Institute of Engineering & Technology

Devi Ahilya Vishwavidyalaya, Indore

Department of Computer Science & Engineering

Object Oriented Programming (CER3C2)

Assignment-3

(ScannerClass)

Submitted To:

Harshita Sharma Mam

CS-Dept

IET-DAVV

Submitted By:

Tanishq Chauhan (21C3184)

CS "B" 2nd Year

Assignment-3

1. Write a program to delete duplicate from an Array.

```java
import java.util.Scanner;
import java.util.Arrays;
public class Delete_Duplicate {
    public static void main(String[] args) {
        int arr[], arr2[];
        int n,p=0;
        Scanner sc=new Scanner(System.in);
        System.out.print("Enter the Size of Array:");
        n=sc.nextInt();
        arr=new int[n];
        arr2=new int[n];
        System.out.print("Enter the Elements of Array:");
        for(int i=0; i<n; i++)
        {
            arr[i]=sc.nextInt();
        }
        Arrays.sort(arr);
        for(int i=0; i<n-1; i++)
        {
            if(arr[i]!=arr[i+1])
            {
                arr2[p]=arr[i];
                p++;
            }
        }
        arr2[p] = arr[n-1];
```

```
        System.out.print("Array After Deleting Duplicate
form Array:");
        for(int i=0; i<=p; i++)
        {
            System.out.print(arr2[i] + " ");
        }
    }
}
```

Output

```
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-3> cd "d:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-3\" ; if ($?)
 { javac Delete_Duplicate.java } ; if ($?) { java Delete_Duplicate }
Enter the Size of Array:6
Enter the Elements of Array:1 10 10 5 1 2
Array After Deleting Duplicate form Array:1 2 5 10
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-3>
```

2. Write a program to calculate Area of the circular region, take radius of inner and outer circles from the user.

```
import java.util.Scanner;
public class AreaC {
    public static void main(String[] args) {
        float r, R;
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter the Radius of Inner-
Circle:");
        r = sc.nextFloat();
        System.out.print("Enter the Radius of Outer-
Circle:");
        R = sc.nextFloat();

        Float areabig = (float)3.1415*R*R;
        Float areasmall = (float)3.1415*r*r;
        System.out.print("The Area of Circular Region is:" +
(areabig-areasmall));
    }
}
```

Output

```
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-3> cd "d:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-3\" ; if ($?)
 { javac AreaC.java } ; if ($?) { java AreaC }
Enter the Radius of Inner-Circle:3.4
Enter the Radius of Outer-Circle:5
The Area of Circular Region is:42.221764
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-3>
```

3. Write a program to find numbers of Vowels in a string.

```
import java.util.Scanner;
public class Vowels {
    public static void main(String[] args) {
        int n=0;
        Scanner sc=new Scanner(System.in);
        System.out.print("Enter the String:");
        String s = sc.nextLine();

        for(int i=0; i<s.length(); i++)
        {
            if(s.charAt(i)=='A' || s.charAt(i)=='a' ||
s.charAt(i)=='E' || s.charAt(i)=='e' || s.charAt(i)=='I' ||
s.charAt(i)=='i')
            {
                n++;
            }
            if(s.charAt(i)=='O' || s.charAt(i)=='o' ||
s.charAt(i)=='U' || s.charAt(i)=='u')
            {
                n++;
            }
        }
        System.out.print("The number of Vowels: " + n);
        System.out.println();
    }
}
```

Output

```
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-3> cd "d:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-3\" ; if ($?)
 { javac Vowels.java } ; if ($?) { java Vowels }
Enter the String:Vowels
The number of Vowels: 2
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-3>
```

4. Write a program for addition, subtraction and multiplication of the Matrix.

```
import java.util.Scanner;
public class Matrix_asm {
    public static void main(String[] args)
    {
        Scanner sc=new Scanner(System.in);
        int [][]mat1 =new int[3][3];
        int [][]mat2 =new int[3][3];
        int [][]add=new int[3][3];
        int [][]sub=new int[3][3];
        int [][]multi=new int[3][3];

        System.out.println("Enter elements of first matrix:
");
        for(int i=0;i<3;i++)
        {
            for(int j=0;j<3;j++)
            {
                mat1[i][j]=sc.nextInt();
            }
        }

        System.out.println("Enter elements of second matrix:
");
        for(int i=0;i<3;i++)
        {
            for(int j=0;j<3;j++)
            {
                mat2[i][j]=sc.nextInt();
            }
        }

        System.out.println("Both matrix are: ");
```

```
        for(int i=0;i<3;i++)
        {
            for(int j=0;j<3;j++)
            {
                System.out.print(mat1[i][j] + " ");
            }
            System.out.println();
        }
         System.out.println();

        for(int i=0;i<3;i++)
        {
            for(int j=0;j<3;j++)
            {
                System.out.print(mat2[i][j] + " ");
            }
            System.out.println();
        }
        System.out.println();

        for(int i=0;i<3;i++)
        {
            for(int j=0;j<3;j++)
            {
               add[i][j]=mat1[i][j]+mat2[i][j];
            }
        }
        System.out.println("Addition of matrix is: ");
        for(int i=0;i<3;i++)
        {
            for(int j=0;j<3;j++)
            {
                System.out.print(add[i][j] + " ");
            }
            System.out.println();
        }
        System.out.println();
```

```
        for(int i=0;i<3;i++)
        {
            for(int j=0;j<3;j++)
            {
                sub[i][j]=mat1[i][j]-mat2[i][j];
            }
        }
        System.out.println("Subtraction of matrix is: ");
        for(int i=0;i<3;i++)
        {
            for(int j=0;j<3;j++)
            {
                System.out.print(sub[i][j] + " ");
            }
            System.out.println();
        }
        System.out.println();


        System.out.println("Multiplication of matrix is: ");
        for(int i=0;i<3;i++)
        {
            for(int j=0;j<3;j++)
            {
                for(int k=0;k<3;k++)
                {
                    multi[i][j] += mat1[i][k]*mat2[k][j];
                }
                System.out.print(multi[i][j]+" ");
            }
            System.out.println();
        }
    }
}
```

Output

```
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments> cd "d:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-3\" ; if ($?) { javac Matrix_asm.java } ; if ($?) { java Matrix_asm }
Enter elements of first matrix:
1 2 3 4 5 6 7 8 9
Enter elements of second matrix:
1 2 3 4 5 6 7 8 9
Both matrix are:
1 2 3
4 5 6
7 8 9

1 2 3
4 5 6
7 8 9

Addition of matrix is:
2 4 6
8 10 12
14 16 18

Subtraction of matrix is:
0 0 0
0 0 0
0 0 0

Multiplication of matrix is:
30 36 42
66 81 96
102 126 150
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-3>
```

5. Write a program to calculate bubble sort, insertion sort and selection sort using switch case.

```
import java.util.*;
public class Sortings {
    public static void main(String[] args)
    {
        int array[];
        int n;
        Scanner sc=new Scanner(System.in);
        System.out.print("Enter the number of Elements in
Array:");
        n = sc.nextInt();
        array = new int[n];
        System.out.print("Enter the Elements:");
        for(int i=0; i<n; i++)
        {
            array[i] = sc.nextInt();
        }
        System.out.print("Array Before Sorting:");
        for(int i=0; i<n; i++)
        {
            System.out.print(array[i] + " ");
        }
        System.out.println();

        int choice=0;
        System.out.println("Available Choices:");
        System.out.println("1. Bubble Sort: ");
        System.out.println("2. Insertion Sort: ");
        System.out.println("3. Selection Sort: ");
        System.out.println("4. Exit: ");

        while(choice!=4)
        {
```

```
            System.out.println("Enter Your Choice: ");
            choice = sc.nextInt();

            switch(choice)
            {
                case 1: bubblesort(array,n);
                System.out.println();
                break;

                case 2: insertionsort(array,n);
                System.out.println();
                break;

                case 3: selectionsort(array,n);
                System.out.println();
                break;

                case 4: System.out.print("Exit!");
                break;

                default:
                System.out.println("Enter Valid Choice:");
            }
        }
        sc.close();
    }
    static void bubblesort(int array[], int n)
    {
        int f=1;
        while(f!=0)
        {
            f=0;
            for(int i=0; i<n-1; i++)
            {
                if(array[i]>array[i+1])
                {
                    int t = array[i];
                    array[i] = array[i+1];
```

```
                    array[i+1] = t;
                    f++;
                }
            }
        }
        System.out.println("Array after Bubble Sort is: ");
        for(int i=0; i<n; i++)
        {
            System.out.print(array[i] + " ");
        }
    }

    static void insertionsort(int array[], int n)
    {
        for(int i=1; i<n; i++)
        {
            for(int j=i-1; j>=0; j--)
            {
                if(array[i]<array[j])
                {
                    int t = array[i];
                    array[i] = array[j];
                    array[j] = t;
                }
            }
        }
        System.out.println("Array after Insertion Sort is:
");
        for(int i=0; i<n; i++)
        {
            System.out.print(array[i] + " ");
        }
    }

    static void selectionsort(int array[], int n)
    {
        int min=10000000;
        for(int i=0; i<n; i++)
```

```
        {
            for(int j=i; j<n; j++)
            {
                if(array[j]<min)
                {
                    min = array[i];
                    int t = array[i];
                    array[i] = min;
                    array[j] = t;
                }
            }
        }
        System.out.println("Array after Selection Sort is:
");
        for(int i=0; i<n; i++)
        {
            System.out.print(array[i] + " ");
        }
    }
}
```

Output

```
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-3> cd "d:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignm
ent-3\" ; if ($?) { javac Sortings.java } ; if ($?) { java Sortings }
Enter the number of Elements in Array:8
Enter the Elements:25 8 98 25 12 45 23 56
Array Before Sorting:25 8 98 25 12 45 23 56
Available Choices:
1. Bubble Sort:
2. Insertion Sort:
3. Selection Sort:
4. Exit:
Enter Your Choice:
1
Array after Bubble Sort is:
8 12 23 25 25 45 56 98
Enter Your Choice:
2
Array after Insertion Sort is:
8 12 23 25 25 45 56 98
Enter Your Choice:
3
Array after Selection Sort is:
8 12 23 25 25 45 56 98
Enter Your Choice:
4
Exit!
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-3>
```

6. Write a Java program to get a number from the user and print whether it is positive or negative.

```java
import java.util.Scanner;
public class plusminus {
    public static void main(String[] args) {
        int n;
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter a Number:");
        n = sc.nextInt();

        if(n<0)
        {
            System.out.print("Negative Number");
        }
        else if(n>0)
        {
            System.out.print("Positive Number");
        }
        else
        {
            System.out.print("Zero");
        }
        sc.close();
    }

}
```

Output

```
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-3> cd "d:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-3\" ; if ($?) { javac plusminus.java } ; if ($?) { java plusminus }
Enter a Number:-123
Negative Number
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-3> cd "d:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-3\" ; if ($?) { javac plusminus.java } ; if ($?) { java plusminus }
Enter a Number:123
Positive Number
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-3> cd "d:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-3\" ; if ($?) { javac plusminus.java } ; if ($?) { java plusminus }
Enter a Number:0
Zero
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-3>
```

7. Write a Java program that reads a floating-point number and prints "zero" if the number is zero. Otherwise, print "positive" or "negative". Add "small" if the absolute value of the number is less than 1, or "large" if it exceeds 1,000,000.

```
import java.util.Scanner;
public class FloatingPoint_Number {
    public static void main(String[] args) {
        float f;
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter a Floating Point Number:");
        f = sc.nextFloat();

        if(f==0)
        {
            System.out.print("Zero");
        }
        else if(f>0)
        {
            if(f>1000000)
            {
                System.out.print("Large Positive");
            }
            else if(f<1)
            {
                System.out.print("Small Positive");
            }
            else
            {
                System.out.print("Positive");
            }
        }
        else
        {
```

```
            if(f>-1)
            {
                System.out.print("Small Negative");
            }
            else if(f<(-1000000))
            {
                System.out.print("Large Negative");
            }
            else
            {
                System.out.print("Negative");
            }
        }
        sc.close();
    }
}
```

Output

```
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-3> cd "d:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-3\" ; if ($?) { javac FloatingPoint_Number.java } ; if ($?) { java FloatingPoint_Number }
Enter a Floating Point Number:0
Zero
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-3> cd "d:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-3\" ; if ($?) { javac FloatingPoint_Number.java } ; if ($?) { java FloatingPoint_Number }
Enter a Floating Point Number:-85.9
Negative
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-3> cd "d:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-3\" ; if ($?) { javac FloatingPoint_Number.java } ; if ($?) { java FloatingPoint_Number }
Enter a Floating Point Number:85.9
Positive
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-3> cd "d:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-3\" ; if ($?) { javac FloatingPoint_Number.java } ; if ($?) { java FloatingPoint_Number }
Enter a Floating Point Number:45000000
Large Positive
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-3>
```

8. Write a Java program that keeps a number from the user and generates an integer between 1 and 7 and displays the name of the weekday.

```java
import java.util.Scanner;
public class WeekDay {
    public static void main(String[] args) {
        int n;
        System.out.print("Enter a Number Between 1 to 7: ");
        Scanner sc = new Scanner(System.in);
        n = sc.nextInt();

        switch(n)
        {
            case 1 : System.out.print("Monday");
            break;

            case 2 : System.out.print("Tuesday");
            break;

            case 3 : System.out.print("Wednesday");
            break;

            case 4 : System.out.print("Thursday");
            break;

            case 5 : System.out.print("Friday");
            break;

            case 6 : System.out.print("Saturday");
            break;

            case 7 : System.out.print("Sunday");
            break;
```

```
            default: System.out.print("Enter Valid Number");
                break;
            }
            sc.close();
        }
}
```

Output

```
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-3> cd "d:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignm
ent-3\" ; if ($?) { javac WeekDay.java } ; if ($?) { java WeekDay }
Enter a Number Between 1 to 7: 5
Friday
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-3> cd "d:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignm
ent-3\" ; if ($?) { javac WeekDay.java } ; if ($?) { java WeekDay }
Enter a Number Between 1 to 7: 7
Sunday
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-3> cd "d:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignm
ent-3\" ; if ($?) { javac WeekDay.java } ; if ($?) { java WeekDay }
Enter a Number Between 1 to 7: 1
Monday
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-3>
```

9. Write a program in Java to display the cube of the number upto given an integer.

```java
import java.util.*;
public class cube {
    public static void main(String[] args) {
        int n;
        System.out.print("Enter a Number:");
        Scanner sc = new Scanner(System.in);
        n = sc.nextInt();

        for(int i=1; i<=n; i++)
        {
            System.out.println("The cube of "+i+" is:
"+(i*i*i));
        }
        sc.close();
    }
}
```

Output

```
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-3> cd "d:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignm
ent-3\" ; if ($?) { javac cube.java } ; if ($?) { java cube }
Enter a Number:6
The cube of 1 is: 1
The cube of 2 is: 8
The cube of 3 is: 27
The cube of 4 is: 64
The cube of 5 is: 125
The cube of 6 is: 216
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-3> cd "d:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignm
ent-3\" ; if ($?) { javac cube.java } ; if ($?) { java cube }
Enter a Number:8
The cube of 1 is: 1
The cube of 2 is: 8
The cube of 3 is: 27
The cube of 4 is: 64
The cube of 5 is: 125
The cube of 6 is: 216
The cube of 7 is: 343
The cube of 8 is: 512
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-3>
```

10.Write a program that accepts three numbers from the user and prints "increasing" if the numbers are in increasing order, "decreasing" if the numbers are in decreasing order, and "Neither increasing or decreasing order" otherwise.

```
import java.util.Scanner;
public class order {
    public static void main(String[] args) {
        int x,y,z;
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter the First Number:");
        x = sc.nextInt();
        System.out.print("Enter the Second Number:");
        y = sc.nextInt();
        System.out.print("Enter the Third Number:");
        z = sc.nextInt();

        if(x>y && y>z)
        {
            System.out.print("Decreasing");
        }
        else if(x<y && y<z)
        {
            System.out.print("Increasing");
        }
        else
        {
            System.out.print("Neither Increasing nor
Decreasing");
        }
        sc.close();
    }
}
```

Output

```
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-3> cd "d:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-3\" ; if ($?) { javac order.java } ; if ($?) { java order }
Enter the First Number:6
Enter the Second Number:10
Enter the Third Number:15
Increasing
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-3> cd "d:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-3\" ; if ($?) { javac order.java } ; if ($?) { java order }
Enter the First Number:10
Enter the Second Number:5
Enter the Third Number:2
Decreasing
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-3> cd "d:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-3\" ; if ($?) { javac order.java } ; if ($?) { java order }
Enter the First Number:24
Enter the Second Number:98
Enter the Third Number:12
Neither Increasing nor Decreasing
PS D:\Btech-IET\3rd Sem\Object Oriented Programming\Assignments\Java\Assignment-3>
```