

                if(a[j]>a[j+1])
                {
```

```

        int temp = a[j];
        a[j] = a[j+1];
        a[j+1] = temp;
    }
}

System.out.println("Modified array in ascending order: ");

```

```

for(int i=0;i<n;i++)
{
    System.out.print(a[i]+" ");
}

}

```

```

static void BubbleSortDescending(int n, int[] a){
    for(int i=0;i<n;i++)
    {
        for(int j=0;j<(n-i-1);j++)
        {
            if(a[j]<a[j+1])
            {
                int temp = a[j];
                a[j] = a[j+1];
                a[j+1] = temp;
            }
        }
    }
}

```

```

        System.out.println("Modified array in descending order: ");
        for(int i=0;i<n;i++)
        {
            System.out.print(a[i]+" ");
        }
        System.out.println();

    }

    public static void main(String[] args)
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter the number of elements for 1-D array: ");
        int n = sc.nextInt();
        int[] a = new int[n];
        System.out.println("Enter the elements for 1-D array: ");
        for(int i=0;i<n;i++)
        {
            a[i] = sc.nextInt();
        }

        BubbleSortAscending(n,a);

        System.out.println();

        BubbleSortDescending(n,a);

    }

```

}

### Sample Input/Output:

```
student@dslab: ~/200905044/Week1
File Edit View Search Terminal Help
student@dslab:~/200905044/Week1$ java BubbleSort
Enter the number of elements for 1-D array:
6
Enter the elements for 1-D array:
45
12
32
56
14
49
Modified array in ascending order:
12 14 32 45 49 56
Modified array in descending order:
56 49 45 32 14 12
student@dslab:~/200905044/Week1$
```

```
student@dslab: ~/200905044/Week1
File Edit View Search Terminal Help
student@dslab:~/200905044/Week1$ java BubbleSort
Enter the number of elements for 1-D array:
5
Enter the elements for 1-D array:
-2 5 2 0 3
Modified array in ascending order:
-2 0 2 3 5
Modified array in descending order:
5 3 2 0 -2
student@dslab:~/200905044/Week1$
```

### 3) Find the addition of two matrices and display the resultant matrix.

#### CODE:

```
import java.util.Scanner;
```

```
public class MatrixAddition
```

```
{
```

```
    static void MatAdd(int r1, int c1, int[][] a, int r2, int c2, int[][] b)
```

```
    {
```

```
        int[][] c = new int[r1][c1];
```

```

        for(int i=0;i<r1;i++)
        {
            for(int j=0;j<c1;j++)
            {
                c[i][j]= a[i][j] + b[i][j];
            }
        }
        System.out.println("The resultant addition matrix is:");
        for(int i=0;i<r1;i++)
        {
            for(int j=0;j<c1;j++)
            {
                System.out.print(c[i][j]+" ");
            }
            System.out.println();
        }
    }
}

```

```

public static void main(String[] args)
{
    Scanner sc = new Scanner(System.in);
    System.out.println("Enter the number of rows for the first matrix: ");
    int r1 = sc.nextInt();
    System.out.println("Enter the number of columns for the first matrix: ");
    int c1 = sc.nextInt();
    System.out.println("Enter the number of rows for the second matrix: ");
    int r2 = sc.nextInt();
    System.out.println("Enter the number of columns for the second matrix: ");
    int c2 = sc.nextInt();
    if(r1!=r2 || c1!=c2){
        System.out.println("Matrix Addition is not possible");
    }
}

```

```

        return;
    }
    int[][] a = new int[r1][c1];
    int[][] b = new int[r2][c2];
    System.out.println("Enter " + r1*c1 + " elements for first matrix: ");
    for(int i=0;i<r1;i++)
    {

        for(int j=0;j<c1;j++)
        {
            a[i][j] = sc.nextInt();
        }
    }
    System.out.println("Enter " + r2*c2 + " elements for second matrix: ");
    for(int i=0;i<r2;i++)
    {
        for(int j=0;j<c2;j++)
        {
            b[i][j] = sc.nextInt();
        }
    }
    MatAdd(r1,c1,a,r2,c2,b);

```

```

    }

```

```

}

```



```
student@dslab: ~/200905044/Week1
File Edit View Search Terminal Help

student@dslab:~/200905044/Week1$ java MatrixAddition
Enter the number of rows for the first matrix:
3
Enter the number of columns for the first matrix:
2
Enter the number of rows for the second matrix:
3
Enter the number of columns for the second matrix:
2
Enter 6 elements for first matrix:
1 2 3 4 5 6
Enter 6 elements for second matrix:
9 8 7 4 5 6
The resultant addition matrix is:
10 10
10 8
10 12
student@dslab:~/200905044/Week1$
```

```
student@dslab: ~/200905044/Week1
File Edit View Search Terminal Help

student@dslab:~/200905044/Week1$ java MatrixAddition
Enter the number of rows for the first matrix:
2
Enter the number of columns for the first matrix:
4
Enter the number of rows for the second matrix:
4
Enter the number of columns for the second matrix:
3
Matrix Addition is not possible
student@dslab:~/200905044/Week1$
```

**THANK YOU!**