PRN 210950320075

Prachi Yadav

Assignment 1

1.Print hello world.

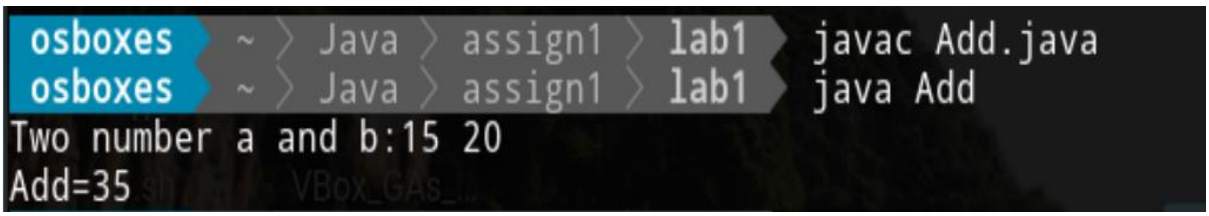
```
public class Hello{
public static void main(String[]args){
System.out.println("Hello World");
}
}
```

Output:

2.Add two number/binary/character.

```
public class Add{
public static void main(String[] args){
int a=15;
int b=20;
int add=(a+b);
System.out.println("Two number a and b:" +(a)+" "+(b));
System.out.println("Add="+(add));
}
}
```

Output:




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

```
int a=0b0100,b=0b0010;
int add=a+b;
System.out.println (add);
}
}
```

```
osboxes ~ Java assign1 lab1 javac Binary.java
osboxes ~ Java assign1 lab1 java Binary
addition of binary number is:6
```

3.Calculate compound interest.

```
public class Compound{
public static void main(String[] args){
float p=2000;
float r=5;
float n=3;
float pow=(float)Math.pow((1+r/100),n);
float ci=p*(pow-1);
System.out.println("p="+(p)+" "+"r="+(r)+" "+"n="+(n));
System.out.println("ci:="+(ci));
}
}
```

Output:

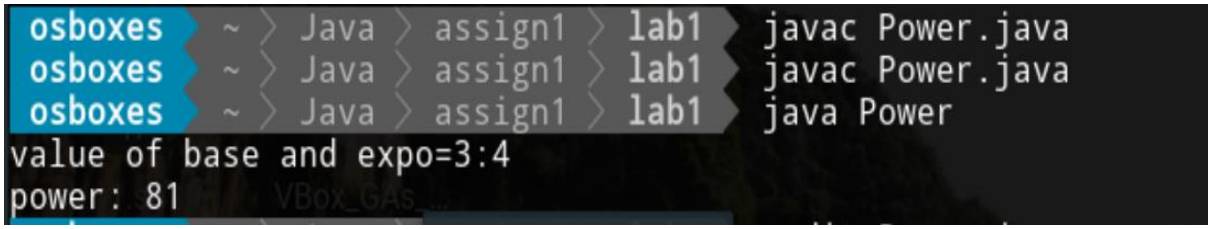
```
osboxes ~ Java assign1 lab1 javac Compound.java
osboxes ~ Java assign1 lab1 java Compound
p=2000.0 r=5.0 n=3.0
ci:=315.2497
```

4.calculate the power of number.

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

```
int base=3;
int expo=4;
long power = 1;
System.out.println("value of base and expo=" +(base)+":"+(expo));
  for (;expo != 0; --expo) {
   power *= base;
  }
  System.out.println("power: " + power);
 }
}
```

Output:



5.swap two numbers.

```
public class Swap{
  public static void main(String[] args){
  int a=10,b=20;
  System.out.println("Number before swap:" +(a)+" " +(b));
  a=a+b;
  b=a-b;
  a=a-b;
  System.out.println("Number after swap:" +(a) +" " +(b));
  }
  }
```

Output:

```
osboxes ~ Java assign1 lab1 javac Swap.java
osboxes ~ Java assign1 lab1 java Swap
Number before swap:10 20
Number after swap:20 10
```

6 calculate area of rectangle.

```
public class Area{
public static void main(String []args){
int l=20,b=30;
int area=0;
System.out.println("Lenght and Breath are:"+(l)+" "+(b));
area=l*b;
System.out.println("Area of rectangle are:"+(area));
}
}
```

Output:

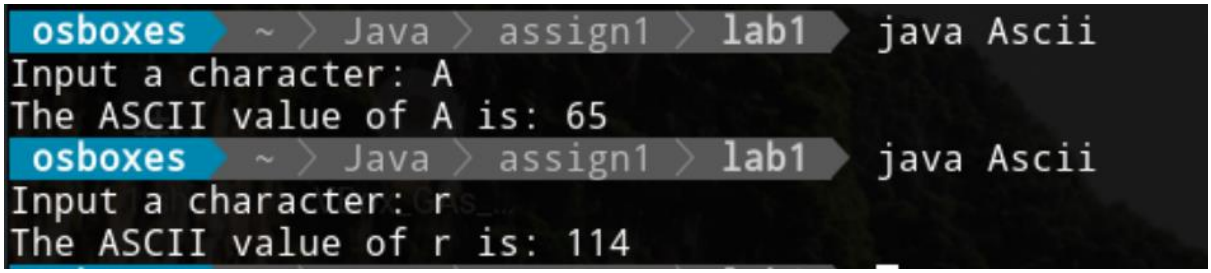
```
osboxes ~ Java assign1 lab1 javac Area.java
osboxes ~ Java assign1 lab1 java Area
Lenght and Breath are:20 30
Area of rectangle are:600
```

8.Java program to find ASCII value of a character

```
import java.util.Scanner;
public class Ascii {

    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
            System.out.print("Input a character: ");
            // reading a character
            char ch = sc.next().charAt(0);
            int ascii = ch;
        System.out.println("The ASCII value of " + ch + " is: " + ascii);
```

```
    }
}
```

Output:



9.Print default values of primitive data type variables.

```
class  Default
{           static byte b;
            static short s;
            static int i;
            static long l;
            static float f;
            static double d;
            static char c;
            static boolean bl;

    public static void main(String[] args)
    {
        System.out.println("Byte :"+b);
        System.out.println("Short :"+s);
        System.out.println("Int :"+i);
        System.out.println("Long :"+l);
        System.out.println("Float :"+f);
        System.out.println("Double :"+d);
        System.out.println("Char :"+c);
        System.out.println("Boolean :"+bl);

    }
```

}

```
osboxes ~ Java assign1 lab1 javac Default.java
osboxes ~ Java assign1 lab1 java Default
Byte :0
Short :0
Int :0
Long :0
Float :0.0
Double :0.0
Char :
Boolean :false
```

10. .swap two numbers without using third variable.

```
public class Swap{
 public static void main(String[] args){
 int a=10,b=20;
 System.out.println("Number before swap:" +(a)+" " +(b));
 a=a+b;
 b=a-b;
 a=a-b;
 System.out.println("Number after swap:" +(a) +" " +(b));
 }
 }
```

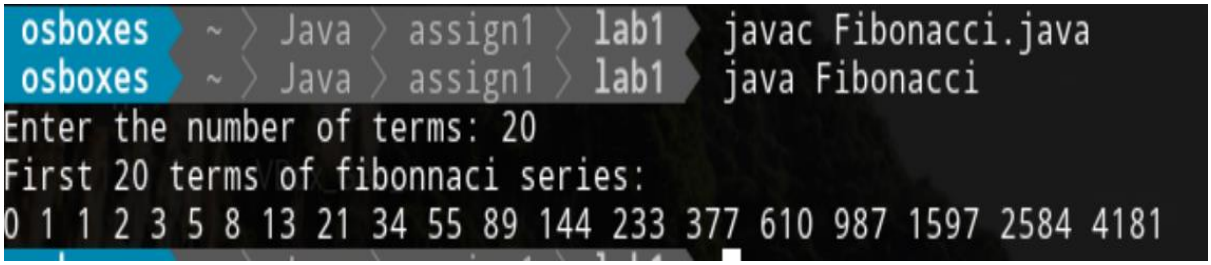
Output:

```
osboxes ~ Java assign1 lab1 javac Swap.java
osboxes ~ Java assign1 lab1 java Swap
Number before swap:10 20
Number after swap:20 10
```

11.Print Fibonacci series till n.

```
import java.util.*;
public class Fibonacci
{
   public static void main(String[] args)
   {
      Scanner s=new Scanner();
```

```
        int t1 = 0, t2 = 1;
        System.out.print("Enter the number of terms: ");
        int n=s.nextInt();
        System.out.println("First " + n + " terms of fibonnaci series: ");
        //Print the fibonacci series
        int i = 1;
        while (i <= n)
        {
           System.out.print(t1 + " ");
           int sum = t1 + t2;
           t1 = t2;
           t2 = sum;
           i++;
        }
System.out.println();
    }
}
```

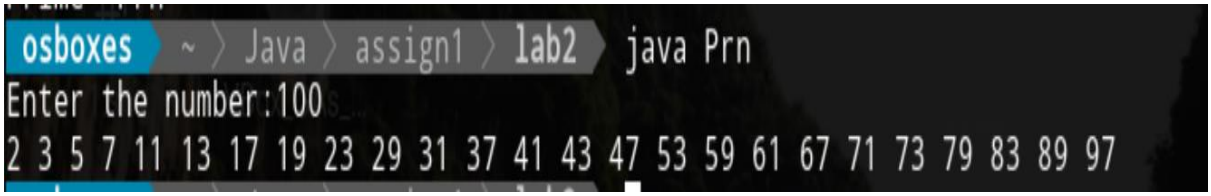


Lab2

1.Display prime number between 1 to 100 or 1 to n.

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

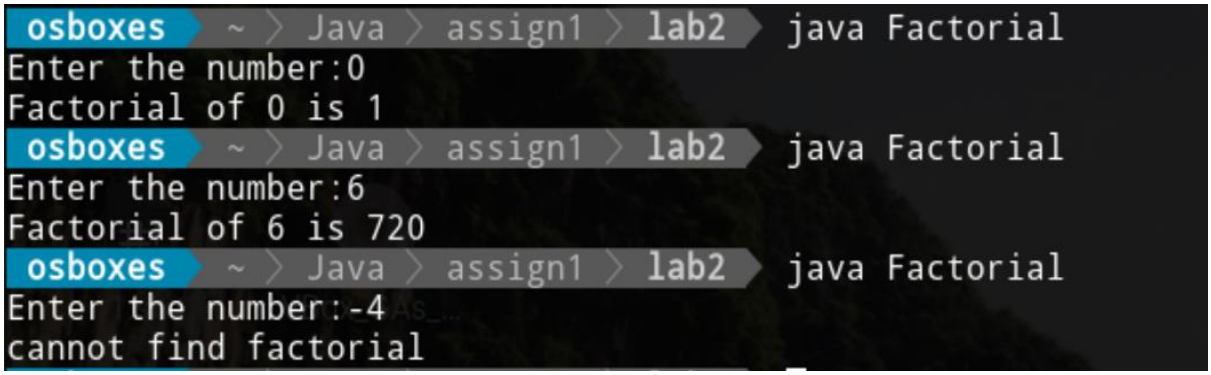
```
for(int num=2;num<=n;num++)
{ int temp=0;
        for(int i=2;i<=num-1;i++)
        {       if(num%i==0)
                        {
                        temp=temp=1;
                        }
        }
        if(temp==0)
        {
                System.out.print(num+" ");
        }

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



2.Find factorial of a number.

```
import java.util.*;
public class Factorial{
public static void main(String args []){
Scanner s=new Scanner(System.in);
System.out.print("Enter the number:");
int n=s.nextInt();
int fact=1;
if(n<0)
```

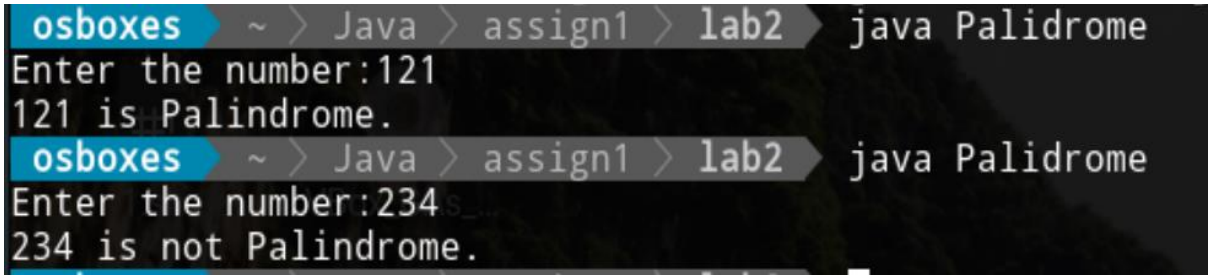
```
{ System.out.println("cannot find factorial");}
else
{
for (int i = 1; i <= n; i++) {
  fact=fact*i;
}
System.out.println("Factorial of "+n+" is "+fact);
}
}
}
```



3.Check number palindrome or not.

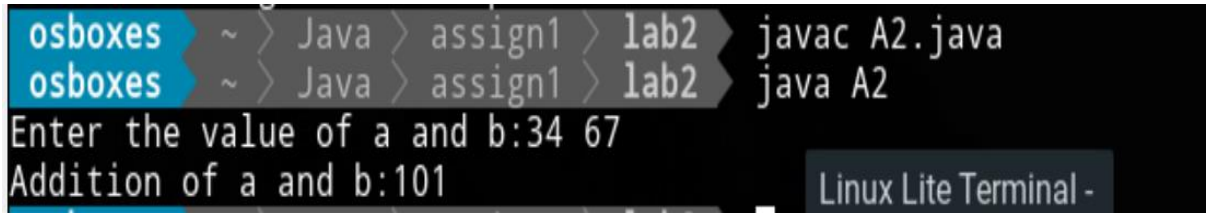
```
import java.util.*;
class Palidrome{
public static void main(String[]args){
Scanner s=new Scanner(System.in);
System.out.print("Enter the number:");
int n=s.nextInt();
   int rev = 0, rem;
   // store the number to originalNum
   int originaln = n;
   // get the reverse of originalNum
   while (n != 0) {
     rem = n%10;
```

```
    rev = rev *10 + rem;
    n /= 10;
   }


   if (originaln == rev) {   //compare original num and reverse number equal or not
    System.out.println(originaln + " is Palindrome.");
   }
   else {
    System.out.println(originaln + " is not Palindrome.");
   }
 }
}
```



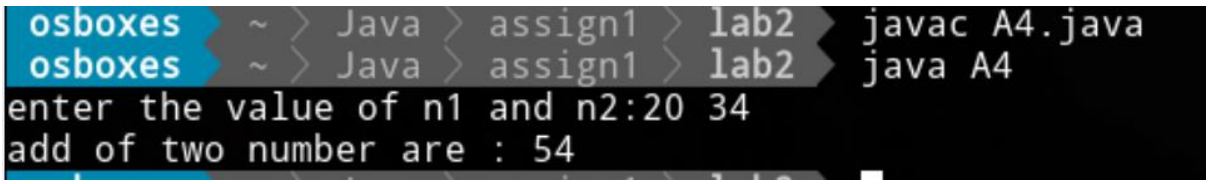
4.Add two interger variable using different ways

```
import java.util.Scanner;
public class A2{
public static void main(String[] args){
Scanner s=new Scanner(System.in);
System.out.print("Enter the value of a and b:");
int a=s.nextInt();                    //taking input from user
int b=s.nextInt();
int add=0;
System.out.println(a+b);
}
}
```



//using function

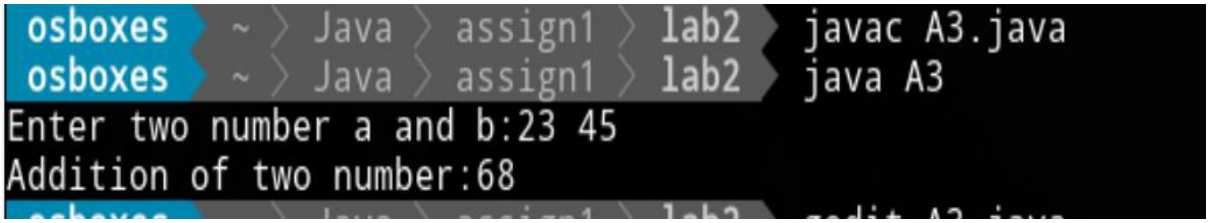
```
import java.util.Scanner;
class A4{
public static void main(String[]args){
int n1,n2,add=0;
Scanner s=new Scanner(System.in);
System.out.print("enter the value of n1 and n2:");
n1=s.nextInt();
n2=s.nextInt();
add = add(n1, n2);
System.out.println("add of two number are : " + add);
}
 public static int add(int a, int b)
  {
     int add=a+b;
     return add;
  }
 }
```



//using - operator

```
import java.util.Scanner;
public class A3{
public static void main(String[]args){
```

```
Scanner s=new Scanner(System.in);
System.out.print("Enter two number a and b:");
int a=s.nextInt();
int b=s.nextInt();
System.out.println("Addition of two number:"+(a-(-b)));
}
}
```



5.Find square root of a number with out sqrt method

```
import java.util.*;
class Square{
 static void squareRoot(int num){
 double temp;
 double b=num/2;
 do{
        temp=b;
        b=(temp+(num/temp))/2;
        }while((temp-b)!=0);
        System.out.println("square root of "+num+" "+"is:"+b);
        }
        public static void main(String[]args){
        System.out.print("Enter any number:");
        Scanner sc=new Scanner(System.in);
        int c=sc.nextInt();
```

```
        Square.squareRoot(c);
        }
        }
```

```
osboxes ~ Java assign1 lab2 java Square
Enter any number:5
square root of 5 is:2.23606797749979
osboxes ~ Java assign1 lab2 java Square
Enter any number:2
square root of 2 is:1.414213562373095
```

6.Check Armstrong number

```
public class Armstrong {
   public static void main(String[] args) {
      int num = Integer.parseInt(args[0]);
       int originalnum, rem, result = 0;
      originalnum = num;
      while (originalnum != 0)
      {
         rem = originalnum % 10;
         result += Math.pow(rem, 3);
         originalnum /= 10;
      }
      if(result == num)
         System.out.println(num + " is an Armstrong number.");
      else
         System.out.println(num + " is not an Armstrong number.");
```

```
osboxes ~ Java assign1 lab2 java Armstrong 721
721 is not an Armstrong number.
osboxes ~ Java assign1 lab2 java Armstrong 371
371 is an Armstrong number.
```

6.Calculate grades of students using their marks

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

```
public class Grade{
   public static void main(String args[]){
   int marks[] = new int[6];
      int i;
      float total=0, avg;
      Scanner scanner = new Scanner(System.in);
      for(i=0; i<6; i++) {
        System.out.print("Enter Marks of Subject"+(i+1)+":");
        marks[i] = scanner.nextInt();
        total = total + marks[i];
      }
      //Calculating average here
      avg = total/6;
      System.out.print("The student Grade is: ");
      if(avg>=80)
      {
         System.out.print("A");
      }
      else if(avg>=60 && avg<80)
      {
        System.out.print("B");
      }
      else if(avg>=40 && avg<60)
      {
         System.out.print("C");
      }
      else
      {
         System.out.print("D");
      }
   System.out.println();
```

```
    }
}
```

```
osboxes ~ Java assign1 lab2 gedit Grade.java
osboxes ~ Java assign1 lab2 java Grade
Enter Marks of Subject1:20
Enter Marks of Subject2:45
Enter Marks of Subject3:67
Enter Marks of Subject4:78
Enter Marks of Subject5:90
Enter Marks of Subject6:56
The student Grade is: C
```

8.Use switch case, recursion, print patterns, etc

```
public class Switc{
public static void main(String[]args){
int monthno=Integer.parseInt(args[0]);
switch(monthno)
{       case 1:
        case 2:
        case 3:System.out.println("January");
                break;
        case 4:
        case 5:System.out.println("hello");
                break;
        case 6:
        case 7:
        case 8:
        case 9:
        case 10:System.out.println("hii");
                break;
        case 11:
        case 12:
        default:
                System.out.println("Please select valid case");
                }
```

```
        }
        }
```

```
osboxes ~ Java assign1 lab2 1 java Switc 1
January
osboxes ~ Java assign1 lab2 java Switc 2
January
osboxes ~ Java assign1 lab2 java Switc 4
hello
osboxes ~ Java assign1 lab2 java Switc 7
hii
osboxes ~ Java assign1 lab2 java Switc 11
Please select valid case
```

Recursion

```
public class Recursion{
static int factorial(int num){
        if(num==0)
        return 1;
        else
        return (num*factorial(num-1));
        }
public  static void main(String[] args){
int n=Integer.parseInt(args[0]);
int fact=Recursion.factorial(n);
System.out.println("factorial of "+n+" " +"is:" +fact);
}
}
```

```
osboxes ~ Java java Recursion 7
factorial of 7 is:5040
```

Pattern

```
public class Pattern
{
  public static void main(String args[])
  {
    int r=5;  String num="hii";
```

```
    for(int i=0; i<r; i++)
    {
      for(int j=0; j<=i; j++)
        System.out.print(num+ " ");
      System.out.print("\n");
    }
  }
}
```

```
osboxes ~ Java assign1 lab2 java Pattern
hii
hii hii
hii hii hii
hii hii hii hii
hii hii hii hii hii
```

```
public class Pattern1
{
  public static void main(String args[])
  {
    int r=5; String n="{vp}";

    for(int i=0; i<r; i++)
    {
      for(int j=i; j<r; j++)
        System.out.print(n+ " ");
      System.out.print("\n");
    }
  }
}
```

```
osboxes ~ Java assign1 lab2 javac Pattern1.java
osboxes ~ Java assign1 lab2 java Pattern1
{vp} {vp} {vp} {vp} {vp}
{vp} {vp} {vp} {vp}
{vp} {vp} {vp}
{vp} {vp}
{vp}
```

```
public class Pattern2{
public static void main(String args[]){
  int r=5; String s="%%";
    for(int i=0; i<r; i++)
    {
      for(int k=i; k<r; k++)
        System.out.print(" ");
      for(int j=0; j<=i; j++)
        System.out.print(s+ " ");

      System.out.print("\n");
    }
  }
}
```

```
osboxes ~ Java assign1 lab2 javac Pattern1.java
osboxes ~ Java assign1 lab2 javac Pattern2.java
osboxes ~ Java assign1 lab2 java Pattern2
     %%
    %% %%
   %% %% %%
  %% %% %% %%
 %% %% %% %% %%
```

```
public class Pattern3
{public static void main(String args[])
  {
    int r=8; String s="@";
```

```
    for(int i=0; i<r; i++)
    {
      for(int k=0; k<i; k++)
        System.out.print(" ");
      for(int j=i; j<r; j++)
        System.out.print(s+ " ");
      System.out.print("\n");
    }
  }
}
```

Lab-3

1.Build a class Employee which contains details about the employee and compile and run its instance.

```
public class Employee{
int id;
String name;
int age;
String Dept;
int mobileno;
void setData(int i,String n,int a,String d,int m){
id=i;
name=n;
```

```
age=a;

Dept=d;

mobileno=m;

}

void display(){

System.out.println("id="+id+"\n"+"name="+name+"\n"+"age="+age+"\n"+"dept="+Dept+"\n"+"mob
ile="+mobileno);

}

public static void main(String[]args){

Employee e=new Employee();

e.setData(1002,"Prachi",24,"C-DAC",87654);

e.display();

}

}
```

2.Build a class which has references to other classes .Instantiate these reference variables and invoke instance methods

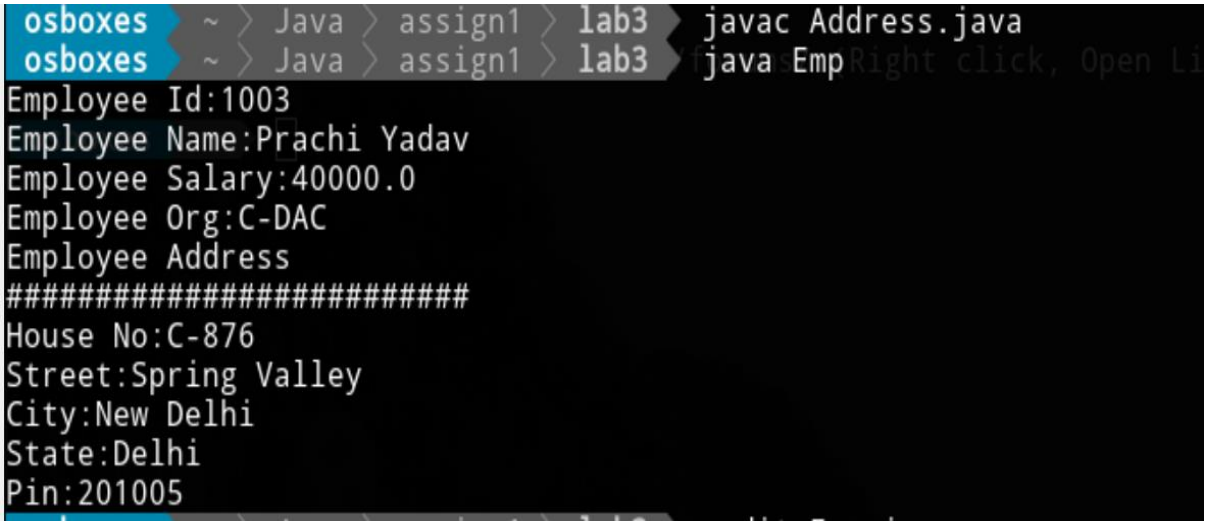
```
class Emp{

int id;

String name;

double salary;

static String org="C-DAC";

Address add;        //using object reference-----Address
```

```
//constructor
Emp(int id,String name,double salary,Address add){
this.id=id;
this.name=name;
this.salary=salary;
this.add=add;
}

void display(){
System.out.println("Employee Id:"+id+"\nEmployee Name:"+name+"\nEmployee
Salary:"+salary+"\nEmployee Org:"+org);
                    add.display();
                    }

//define main method
public static void main(String[]args){
Address a=new Address("C-876","Spring Valley","New Delhi","Delhi",201005);
Emp e=new Emp(1003,"Prachi Yadav",40000,a);    //create object of employee class
e.display();       //access method display using object
}
}
```

Create another file Address.java

```
class Address{
String hno;
String street;
String city;
String state;
int pin;
Address(String hno,String street,String city,String state,int pin){
```

```
this.hno=hno;

this.street=street;

this.city=city;

this.state=state;

this.pin=pin;

}

//method to display data

void display(){


System.out.println("Employee Address");

System.out.println("##########################");

System.out.println("House
No:"+hno+"\nStreet:"+street+"\nCity:"+city+"\nState:"+state+"\nPin:"+pin);

}
```

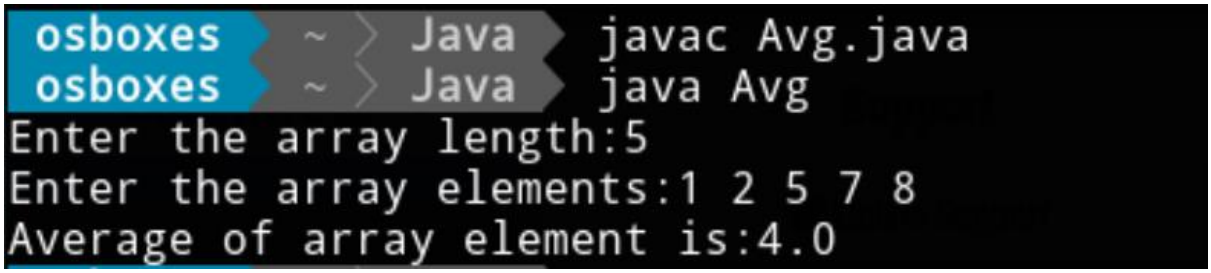


LAB-4

1.Calculate average of numbers using Array

```
import java.util.*;

class Avg{

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

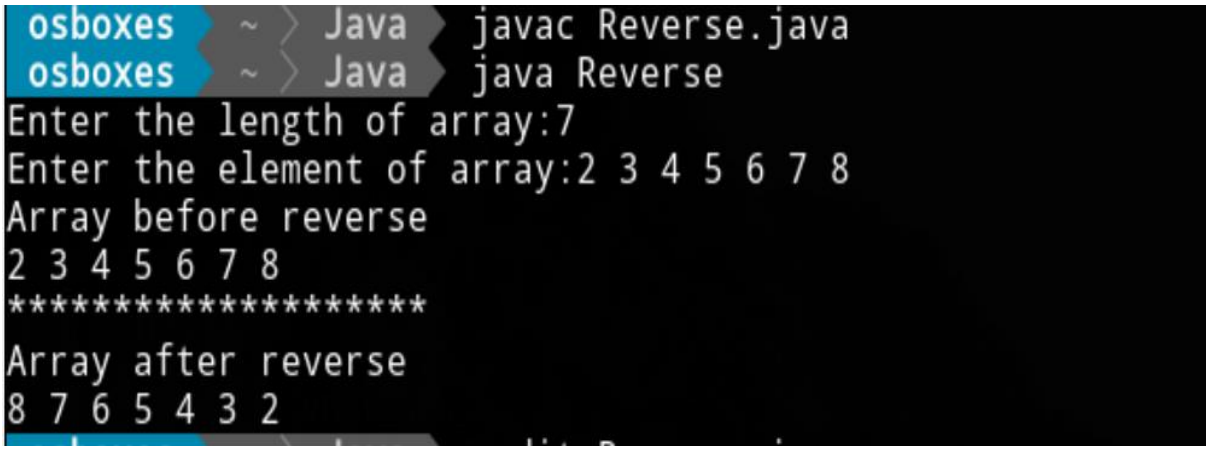
```
{

        Scanner s=new Scanner(System.in);
        System.out.print("Enter the array length:");
        int n=s.nextInt();
        System.out.print("Enter the array elements:");
        int []a=new int [n];
        int sum=0;
        for(int i=0;i<a.length;i++)
        {  a[i]=s.nextInt();}
        //add array element.
        for(int i=0;i<a.length;i++)
        {   sum = sum + a[i];}
        float avg=sum/a.length;
        System.out.println("Average of array element is:" +avg);
}
}
```



2.Reverse an array

```
import java.util.*;
public class Reverse{
public static void main(String[]args){
Scanner s=new Scanner(System.in);
System.out.print("Enter the length of array:");
int n =s.nextInt();
int[]arr=new int [n];
System.out.print("Enter the element of array:");
```

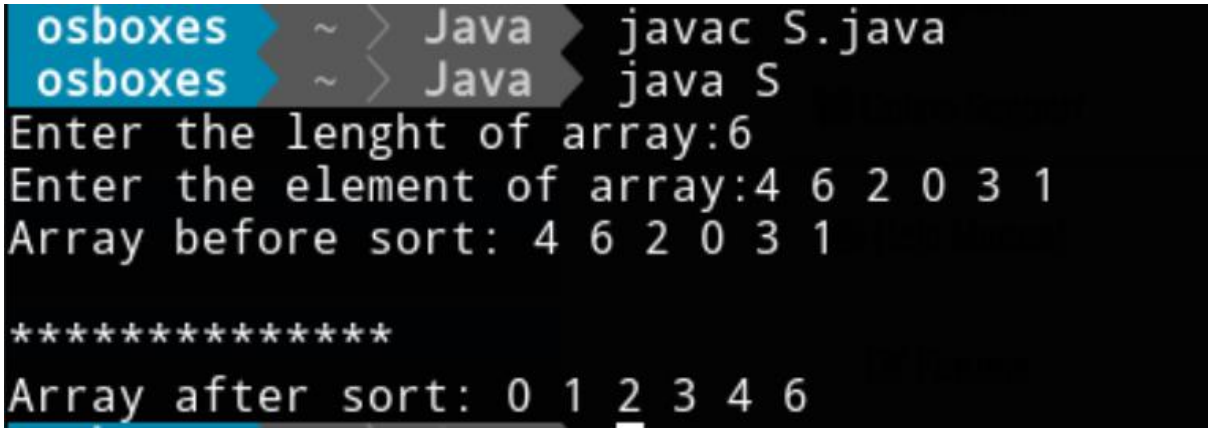
```
for(int i=0;i<n;i++)
arr[i] =s.nextInt();
System.out.println("Array before reverse");
for( int x:arr)
{
System.out.print(+x+" ");}
System.out.println();
System.out.println("********************");
System.out.println("Array after reverse");
for( int i=n;i>0;i--)

System.out.print(+arr[i-1]+" ");
System.out.println();
}
}
```



3.Sort an array in ascending order.

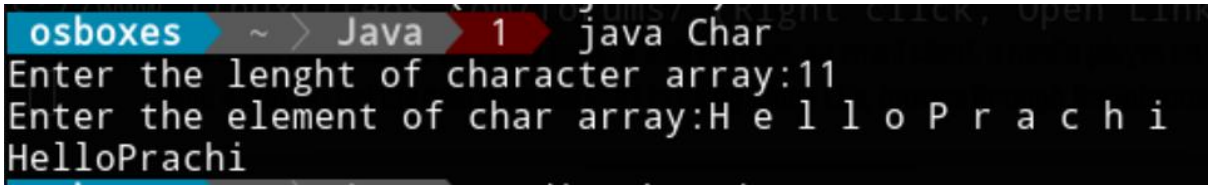
```
import java.util.*;
public class S{
public static void main(String[]args){
//int a[] =new int [n];

Scanner s=new Scanner(System.in);
```

```
System.out.print("Enter the lenght of array:");
int n=s.nextInt();
int a[] =new int [n];
System.out.print("Enter the element of array:");
for(int i=0;i<n;i++){

        a[i]=s.nextInt();
        }
System.out.print("Array before sort:");
for (int x: a)

    {System.out.print(" "+x);}
    Arrays.sort(a);
    System.out.println();
    System.out.println("\n***************");

   System.out.print("Array after sort:");
   for(int x:a)

    {System.out.print(" " +x);}
    System.out.println();

}
}
```



4.Convert char Array to String

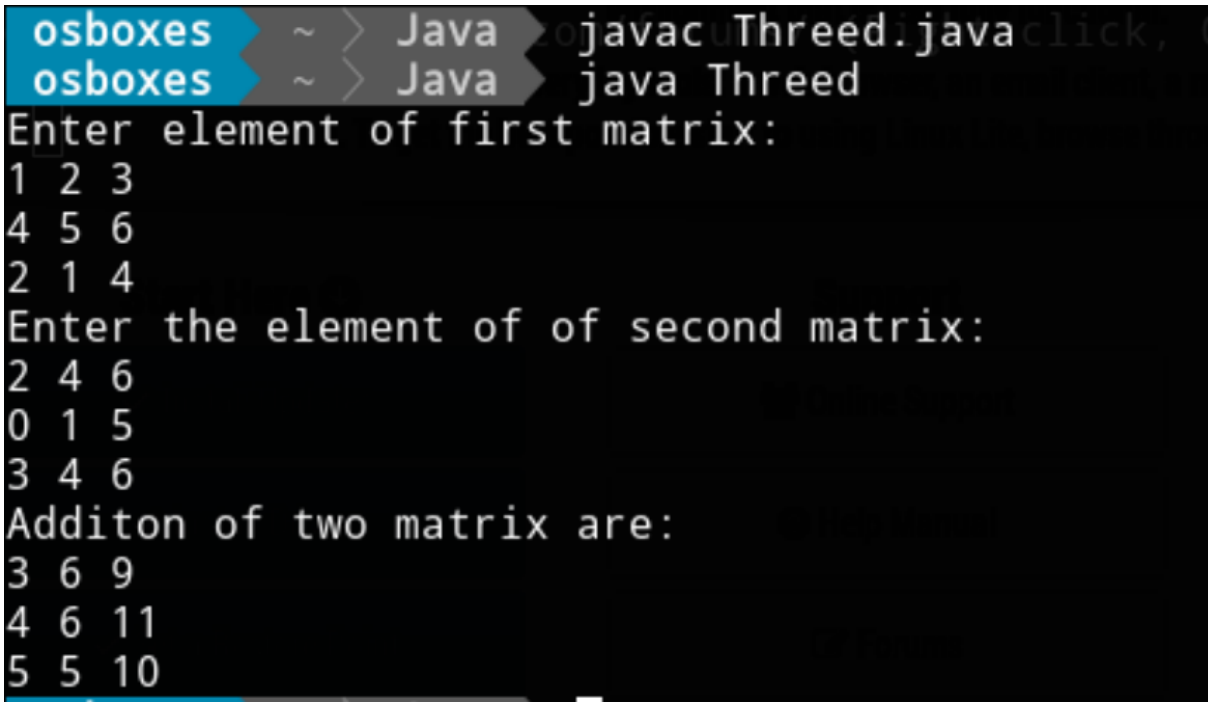
```
import java.util.*;
public class Char {
public static void main(String args[]) {
Scanner sc=new Scanner(System.in);
System.out.print("Enter the lenght of character array:");
int n=sc.nextInt();
System.out.print("Enter the element of char array:");
char []ch=new char[n];
for(int i =0;i<ch.length;i++)
{
        ch[i]=sc.next().charAt(0);

}
//constructor of the String class that parses char array as a parameter
String s = new String(ch);
System.out.println(s);
}
}
```



5.Add two Matrix using Multi-dimensional Arrays.

```
import java.util.*;
class Threed{
public static void main(String[] args){
Scanner s=new Scanner(System.in);
int[][]matrix1=new int[3][3];
int[][]matrix2=new int[3][3];
//int c[][]=new int[3][3];
System.out.println("Enter element of first matrix:");
for(int i=0;i<3;i++)
{
	for(int j=0;j<3;j++)
	{
		matrix1[i][j]=s.nextInt();
	}
}
	System.out.println("Enter the element of of second matrix:");
	for(int i=0;i<3;i++)
	{for(int j=0;j<3;j++)
	{ matrix2[i][j]=s.nextInt();
	}
	}
	//int i,j;
	int[][] c = new int[3][3];
	for (int i = 0; i < 3; i++) {
	for (int j = 0; j < 3; j++) {
	c[i][j] = matrix1[i][j] + matrix2[i][j];
	}
	}
```

```
        System.out.println("Additon of two matrix are:");
        for(int i=0;i<3;i++){
        for (int j=0;j<3; j++) {
        System.out.print(c[i][j]+" ");
        }
        }

        }
        }
```



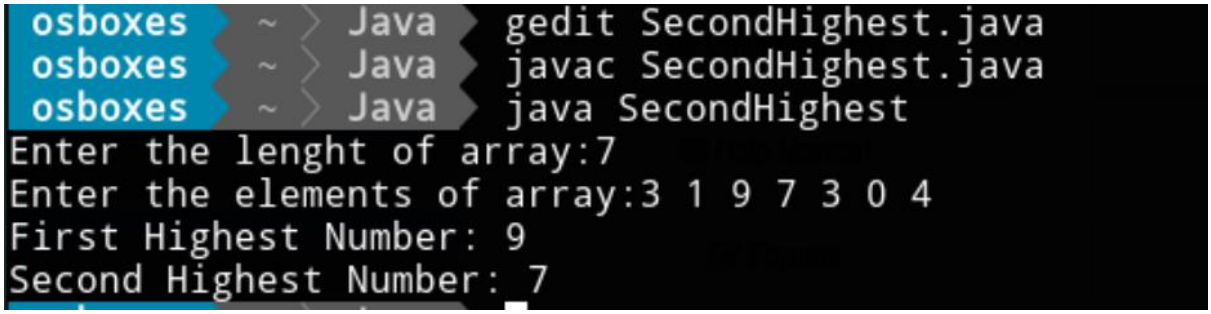
6. Sort strings in alphabetical order

```
import java.util.*;
public class Sorting {
   public static void main(String args[]) {
      Scanner sc = new Scanner(System.in);
      System.out.print("Enter a string: ");
      String s = sc.nextLine();
      char ch[] = s.toCharArray();
```

```
    Arrays.sort(ch);
    System.out.println(new String(ch)+ " ");
  }
}
```

7 .Find out the highest and second highest numbers in an array

```
import java.util.*;
public class SecondHighest {
 public static void main(String[] args) {
 Scanner s=new Scanner(System.in);
 System.out.print("Enter the lenght of array:");
 int n =s.nextInt();
 System.out.print("Enter the elements of array:");
 int []arr=new int [n];
 for(int i=0;i<arr.length;i++)
 { arr[i]=s.nextInt();}

     //Sort the array
    Arrays.sort(arr);

     System.out.println("First Highest Number: "+arr[n-1]);
     System.out.println("Second Highest Number: "+arr[n-2]);

  }
}
```



8.Concatenate two arrays.

```
import java.util.*;
public class Cat{
  public static void main(String[] args) {
  Scanner s=new Scanner(System.in);

  System.out.println("Enter the first array");          //taking array elements from user
  int[]a = new int [5];
  for(int i=0;i<a.length;i++)
  { a[i]=s.nextInt();}

   System.out.println("Enter the second array");        // taking second array elements
  int[]b = new int [5];
  for(int i=0;i<a.length;i++)
  { b[i]=s.nextInt();}

    int[]c = new int[a.length+b.length];               //concate
    int count = 0;
    for(int i = 0;i<a.length;i++) {
      c[i] = a[i];
      count++;
    }
    for(int j = 0;j<b.length;j++) {
```

```
    c[count++] = b[j];
   }
   System .out.println("Array after concatenate");
   for(int i=0;i<c.length;i++)
   System.out.print(c[i]+" ");
   System.out.println();
 }
```