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Program1:

1) What will be the output of the program?

```
#include<stdio.h>
int main()
{
int a=220;
printf("%1d\n", a);
return 0;
}
```

Ans: 220

Explanation: Here a = 220, a is integer type variable and "ld" is also used for denote long integer formate in C programming language, so output will 220

2) What will be the output of the program if value 25 given to scanf()?

```
#include<stdio.h>

int main()
{
int i;
printf("%d\n", scanf("%d", &i));
return 0;
}
```

Ans: 1

Explanation: Because scanf() function is used for denote number of variables i.e integer/float/char but we used only one scanf function. so it will return 1 as output.

3) What will be the output of the program ?

```
#include <stdio.h>
int main()
{
int i;
i = 1, 2, 3;
printf("i = %d\n", i);
```

```
        getchar();
        return 0;
        }
```
Ans: i = 1

Explanation: Here, "i = %d\n" is written inside a quotes. Hence it is used as total part of a string. So output will simply i= 1

4) What will be the output of the program ?

```
        int main()
        {
        char arr[] = " helloforhello ";
        printf("%d", sizeof(arr));
        getchar();
        return 0;
        }
```
Ans: 14

Explanation:: length of words without space is 14 including space both side total size will 16

5) What will be the output of the program ?

```
        #include <stdio.h>
        int main()
        {
        int a = 03489;
        printf("%d", a);
       return (0);
        }
```
Ans: Syntax error

Explanation: a is integer type variable but it contains Octal number not integer.

2.1 **Aim:** Write a c++ program to display the student grade based on the marks.

a) Read Internal and external marks from the user.
b) Checks if an internal marks is between 0 to 40 and external marks is between 0 and 60.
c) if external marks is Less than 24 then display the grade as 'F'
d) else Add internal and external marks and display the grade as given below.

(i) Total Marks <50 then Grade is F
(ii) Total marks 50-59 then Grade is D
(iii) Total Marks 60-69 then Grade is C
(iv) Total Marks 70-79 then Grade is B
(v) Total Marks 80-89 then Grade is A.
(vi) Total Marks 90-100 then Grade is S

Algorithm:

step1: first start your program.
step2: Decleared some integer variable like inta, intb, intc.
step3: Take input from user.
step4: check condition by using if and else condition
step5: if condition statisfy then print respected output otherwise go for next condition.
step6: After written program compile and run the program.
step7: Finally get your expected output.
step8: end this program

Program 2.1

```
#include <iostream>
using namespace std;


int main() {
        int a,b;
        int c;
        cout<<"Enter yiur internal marks: "<<endl;
        cin>>a;
        cout<<"Enter your External Marks"<<endl;
        cin>>b;
   c = a+b;
        cout<<"Total marks"<<c;
        for(c==0; && c<=100;){
                if(a<=40 && b<= 60)
                 {
```

```
                if(c>=90 && c<=100)
                        cout<<"S Grade"<<c<<endl;
            else if (c>=80 && c<=89)
                        cout<<"A Grade"<<c<<endl;
        else if (c>=70 && c<=79)
                        cout<<"B Grade"<<c<<endl;
                else if (c>=60 && c<=69)
                        cout<<"C Grade"<<c<<endl;
                else if (c>=50 && c<=59)
                        cout<<"D Grade"<<c<<endl;
                else if (c>=40 && c<=49)
                        cout<<"F Grade"<<c<<endl;
}
 else
                        cout<<" Your Marks is less either in internal or external "<<c<<endl;
          }
```

```
        return 0;
}#include <iostream>
using namespace std;

int main() {
        int a,b;
        int c;
        cout<<"Enter yiur internal marks: "<<endl;
        cin>>a;
        cout<<"Enter your External Marks"<<endl;
        cin>>b;
   c = a+b;
        cout<<"Total marks"<<c;
        for(c==0; && c<=100;){
                if(a<=40 && b<= 60)
```

```
        {
                if(c>=90 && c<=100)
                        cout<<"S Grade"<<c<<endl;
              else if (c>=80 && c<=89)
                        cout<<"A Grade"<<c<<endl;
        else if (c>=70 && c<=79)
                        cout<<"B Grade"<<c<<endl;
                else if (c>=60 && c<=69)
                        cout<<"C Grade"<<c<<endl;
                else if (c>=50 && c<=59)
                        cout<<"D Grade"<<c<<endl;
                else if (c>=40 && c<=49)
                        cout<<"F Grade"<<c<<endl;   }
    else
                        cout<<" Your Marks is less either in internal or external "<<c<<endl;
     return 0;
}
```

2.2

Aim:
Write a c++ program to read a line of text user count the no of characters in the line excluding black space and display the same.

Algorithm:

step 1: First start your program.
step 2: take a string from the user.
step 3: read this string line and count the no. of characters by using
step 4: finally display the size/length of strings
step 5. stop program.

Program 2.2

```
#include <conio.h>
#include<iostream>
using namespace std;
int main()  {
char a[50],b[50];
int count=0,i=0,j=0;
cout<<"To count total characters in a textline excluding backs
cout<<"============================";
cout<<"Enter a string"<<endl;
cin.getline(a,49);
cout<<"\nyou entered :"<<a;
while(a[i]) {
if(a[i]!=' ') {
count++;
b[j]=a[i];
i++;
j++;
}
else
i++;
}
cout<<"\nAfter removing backspace,string is \n";
cout<<b;
cout<<"\nTotal number of characters is :"<<count;
return 0;
}
```

2.3

Aim: Write c++ program to read a 5 digit no. from the user. Display individual digit of the given no. if it is an even digit.

Algorithm:

Step 1: First start to writting your program.

Step 2: Declared some user variable like int n, int limit, int counter, int division.

Step 3: take input from user and Apply while Loop.

Step 4: After written program, compile and run the program.

Step 5: finally, get your expected output.

step 6: After executions of program closed the IDE and end the program.

Output / Result:

Input: "please Enter how big the set will be 54321

output: the total number of digit is 5:54321

output: the total number of even digit are : 3

4	2

Program 2.3

```
#include <iostream>

using namespace std;


int getdata(int n, int limit, int counter, int division)

{

        cout<<"Enter the limits of number"<<endl;

        cin>>limit;

        cout<<"Enter the  number"<<endl;

        cin>>n;

        counter = 0;

        while(counter<limit)

        {

                division = n/10;

           cout<<n%10<<" ";

                n = division;

                counter++;
```

```
        }return 0;



int main() {
        int n, a=0,limit, counter, division;
        cout<<"Enter a 5 digits number"<<endl;
        cin>>n;
        while(n! = 0)
        {
                n = n/10;
                a++;
        }
        cout<<" The total number of digit"<<a<<endl;
        cin>>n;
        while(n! = 0)
        {
                n = n/10;
```

```
            a++;
        }
        getdata(int n, int limit, int counter, int division)
        {
            if(n/2 == 1)
            {
                getdata(int n, int limit, int counter, int division);
            }
            else
                cout<<" The total number of Even digit"<<a<<endl;
        }
        return 0;
}
```

2.4 Aim: Write a seperate C++ program to calculate area of rectangle using

a) Function without arguments and without return type.

b) Function with arguments and without return type

c) Function without arguments and with return type.

d) Function with arguments and with return type.

e) Function with arguments (having 1 default argument) and with return type.

Algorithm:

Step 1:- start programing.

Step 2: import namespace using std.

Step 3: create a function with no argument and no return.

Step 4:- Declared some variable like int l, int b. int area.

Step 5: create another function for calculating area of Rectangle with argument and no return.

Step 6:- Similary create one more function with argument and with return and return the calculated area of Rectangle.

Step 7:- Run this code and get expected output

Program 2.4

```
#include <iostream>


#include <stdio.h>


int areaRectangle(int, int);


int main()
{
   int l, b, area;
   printf("Enter the length : ");
   scanf("%d", &l);


   printf("Enter the width : ");
   scanf("%d", &b);


   area = areaRectangle(l, b);
```

```
    printf("The area of the rectangle : %d", area);


    double getLength();
double getWidth();
void displayData(double, double, double);
double getArea(double, double);



int main(int argc, char *argv[])
{
        double len;
        double wid;
        double area;



        len = getLength();
```

```
	wid = getWidth();
	area = getArea(len, wid);
	displayData(len, wid, area);



	return 0;
}

double getLength()
{
	double rectLength;



	cout<<"Enter the length of the rectangle: ";
	cin>>rectLength;

	return rectLength;
```

```
}

double getWidth()
{
		double rectWidth;

		cout<<"Enter the width of the rectangle: ";
		cin>>rectWidth;

		return rectWidth;
}

void displayData(double length = 10, double width = 20, double area = 200)
{
	cout<<"Rectangle's Width: "<<width<<endl;
	cout<<"Rectangle's Length: "<<length<<endl;
```

```
        cout<<"Rectangle's Area: "<<area<<endl;
}



double getArea(double length = 10, double width = 20)
{
        return length * width;
}









   return 0;
}

int areaRectangle(int length, int width)
{
```

```
    return length * width;
}
```

2.5

Aim:- Write a c++ program to calculate max of the following set of values

* 89 and 67
* 400 and 490.
* 766, 244

Using inline function, calculate max using ternary operator and pass the given values directly without using actual arguments.

Algorithm:

Step 1:- Start programing.

Step 2:- Using namespace std to take used input and print cout with statement.

step3:- creat a function max inside the function using ternary operation to calculate Maximum numbers.

step 4:- Declare some variable like n1, n2, n3 int n5; int max.

step 5:- Using ternary condition get maximum number: store that number and print the max numbers.

Step 6:- Run this code and get expected output.

Program 2.5

```
#include <iostream>

using namespace std;


int main()

{



   int n1 = 89, n2 = 67, n3 = 400, n4 = 490, n5 = 766, n6 = 244, max1, max2, max3;


   // Largest among n1 and n2

   max1 = (n1 > n2) ? n1 : n2;

         max2 = (n3 > n4) ? n1 : n2;

         max3 = (n5 > n6) ? n1 : n2;



   cout << "Largest number between 89 and 67 " << n1 << " and " << n2 << " is " << max << ".";
```

```
        cout << "Largest number between 400 and 490" << n1 << " and " << n2 << " is " << max << ".";
    cout << "Largest number between 766 and 244 "<< n1 << " and " << n2 << " is " << max << ".";


    return 0;
}
```

2.6

Aim:- Write a C++ program to calculate sum of n numbers using recursion.

Algorithm:-

Step 1 :- First start to writting program.
Step 2 :- Decleared User Variable Like int sum, int n, int i.
Step 3 : Using for Loop
Step 4 : take input from the User.
Step 5 : get your expected output after run the program.
Step 6 : finally end the program and closed IDE

Output:-

The Sum of num is:
Enter n : 5, 2, 3, 4
sum = 14
The Sum of num is 14.

Program 2.6

```
#include <iostream>

using namespace std;


int getdata(int sum, int n, int i)

{

	for(i=1; i<=n;i++)

	{

		sum = sum+i;

		cout<< "the sum of "<<i<<"number is"<<sum<<endl;

		cin>>n;

		cout<<sum<<i<<n;

		return 0;

	}

}

int main() {

	int getdata(int sum, int n, int i){
```

```
        for(i=1; i<=n;i++)
        {
                sum = sum+i;
                cout<< "the sum of "<<i<<"number is"<<sum<<endl;
                cin>>n;
                cout(sum,i,n);
                return 0;
        }
        return 0;
}
}
```

OOPL Lab Ex-3 Date:- 25/09/20

3.1

Aim:- Write a C++ program to calculate volume of cube, cuboid and cylinder using function overloading.

Algorithm:-

Step 1:- Start programing.

Step 2:- Decleared some variable like int a, int A, int B, int C, int r, int h, a, c, r, h.

Step 3:- Create a function with arrgument and without return.

Step 4:- Create another function vol with arrgument and also no return.

Step 5:- Create another function with arrgument and return. and return the calculate area and volume of cube and cuboid. and also volume cylinder.

Step 6:- Using formula of to calculate volume of cube, cuboid and cylinder to calculate volume and return it on the decleared function.

Step 8:- print all value in main class and take uses input from uses.

Step 9:- run this code and get expected output.

Output:-

Enter the side of cube(a) = 5, side of cuboid(A,B,C) = 4,3,6

Enter the value of r = 5, h = 2

output:- volume of cube : 125

volume of cuboid : 72 , volume of cylinder : 157

Program 3.1

```
 #include <iostream>
#include< cmath>
using namespace std;

int vol(inta);
float vol(intA, intB, intC);
float vol(intr, inth);

int main(int argc, char** argv) {
        int a,A,B,c,r,h;
        cout<<"Enter the side of cube(a):"<<endl;
        cin>>a;
        cout<<"Enter the sides length of cubiod(A,B,C) :"<<endl;
        cin>>A>>B>>C;
        cout<<"Enter the value for radius of cylinder"<<endl;
```

```
        cin>>r;
        cout<<"Enter the value for height of cylinder"<<endl;
        cin>>h;
        cout<<" Volume of Cube: "<<vol(a)<<endl;
        cout<<" Volume of Cubiod: "<<vol(A,B,C)<<endl;
        cout<<" Volume of Cylinder: "<<vol(r,h)<<endl;
        return 0;}

        int vol(inta){
                return(a*a*a);
        }
        float vol(intA, intB, intC){
                return(A*B*C);
        }
        float vol(int r, int h){
                return(3.14*r*r*h) }
}
```

3.2 **Aim:** Write a c++ program to create a class student. include data members rollno, name, dept, cgpa. include member functions to get the details and display the details.

Algorithm:

Step 1: First start to writting program.

Step 2: Declared a class : of i.e student class.

Step 3: Inside student class include data members like rollno, name, dept, cgpa,..

Step 5. Decl create respective member function and get details and display this given details.

step 6 :- stop program.

Output:

Student ROLLNO: 100

Student Name: Saurabh Kishor

Department Name of student: computer science and Engineering.

total CGPA of 2nd Sem. 9.cgpa.

Program 3.2

```
 #include <iostream>
#include <string>
using namespace std;


class Student{
        public:
                int roll_no;
                String Name;
                String dept;
                float CGPA;
        public getdetail(){
                cout<<"Enter Student roll no:"<<endl;
                cin>>roll_no;
                cout<<"Enter Student Name:"<<endl;
                cin>>Name;
                cout<<"Enter Student's dept':"<<endl;
```

```
                cin>>dept;
        cout<<"Enter Student's total CGPA :"<<endl;
                cin>>CGPA;
            }
            public Showdetail(){
                cout<<" Student roll no:"<<roll_no<<endl;
                cout<<" Student Name is :"<<Name<<endl;
                cout<<" Student's dept' is :"<<dept<<endl;
        cout<<" Student's total CGPA :"<<CGPA<<endl;

            }

};
int main() {
            Student obj;
            obj.getdetail();
            obj.roll_no = 100;
```

```
        obj.Name = "Saurabh";
        obj.CGPA = 9.5;
        obj.dept = "CSE";
        obj.Showdetail();




        return 0;
}
```

3.3 **Aim:-** Write a c++ program to calculate simple interest from the principal amount, no. of years and rate of Interest using constructors overloading. For parameterized constructor read the values from the user and pass it as arguments.

Algorithm:-

step 1:- Start to writting programe.

step 2:- Decleared user variable like int principalAmount, float rate, int year float SI etc.

step 3:- Using concept of constructor and decleared a parameterized constructor as Bank(int P, float R, int T).

step 4:- Take user input i.e, value of P, R, T etc.

step 5:- Using simple Interest formula to calculate the Interest value and display the value.

step 6:- finally compile and Run this program and get expected output.

step 7:- Stop programing.

Output:- Enter the principal Amount(P): 5000
Enter the Rate (%) : 5.5
Enter the no. of year(T): 2
principal amount = 5000. Rate = 5.5 Time = 2 Simple Interest = 550

Program 3.3

```
#include <iostream>
#include<string>
using namespace std;
class Bank{
        public:
                int principal_Amount;
                float rate;
                int year;
                float SI;
                Bank(intP, floatR, intT)
                {
                        principal_Amount = P;
                        rate = R;
                        year = T;
                        SI = (P*R*T)/100;
```

```
        }
  public:
    void getBankDetails()
        {
        cout<<"Enter the principal Amount(p):"<<endl;
        cin>>p;
        cout<<"Enter the rate(r):"<<endl;
        cin>>r;
        cout<<"Enter the time (t):"<<endl;
        cin>>t;
            }
public:
    int ShowBankDetails(){
        cout<<" The principal Amount(p):"<<p<<endl;
        cout<<" The Rate:"<<r<<endl;
            cout<<" The time:"<<t<<endl;
            cout<<" Total Simple interest are :"<<SI = (P*R*T)/100<<endl;
```

```
                return SI = (p*r*t)/100;


            }


};


int main() {
    int P,T;
    float R;
    SI = (P*R*T)/100;
    Bank obj;
    obj.Bank(5000,5.2,2);


    obj.getBankDetails();
    obj.ShowBankDetails()
    return 0;
}
```

3.4

Aim :- Write a C++ program to create a class to process an electricity bill for 'N' customers using array of objects. All customers are charged with a minimum amount of Rs. 500. The following amount is charged in addition to the minimum amount.

* 1-100 Unit - 40 paise per unit
* 101-200 Unit - 50 paise per unit.
* 201-300 Unit - 60 paise per unit.
* above 300 - 70 Paise per unit.

If the total cost is more than Rs. 250.00 then an additional charges 15% are added. Read the name of the customer & number of units consumed and display the electricity bill using appropiate member functions.

Algorithm :-

Step1 :- Start to Writting programs.
Step2 :- Decleared some variable like float Unit, char name[20],.
Step3 :- Create a class of name, ElectricBill which contain some data members.
Step4 :- Create Member function respective data ~~gun~~ members wise. and get user input and display it.
Step5 :- run this code, and get expected Output.
Step6 : Stop programming.

Program 3.4

```
#include <iostream>
#include<string>
using namespace std;

class Electric_Bill{
        float unit;
        string name;

        public:
         void accept(){
                cout<<"Enter name:"<<endl;
                cin>>name;
                cout<<" No. of units used:"<<endl;
                cin>>unit;

         }
```

```
void bill_Receipt(){}
void Electric_bill(){
        int bill = 0;
        if(unit>=1 && unit<=100)
                bill = (500+(unit*0.40));
        else if(unit>101 && unit<= 200)
                bill = (500+(unit*0.40)+(unit*0.50));

        else if(unit>201 && unit<= 300)
                bill = (500+(unit*0.40)+(unit*0.50)+(unit*0.60));


  if(unit>250)
                bill = (bill+(bill*(15/100));
                cout<<"\n bill = "bill "<<"\t"<<name;

}
```

```
};
int main() {
        Electric_Bill e[10];
        int i, cnt;
        cout<<"Enter How Many Customers You Want to bill_recipet:"<<endl;
        cin>>cnt;
        for(i=0; i<cnt; i++)
          e[i].print_bill();

        return 0;
}
```

35 **Aim:** Write a C++ program to create a class customer. Include data member customer ID, customer name, Age, and Mobile no. include member function to get details. Uses a non-member function to display the customer details. process the details for 'N' customers.

Algorithm:

Step 1: Start to writting program.

Step 2: Create a class that name is customer class that contain some data member like. char name[30], int Age, int mobile_no all in private member. and also define respective member function which contain some get details function. and store user input and display.

Step 3: run this code and get expected output.

Step 4: After execution of this code stop this program.

Output:

```
Enter number of customers: 1
Enter details of customer 1
Enter name: Mr. Saurabh Kishor
Enter Age: 18
Enter Mobile No: 8300xxx43
```

```
// Details of customer 1
customer details:
Name Mr. Kishor
Age 18
Mob no: 8300xxx43
```

Program 3.5

```
#include <iostream>

#include<string>

using namespace std;



class Customers{

        private:

                char name[30];

                int Age;

                int mobile_no;

                int customers;

                int Max;



        public:
```

```
        void getDetails(){
                cout<<"Enter customer Mobile no:"<<endl;
                cin>>mobile_no;
                cout<<"Enter customer Name :"<<endl;
                cin>>name;
                cout<<"Enter Age of customer:"<<endl;
                cin>>Age;

        }
        void PutDetails(){
                cout<<" Customer details:\n "<<endl;
                cout<< " Customer Name"<<name;
                cout<< " Customer Mob no"<<mobile_no;
                cout<< " Customer Age"<<Age;
        }

};
```

```
int main() {
	Customers std;
	int n, loop;
	cout<< "Enter total number of Customers"<<loop+1<<endl;
	cin>>n;
	for(loop=0; loop<n;loop++)
	{
		cout<<"Details of Customers"<<(loop+1)<<":\n";
		std.getDetails();
		std.PutDetails();



	}


	return 0;
}
```

OOPL LAB EX-4

4.1

Aim: Write a C++ program to implement Unary operator overloading using:

a) Member function to overload ! operator.

b) Friend function to overload ! operator.

Algorithm:

Step1: Start programing.

Step2: Create a class of point name.

Step3: Declared some data member like mx, my, mz in private member.

Step4: Declared member function in public member as point (double x = 0.0, double y = 0.0, double z = 0.0)

mx(x), my(y), mz(z)

{

}

boolean

Step5: Using overloading concept declared ! operator.

Step6: Using for Loop use the declared ! operator and check condition.

Step7: finally run this code and get expected output.

Step8: Stop programing.

```
------using friend function------
#include <conio.h>
#include<iostream>
using namespace std;
class integer {
private:
int x;
public:
integer(int a) {
x=a;
}
integer()
{ }
void show_integer()
{
cout<<"\nx is : "<<x<<endl;
}
friend void operator !(integer&);
};
void operator !(integer &I)
{
I.x=!I.x;
}
int main()
{
integer I1(5),I2(0);
cout<<" ===for 1st input\n";
I1.show_integer();
!I1;
cout<<" After overloading\n";
I1.show_integer();
cout<<" ===for another input\n";
I2.show_integer();
!I2;
cout<<" After overloading\n";
I2.show_integer();
getch();
}
```

```
------without using friend function-----
#include <conio.h>
#include<iostream>
using namespace std;
class integer
{
private:
int x;
public:
integer(int a)
{
x=a;
}
integer()
{ }
void show_integer()
{
cout<<"\nx is : "<<x<<endl;
}
void operator !()
{
x=!x;
}
};
int main()
{
integer I1(-4),I2(0);
cout<<" ===for 1st input\n";
I1.show_integer();
!I1;
cout<<" After overloading\n";
I1.show_integer();
cout<<" ===for another input\n";
I2.show_integer();
!I2;
cout<<" After overloading\n";
I2.show_integer();
getch();
}
```

4.2 **Aim:** Write a c++ program to implement Binary operator overloading using

a) Member function to overload >, < and == operator. to compare the area of 2 rectangle.

b) Friend function to overload assignment operator=

Algorithm:

Step 1: start programming.

Step 2: Create a class cents name.

Step 3: Inside the class declared some data member as int m cents in private member

Step 4: Declared some member function for respective member data and get user input to calculate area of 2 rectangle,

Step 5: Using concepts of member function and Binary operator overloading declared > , < and == operator.

Step 6: Also, Using friend function to overload assignment operator =

Step 6: get user input and display the values after using operator/function.

Step 7: stop programming.

```
#include <conio.h>
#include<iostream>
using namespace std;
class Fahrenheit
{
public:
float f;
void show_fahrenheit()
{
cout<<"Fahrenheit = "<<f<<endl;
}
float get_fahrenheit()
{
return f;
}
};
class Celcius
{
private:
float c;
public:
void set_celcius(float x)
{
c=x;
}
void show_celcius()
{
cout<<"Celcius = "<<c<<endl;
}
operator Fahrenheit()
{
Fahrenheit temp;
temp.f=(c*9/5)+32;
return temp;
}
};
```

```
int main()
{
Celcius c1;
c1.set_celcius(37);
c1.show_celcius();
Fahrenheit f1;
f1=c1;
cout<<" After using casting operator\n";
f1.show_fahrenheit();
return 0;
}
```

OOPL LAB EX-5 Date Oct 17, 2020

5.1

Aim: Write a C++ program to create a class University with ID, Name, and Location as data members. Create class Engineering which inherits from University and with code, collegeName, and NO. of branches as its own data members. Create class Branch which inherits from Engineering and with BranchName, NO. of students and NO. of faculty as its own data members. include necessary member functions in University, Engineering and Branch for reading the data from the user and displaying it.

Algorithm:

Step 1: First start your program.

Step 2: Create classes of following name respectively: University, Engineering, and Branch class.

Step 3: Each class contain some data member like in University class we create int id, string name, and string Location as data member in private and getUniData as member function in public member of University class And using inheritance, concepts inherit Engineering and Branch classes.

Step 4: Similarly, We create few data members and member function in other classes.

Step 5: Run this code and get input from user and finally we will get expected output

Program 5.1

```
#include <iostream>
#include <string>
using namespace std;

class University {
	private:
		int id;
		string name;
		string location;

	public:
		void getUnivData(){
			cout<< "Enter univeristy ID: \n";
			cin >> id;
			cout<<"Enter University Name:\n";
			cin>>name;
```

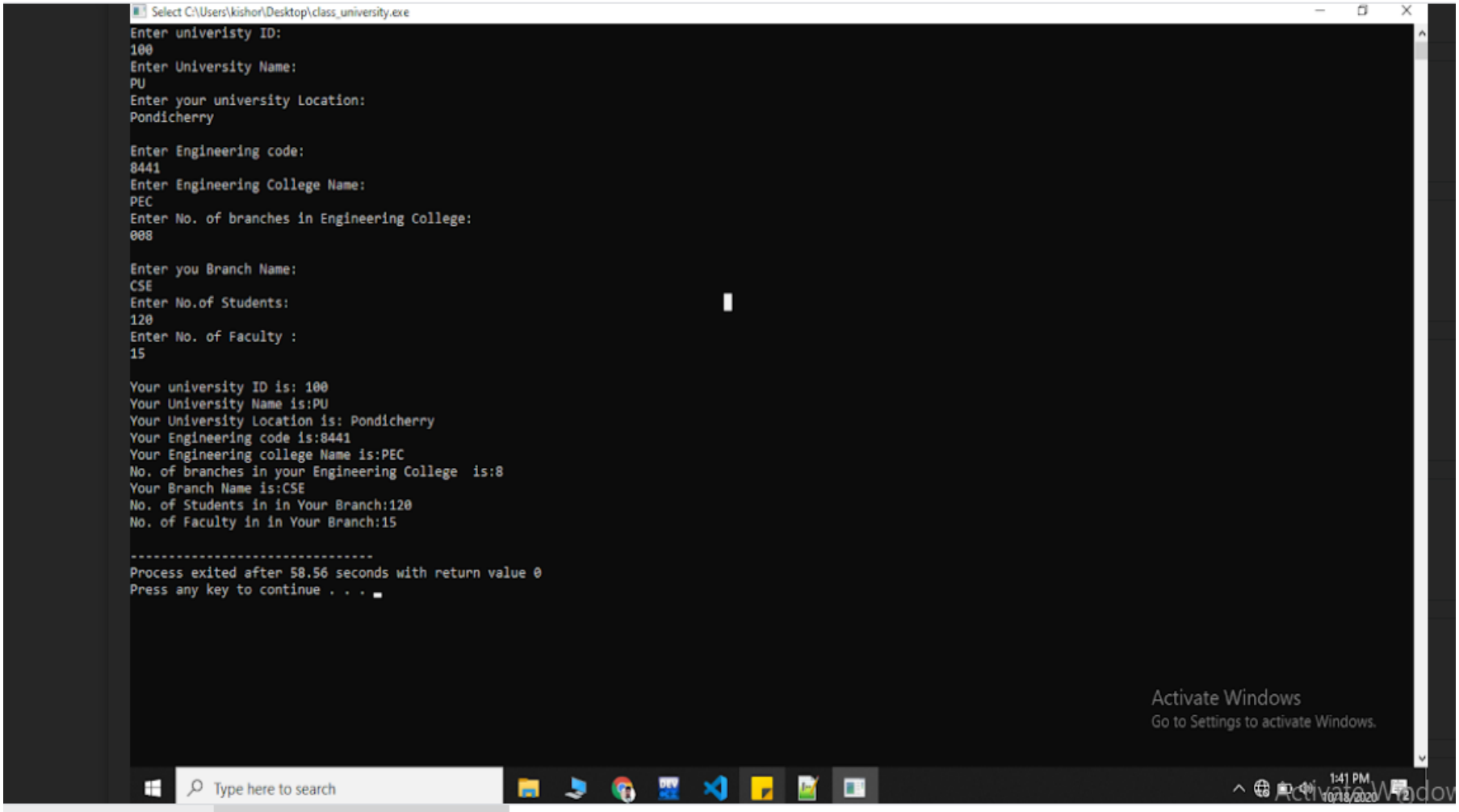
```
                cout<<"Enter your university Location:\n";
                cin>>location;
        }

        void displayUnivData(){
                cout << "Your university ID is: " << id<<endl;
                cout<<"Your University Name is:"<<name<<endl;
                cout<<"Your University Location is: "<<location<<endl;
        }

};

class Engineering: public University{

    private:
        int code;
        string collegeName;
```

```
        int No_Of_branches;


public:
        void getEngData(){
                cout<<"\nEnter Engineering code:\n";
                cin>>code;
                cout<<"Enter Engineering College Name:\n";
                cin>>collegeName;
                cout<<"Enter No. of branches in Engineering College:\n";
                cin>>No_Of_branches;
        }

        void displayEngData(){
                cout<<"Your Engineering code is:"<<code<<endl;
                cout<<"Your Engineering college Name is:"<<collegeName<<endl;
                cout<<"No. of branches in your Engineering College  is:"<<No_Of_branches<<endl;
        }
```

```
};

class Branch:public Engineering{
        private:
                string BranchName;
                int No_of_student;
                int No_of_faculty;

        public:

                void getBranchDetails(){
                        cout<<"\nEnter you Branch Name:\n";
                        cin>>BranchName;
                        cout<<"Enter No.of Students:\n";
                        cin>>No_of_student;
                   cout<<"Enter No. of Faculty :\n";
                        cin>>No_of_faculty;
```

```
        }

        void displayBranchDetails(){
            cout<<"Your Branch Name is:"<<BranchName<<endl;
            cout<<"No. of Students in in Your Branch:"<<No_of_student<<endl;
            cout<<"No. of Faculty in in Your Branch:"<<No_of_faculty<<endl;
        }

};
int main()
{
        Branch cse;
        cse.getUnivData();
        cse.getEngData();
        cse.getBranchDetails();
```

```
        cout<<endl;
        cse.displayUnivData();
        cse.displayEngData();
        cse.displayBranchDetails();

    return 0;
}
```


Select C:\Users\kishor\Desktop\class_university.exe
Enter univeristy ID:
100
Enter University Name:
PU
Enter your university Location:
Pondicherry
Enter Engineering code:
8441
Enter Engineering College Name:
PEC
Enter No. of branches in Engineering College:
008
Enter you Branch Name:
CSE
Enter No.of Students:
120
Enter No. of Faculty :
15
Your university ID is: 100
Your University Name is:PU
Your University Location is: Pondicherry
Your Engineering code is:8441
Your Engineering college Name is:PEC
No. of branches in your Engineering College is:8
Your Branch Name is:CSE
No. of Students in in Your Branch:120
No. of Faculty in in Your Branch:15
Process exited after 58.56 seconds with return value 0
Press any key to continue . . .
Activate Windows
Go to Settings to activate Windows.
Type here to search
1:41 PM

5.2

Aim:

Write a C++ program to create a class Person with Address, Phone NO, and Age as data members. create a class Student with ID, Name Dept as data members, create a class Graduate which inherits from Person and Student class and has grade and year of graduation as its own data members. Include necessary member functions in Person, Students and graduate class. Display the details for 'N' graduates.

Algorithm:

Step 1: First start programing.

Step 2: Create some classes like person class, student class and also create graduate class by using inheritance concept and this graduate class inherits from person class and student class.

Step 3: Create data members in each classes. Like in person class contain Address, phoneNo, and Age as data member. Similarly in student class ID, Name, and Dept as data member and also create Grade and year of Graduation as data member inside ~~student~~ graduate class. and also create some member functions in each class for geting User input and display it.

Step 4: Run and get expected output.

Program 5.2

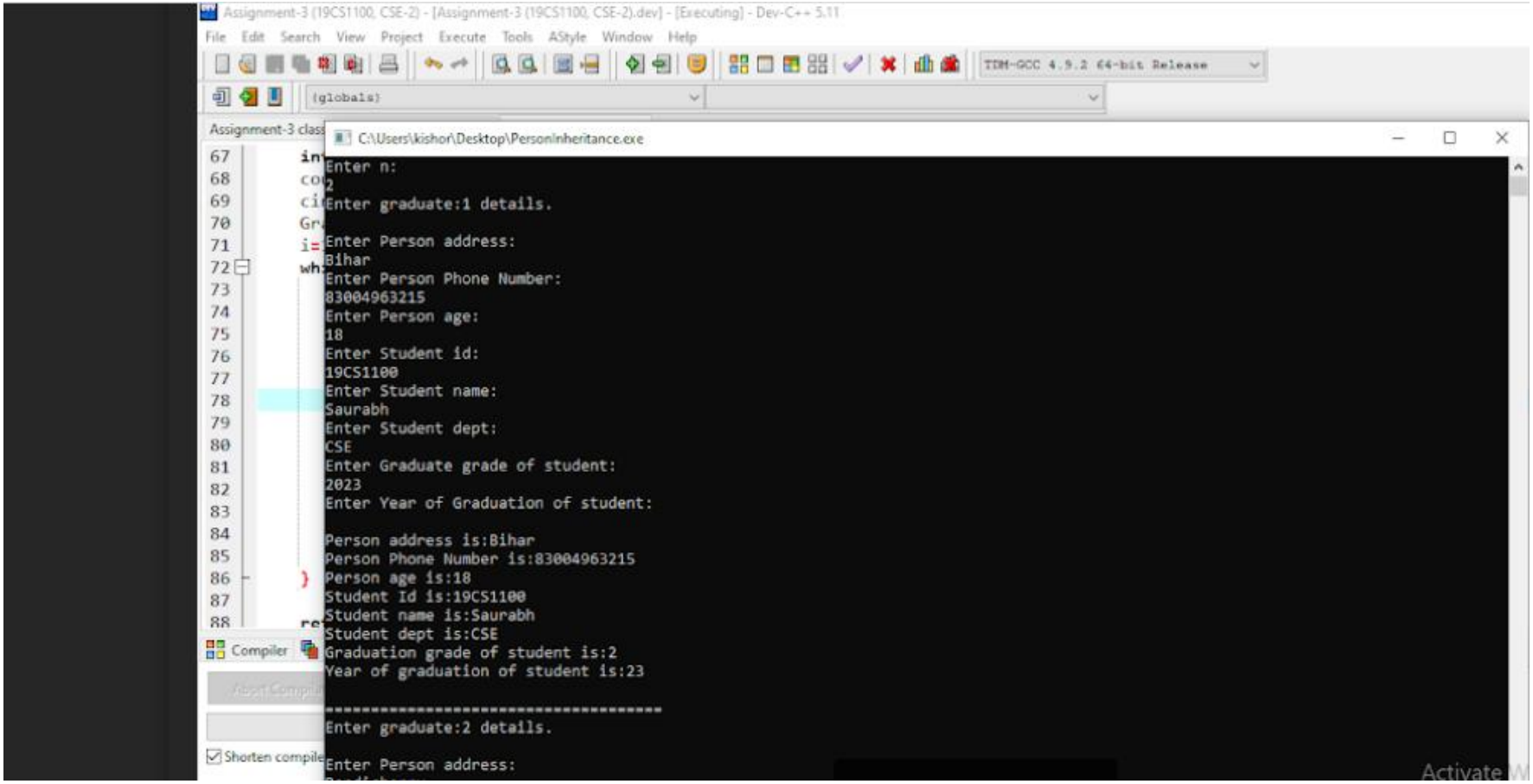
```
 #include <iostream>
#include<string>
using namespace std;


class Person{
        private:
                string address;
                string phone;
                int age;
        public:
                void getPersonDetail()
                {
                        cout<<"Enter Person address:"<<endl;
                        cin>>address;
                        cout<<"Enter Person Phone Number:"<<endl;
                        cin>>phone;
```

```
                cout<<"Enter Person age:"<<endl;
                cin>>age;
        }
        void displayPersonDetail(){
                cout<<"Person address is:"<<address<<endl;
                cout<<"Person  Person Phone Number is:"<<phone<<endl;
                cout<<"Person age is:"<<age<<endl;



        }
};
class Student:public Person{
    private:
        int id;
        string name;
        string dept;
    public:
```

```
        void getStudentDetail(){
            cout<<"Enter Student id:"<<endl;
            cin>>id;
            cout<<"Enter Student name:"<<endl;
            cin>>name;
            cout<<"Enter Student dept:"<<endl;
            cin>>dept;
        }
        void displayStudentDetail(){
            cout<<"Student Id is:"<<id<<endl;
            cout<<"Student name is:"<<name<<endl;
            cout<<"Student dept is:"<<dept<<endl;
        }
};
class Graduate:public Student{
    private:
        char grade;
```

```
        int yearOfGraduation;
    public:
        void getGraduateDetails(){
            cout<<"Enter Graduate grade of student:"<<endl;
            cin>>grade;
        cout<<"Enter Year of Graduation of student:"<<endl;
            cin>>yearOfGraduation;
        }
        void displayGraduateDetails(){
            cout<<"Graduation grade of student is:"<<grade<<endl;
            cout<<"Year of graduation of student is:"<<yearOfGraduation<<endl;



        }
};
int main() {
```

```
        Graduate year_2020;

        year_2020.getPersonDetail();
        year_2020.getStudentDetail();
        year_2020.getGraduateDetails();

        cout<<"\n";

        year_2020.displayPersonDetail();
        year_2020.displayStudentDetail();
        year_2020.displayGraduateDetails();

        return 0;
}
```


Assignment-3 (19CS1100, CSE-2) - [Assignment-3 (19CS1100, CSE-2).dev] - [Executing] - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
TDM-GCC 4.9.2 64-bit Release
(globals)
Assignment-3 class
C:\Users\kishor\Desktop\PersonInheritance.exe
Enter n:
2
Enter graduate:1 details.
Enter Person address:
Bihar
Enter Person Phone Number:
83004963215
Enter Person age:
18
Enter Student id:
19CS1100
Enter Student name:
Saurabh
Enter Student dept:
CSE
Enter Graduate grade of student:
2023
Enter Year of Graduation of student:
Person address is:Bihar
Person Phone Number is:83004963215
Person age is:18
Student Id is:19CS1100
Student name is:Saurabh
Student dept is:CSE
Graduation grade of student is:2
Year of graduation of student is:23
Enter graduate:2 details.
Enter Person address:
Compiler
Shorten compile

53

Aim: Write a c++ program to create a class Person with Name, Address and PhoneNO as data members. Create class Account which inherits from Person and with AccountNO, AccountType, BranchName and Balance as its own data members. Create class Loan with LoanId, LoanType, Loanamount and years as data members. Create class Statement which inherits from Account and Loan and has StmtNO and Date as its own data members. include necessary member functions to read and display the details.

Algorithm:

step 1:- First start programing,

step 2:- Create 4 classes like Person class, Account class and also create Loan and statement classes

step 3:- Using concept of inheritance, inherits Account class from Person class and statement class inherits Account and Loan classes similary.

step 4:- each classes contain some data members and also memberfunction for geting input from user and display it.

step 5:- Run this code, and enter the user input and finally get expected output.

step 6:- Stop programing.

Program 5.3

```
#include <iostream>
#include<string>
using namespace std;


class Person{
        private:
                string address;
                string phone;
                int age;
        public:
                void getPersonDetail(){};
class Account:public Person{
        private:
                int Account_no;
                string Account_Type;
                string Branch_Name;
```

```
        float Balance;
    public:
        void getAccountDetail(){};
class Loan{
    private:
        int LoanId;
        string Loan_Type;
        string Loan_Amount;
        float Years;
    public:
        void LoanDetails(){

        }
        void displayLoanDetails(){

        }
};
```

```
class Statement:public Account:public Loan{
        private:
                int Stmt_no;
                string Date;
        public:
                void getAccountDetail(){
                        cout<<"Enter Person Account_no :"<<endl;
                        cin>>Account_no;
                        cout<<"Enter Person's Account_Type :"<<endl;
                        cin>>Account_Type;
                        cout<<"Enter Person's Branch_Name:"<<endl;
                        cin>>Branch_Name;
                        cout<<"Enter Person's Total Balance:"<<endl;
                        cin>>Balance;
                }
                void displayAccountDetail(){
```

```
        cout<<"Person Account_no:"<<Account_no<<endl;
        cout<<"Person's Account_Type is:"<<Account_Type<<endl;
        cout<<"Person's Branch_Name is:"<<Branch_Name<<endl;
        cout<<"Person's Total Balance is:"<<Balance<<endl;
}

void getPersonDetail()
{
        cout<<"Enter Person address:"<<endl;
        cin>>address;
        cout<<"Enter Person Phone Number:"<<endl;
        cin>>phone;
        cout<<"Enter Person age:"<<endl;
        cin>>age;
}
void displayPersonDetail(){
        cout<<"Person address is:"<<address<<endl;
```

```
                cout<<"Person  Person Phone Number is:"<<phone<<endl;
                cout<<"Person age is:"<<age<<endl;


        }
};

int main() {

    Statement smt_2020;

    smt_2020.getPersonDetail();
    smt_2020.getStudentDetail();
    smt_2020.getGraduateDetails();

    cout<<"\n";
```

```
        smt_2020.displayPersonDetail();
        smt_2020.displayStudentDetail();
        smt_2020.displayGraduateDetails();

        return 0;
}
```

OOPL Lab EX-6 Date:-22/10/2020

6.1 **Aim:** Write and implement your own program to demonstrate the use of Virtual Functions.

Algorithm:

Step1:- First start programing.

Step2: Create classes A and classesB. ClassA contains some data type ~~and~~ like int a=6. in private and also contains member function. ie. virtualdisplay() in public member.

Step3: Similarly classB inherits classA and it also contain data member and some member function for getting and display the inputs.

Step4: In main program using concept of virtual function and finally call class A and display member function of class B.

Step5: finally run this code and get expected output.

Step6: stop programing.

Output:

This is classB.

NOTE:
Output of this code display like this because we are calling classA but classA have virtual function, so it will return member function of classB.

Program 6.1

```
#include <iostream>

using namespace std;


class A{
        private:
                int a=6;
        public:
                void display()
                {
                        cout<<"Value of a in Class A:"<<a<<endl;
                }
};
class B: public A{
        private:
                int b=8;
        public:
```

```
        void display()
        {
            cout<<"This is class B:"<<endl;
        }
};
int main() {
    A *a;
    B b;
    a= &b;
    a-> display();
    return 0;
}
```

OOPL Lab Ex-7

7.1

Aim:- Write a c++ program to implement the following member function for a string class:
(a) int numWords()- that returns the number of words in the string
(b) void reverse()- that reverses the string.
(c) int palindrome()- that return 1/0 according to whether the string is palindrome or not.

Algorithm:

Step1:- Start programing.
Step2:- Create member function of string class. Which contain some data members Like int i=0, No=0.
Step3:- Inside the member function of string class; We are using while loop for counting total number of words in the string and return the number.
Step 4:- Also, create another member function of reverse string class.
And this member function uses a "for loop" that reverse the string.
Step 5:- Also create a member function of palindrome(), which return palindrome of given number by using loop condition, and also check condition for palindrome.
Step 6:- run this code and get expected output.
Step 7:- Stop programing.

Program 7.1

```
#include <iostream>
#include<string>
using namespace std;


class String{
        private:
                string str;
        public:
                void getString(){
                        cout<<"Enter any sentence:"<<endl;
                        cin>>str;
                }
        int numwords()
        {
                int count =0;
                int n = str.length();
```

```
                int i = 0;
                while(i<n)
                {
                    if(str[i] == ' ')
                        {
                        count+=1;
                return count;
                        }
                    }
                    return count;
        }

};
Int palindrome()
{
for(int i =0; i< strlen(s);i++)
{  if(s[i]==c[i])
```

```
{j++;}
}
}
If(dstrlen(s)==j)
{return 1;}
else
{ return 0;
}
};


int main() {

        String obj1;
        obj1.getString();
        obj1.numwords();
//print x
```

```
        cout<<" Total no. of words in the sentence is"<<endl;
        return 0;

}
```

7.2

Aim: Write a c++ program using class template for finding the scalar product for int type vector and float type vector.

Algorithm:

step1:- start programing.

step2:- create a class product that have data members and members function.

step3: create a template class. and create member functions, for geting data from user and also for displaying that data.

step4:- Declare a function product inside the class to compute the product of integer or float paned to it.

step5: Inside the main function a numbers of type int and another numbers object of type float is constructed.

step6:- finally using concept of template to invoke values on parameterized constructor for second object class.

step7:- run this code and get expected output.

step8:- stop programing.

Program 7.2

```
#include <iostream>
#include<string.h>
using namespace std;
template<class T>
class VectorProduct{
        T a,b,c;
        T x,y,z;
                public:
                void getdata()
                {
                        cout<<"Enter the value of a,b,c:"<<endl;
                        cin>>a>>b>>c;
                        cout<<"Enter the value of x,y,z:"<<endl;
                        cin>>x>>y>>z;
                }
                T Scalar_pro()
```

```
        {   cout<<"Scalar Product of given Vectors are:"<<endl;
            return ( (a*x)+ (b*y) +(c*z) ) ;
        }
        void displaydata()
        {
            cout<<" 1st vector is:"<<endl;
            cout<<a<<"i+"<<b<<"j+"<<c<<"k"<<endl;
            cout<<"\n";
            cout<<" 2nd Vector is:"<<endl;
            cout<<x<<"i+"<<y<<"j+"<<z<<"k"<<endl;
            cout<<Scalar_pro()<<endl;
        }
};
int main() {
    VectorProduct<int>T1;
    VectorProduct<float>T2;
    cout<<"\n";
```

```
        T1.getdata();
        T1.displaydata();
        cout<<"\n"<<endl;
        T2.getdata();
        T2.displaydata();
        return 0;
}
```

7.3

Aim:- Write a function template to arrange a set of integers and floating-point values in ascending order.

Algorithm:-

Step 1:- start programing.

Step 2:- Create template class T. Here T define declaration of template class.

Step 3:- Create a member function of Ascend() name. Which contain some data member like T a[n], T temp; etc.

step 4:- Using these template function and for Loop condition to arrange the given integers and float asc in ascending order.

step 5:- finally store ascended values in temp variable and display this value.

Step 6:- Run this code and get expected output.

step 7:- stop programing.

```
#include <conio.h>
#include<iostream>
using namespace std;
template <class T>
class A
{
public:
T a,b,c;
public:
A(T x=0, T y=0,T z=0):a(x),b(y),c(z)
{}
};
int main()
{
A<int>obj1(5,4,3);
A<int>obj2(4,5,6);
int sp1;
sp1=(obj1.a *obj2.a +obj1.b *obj2.b +obj1.c *obj2.c);
cout<<" Scalar product of int_type vector is" " \n"<<sp1;
A<float>obj3(2.6,6.1,5.5);
A<float>obj4(1.4,2.1,3.1);
float sp2;
sp2=(obj3.a *obj4.a +obj3.b *obj4.b +obj3.c *obj4.c);
cout<<" \nScalar product of float_type vector is" " \n"<<sp2;
return 0;
}
```

```
 Scalar product of int_type vector is
58
Scalar product of float_type vector is
33.5
[Program finished]
```

OOPL Lab EX-8

Date:- 11/11/2020

8.1 **Aim:-** Write a Java program to add two integers by reading input from the user.

Algorithm:- Step 1:- import java.util.*; package.

Step 2:- create a class AddTwoInt.

Step 3:- In main program use scanner class to take user input.

Step 4:- create Scanner class object and using that object to store value of a and b in some int variable.

Step 5:- use Addition operation to Add value of a and b and store it into.

Step 6:- ~~disp~~ print stored value.

Step 7:- run and get expected output.

Program 8.1

```
import java.util.*;


class AddTwoInt {
   public static void main(String args[]){
      Scanner in= new Scanner(System.in);
      System.out.println("Enter two integer numbers a and b: ");
      int a = in.nextInt();
      int b = in.nextInt();
      int c = a+b;
      System.out.print("Addition of two Integer numbers is: "+c);
      in.close();
   }
}
```


main - Navigator
Members
<empty>
AddTwoInt
AddTwoInt()
main(String[] args)
AddTwoInt
main
Output
Run (project1)
Run (project1)
--- exec-maven-plugin:1.5.0:exec (default-cli) @ project1 ---
Enter two integer numbers a and b:
4
5
Addition of two Integer numbers is: 9
BUILD SUCCESS
Total time: 9.986 s
Finished at: 2020-11-21T15:19:02+05:30
Activate Windows
Go to Settings to activate Windows.
Run (project1)
11:20
INS Windows (CRLF)
Type here to search
3:19 PM
11/21/2020

8.2. **Aim:** Write a java program to check whether given no. is prime or not?

Algorithm:

step1: import java util.* package.

step2: create a class checkPrimeNumbes.

step3:- create scanner class object and ~~Using~~ Use that object.

step4: Use scanner class to take user Input.

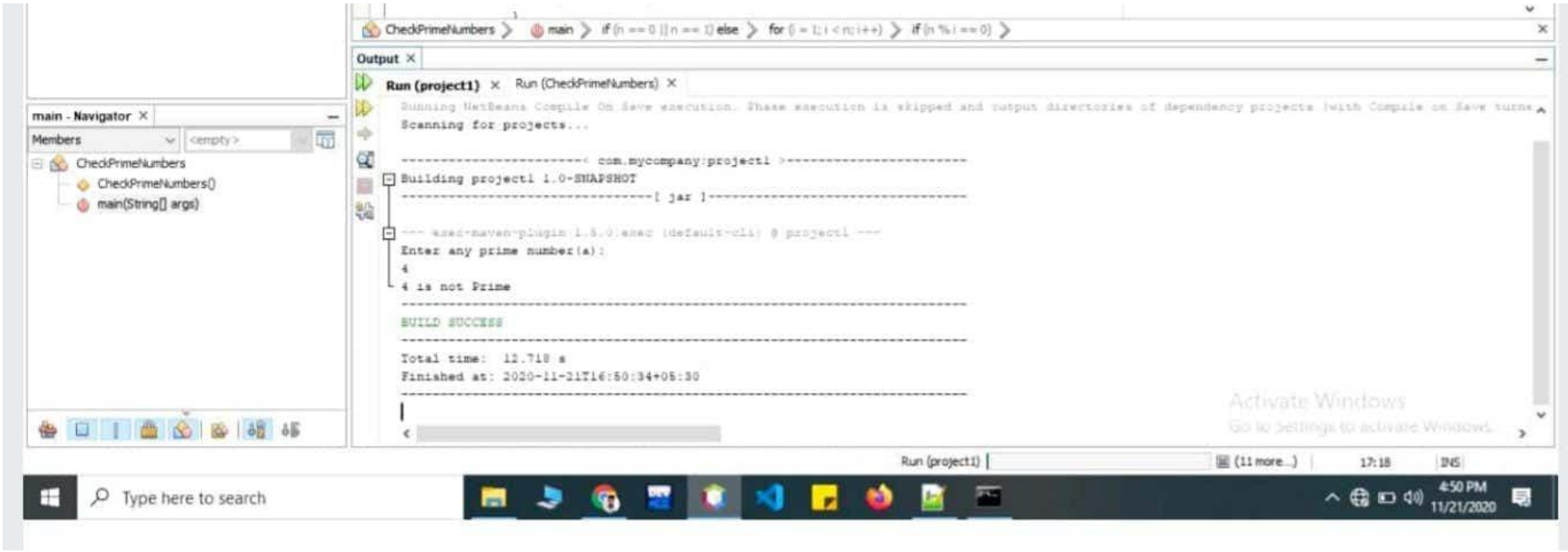
step5: Using for Loop check numbes is prime or not?.

step6: Run this code and get expected output.

Program 8.2

```
import java.util.*;
public class CheckPrimeNumbers{
   public static void main(String args[]){
      Scanner in = new Scanner(System.in);
      System.out.println("Enter any prime number(a): ");
      int n = in.nextInt();
      int i;
      int temp=0;
     // if(n==0||n==1){
       //   System.out.println(n+"Number is not prime. " );
      //}else{
         for(i=1;i<n;i++)
         {
            if(n%i==0)
            {
              temp=temp+1;
```

```
            }
        }


        if(temp==0){
            System.out.println(n+ " is  prime not number.");
        }
        else{
          System.out.println(n+ " is  Prime ");
        }
      in.close();
   }
 }
//}
```


CheckPrimeNumbers > main > if (n == 0 || n == 1) else > for (i = 1; i < n; i++) > if (n % i == 0) >
Output
Run (project1)
Run (CheckPrimeNumbers)
Running NetBeans Compile On Save execution. Phase execution is skipped and output directories of dependency projects (with Compile on Save turne
Scanning for projects...
------------------------< com.mycompany:project1 >-------------------------
Building project1 1.0-SNAPSHOT
--------------------------------[jar]---------------------------------
--- exec-maven-plugin:1.5.0:exec (default-cli) @ project1 ---
Enter any prime number(s):
4
4 is not Prime

BUILD SUCCESS

Total time: 12.718 s
Finished at: 2020-11-21T16:50:34+05:30
----
main - Navigator
Members
<empty>
CheckPrimeNumbers
CheckPrimeNumbers()
main(String[] args)
Activate Windows
Go to Settings to activate Windows.
Run (project1)
(11 more...)
17:18
INS
Type here to search
4:50 PM
11/21/2020


<default package>
Dependencies
Java Dependencies
Project Files
main - Navigator
Members
<empty>
CheckPrimeNumbers
CheckPrimeNumbers()
main(String[] args)
CheckPrimeNumbers > main > for (i = 1; i < n; i++) > if (n %i == 0) >
Output
Run (project1)
Run (CheckPrimeNumbers)
Scanning for projects...
com.mycompany:project1 >
Building project1 1.0-SNAPSHOT
[jar]
Enter any prime number(s):
5
5 is Prime
BUILD SUCCESS
Total time: 30.803 s
Finished at: 2020-11-21T16:54:42+05:30
Activate Windows
Go to Settings to activate Windows.
Run (project1)
(11 more...)
15:18
INS
Type here to search
4:55 PM
11/21/2020

8.3 **Aim:-** Write a Java program to reverse given digit.

Algorithm:-

Step1:- Start programing.

Step2:- import java.util.*; package.

Step3: Create a class ReverseNumber.

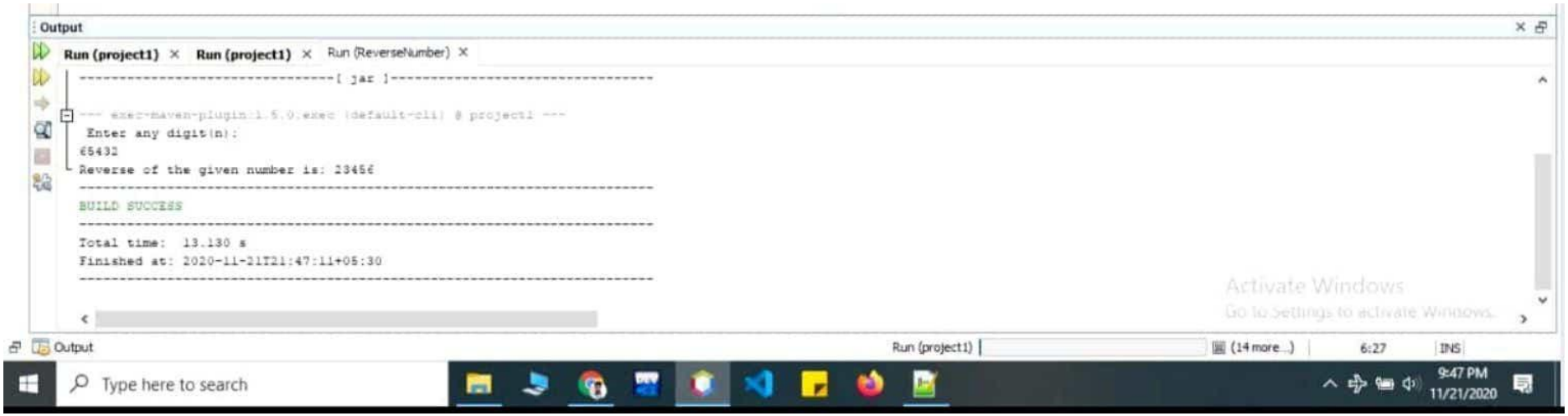
Step4: Create Scanner class and also create its object and use that object store value of n in a variable; int a.

Step5: Using while loop to convert the given digits in reverse order

Step6:- run this code and get expected output.

Program 8.3

```
import java.util.*;
class ReverseNumber{
public static void main(String args[])
{   Scanner in = new Scanner(System.in);
    System.out.println(" Enter any digit(n): ");
    int n = in. nextInt();
    int rev=0,rem;
    while(n!=0){
        rem=n%10;
        rev=rev*10+rem;
        n=n/10;
     }
    System.out.println("Reverse of the given number is: "+rev);


    }
}
```


Output
Run (project1)
Run (project1)
Run (ReverseNumber)
[jar]
--- exec-maven-plugin:1.5.0:exec (default-cli) @ project1 ---
Enter any digit(n):
65432
Reverse of the given number is: 23456
BUILD SUCCESS
Total time: 13.130 s
Finished at: 2020-11-21T21:47:11+05:30
Activate Windows
Go to Settings to activate Windows.
Output
Run (project1)
(14 more...)
6:27
INS
Type here to search
9:47 PM
11/21/2020

8.4

Aim:- Write a Java program to sort N numbers.

Algorithm:-

Step1:- import java.util.* package;

Step2:- create a class SortofNum.

Step3:- Use Scanner class and create its object to store user input.

Step4:- Use for Loop condition to sort given N numbers.

Step5:- print the sorted values.

Step6:- Run this code and get expected output.

Step7:- Stop programing.

Program 8.4

```
 class SortOfNum{
public static void main(String args[])
{
   int i,j;
   int min;
   int temp=0;
   int a[]={83,45,12,2,6,4,51,16,65};
   System.out.println(" Given list of numbers is: {83,45,12,2,6,4,51,16,65}");
   for(i=0;i<a.length;i++)
    {  min=i;
       for(j=i+1;j<a.length;j++)
          {
            if(a[j]<a[min])
             {
               min=j;
             }
```

```
            }
            temp=a[i];
            a[i]=a[min];
            a[min]=temp;
        }

    System.out.print(" Sorted form of given numbers is: ");
    for(i=0;i<a.length;i++)
     {
        System.out.print(a[i]+" ");
     }
}
}
```


Output - Run (SortOfNum)
cd E:\PROJECTS\JAVA\NetBeansProjects\project1; "JAVA_HOME=C:\\Program Files\\Java\\jdk-14.0.1" cmd /c "\"C:\\Program Files\\NetBeans-12.2\\netbeans\\java\\maven\\bin\\mvn.cmd\" -Dexe
Running NetBeans Compile On Save execution. Phase execution is skipped and output directories of dependency projects (with Compile on Save turned on) will be used instead of their ja
Scanning for projects...
----------------------< com.mycompany:project1 >----------------------
Building project1 1.0-SNAPSHOT
--------------------------------[jar]---------------------------------
--- exec-maven-plugin:1.5.0:exec (default-cli) @ project1 ---
Given list of numbers is: {03,45,12,2,6,4,51,16,65}
Sorted form of given number is: 2 4 6 12 16 45 51 65 03

BUILD SUCCESS

Total time: 2.146 s
Finished at: 2020-11-21T23:01:02+05:30

Activate Windows
Go to Settings to activate Windows.
Output
Run (project1)
(14 more...)
20:25
INS
Type here to search
11:01 PM
11/21/2020

8.5 **Aim:-** Write a Java program to perform matrix operation addition.

Algorithm:

Step 1:- Start programing.

Step 2:- import java.util.* package;

Step 3:- create a class Matrixaddition.

Step 4:- create scanner class object and use that object.

Step 5:- use scanner class to take User Input in formate of rows of a[][], b[][] and c[][]

Step 6:- Using for loop condition create two Matrix formate. matrix A and matrix B.

Step 7:- Using Again for loop condition and addition operator to Add these two matrixA and matrixB.

Step 8:- Run this code and get expected output.

Step 9:- Stop programing.

Program 8.5

```
 import java.util.*;
class MatrixAddition {
public static void main(String args[])
 {
   int a[][],b[][],c[][],i,j;
   a = new int[3][3];
   b = new int[3][3];
   c = new int[3][3];
   Scanner in =new Scanner(System.in);
   System.out.println(" Frist Matrix: ");
   for(i=0;i<3;i++){
      for(j=0;j<3;j++)
      {
         a[i][j]= in.nextInt();
      }
   }
```

```
System.out.println(" Second Matrix: ");
for(i=0;i<3;i++){
   for(j=0;j<3;j++)

   {
      b[i][j]= in.nextInt();
   }
}
System.out.println(" Addition of these Matrix are: ");
for(i=0;i<3;i++){
   for(j=0;j<3;j++)
   {
      c[i][j]= a[i][j]+b[i][j];
      System.out.print(c[i][j]+ "\t");
   }
   System.out.println();
}
```

}

}

OOPL LAB EX-9

9.1 **Aim:-** Write a JAVA program read and display N employee details such as eno, ename, desig and salary. using class and objects.

Algorithm:

Step1:- Import the scanner class from java.util package.

Step2:- Declare the class details with data members "employee-no" salary" as integers type and "employee-name" and designation as string type.

Step3:- create an object of scanner class to get input from the user and display the details whenever invoked.

Step4:- Declare function "getdetails()" to take inputs for the data members and also declare another ~~class "Employee"~~ function "display()" to display all the fields for each employee.

Step5:- Declare another class "employee" which has main function inside it using scanner object taken inputs for the number of employees and call function "getdetails" and display for every employee.

Step6:- Run this code and get expected output.

Program 9.1

```
import java.util.*;
class Empolyee{
    int eno,i;
    String ename, desig;
    double salary;
    void insert(int id, String enam,String des, double sal)
    {
        eno = id;
        ename = enam;
        desig = des;
        salary = sal; }
    void display(){
        System.out.println(eno+"\t "+ename+" \t"+desig+"\t"+salary); }
 }
class Company{
      public static void main(String args [])
```

```
{
 Scanner in = new Scanner(System.in);
 System.out.println(" Empolyee details: ");
 System.out.println("Enter no. of empolyee(n): ");
 int n= in.nextInt();
 Empolyee[] E = new Empolyee[n];

 for(int i=0;i<n;i++)
 {
   E[i]=new Empolyee();
   E[i].insert(221, "Kishor" , "CEO",109998.20 );
 }
 for(int i=0;i<n;i++)
 {
   E[i].display();
   in.close();
 }
```

```
}

}
```

9.2

Aim: Write a java program to implement constructor overloading for student class having reg.no, name, dept. and cgpa as fields.

Algorithm:-

Step1: Import the scanner class from java.util package.

Step2: Declare class student with data members such as (i) name (ii) department (iii) reg.no (iv) cgpa.

Step3: Where the data types for name and department is string and int and double for reg.no and cgpa respectively.

Step4: Using parameterized constructor for explicitly passed arguments to data members such as name, dept, reg.no, cgpa

Step5: Declared the display() function and using this to display the details of student class.

Step6:- Run this code and get expected output.

Program 9.2

```
 import java.util.*;
class StudentDetail{
    String regno;
    String name;
    String dept;
    double cgpa;
    void StudentDetail(){}
    void StudentDetail(String rn, String nam, String dep, double c) {
        regno = rn;
        name = nam;
        dept = dep;
        cgpa = c;    }
    void insert(){
        Scanner in = new Scanner(System.in);
        System.out.println(" Student details: ");
        System.out.println(" Student Roll no. ");
```

```
        String regno = in.nextLine();
        System.out.println(" Student name: ");
        String name  = in.nextLine();
        System.out.println(" Student's department name: ");
        String dept  = in.nextLine();
        System.out.println(" Student Total CGPA: ");
        double cgpa  = in.nextDouble();}
    void display()
    {
     System.out.println(regno+""+name+""+dept+""+cgpa);}
}
    class Student{
    public static void main(String args[]){
        StudentDetail S = new StudentDetail();
        S.insert();
        S.display();}
          }
```

9.3

Aim:- Write a JAVA program to implement multilevel inheritance with the following details:

a) person class having Name, Age, City as fields

b) Employee class having Designation and Dept as fields and inherits person class.

c) salary class having basic, ta, da, hra and IT as field and inherits person class

d) Include necessary method to read and display person, Employee and salary details in the appropriate classes.

e) Include method to calculate gross pay of the employee.

f) Access all the details using objects of salary class.

Algorithm: Step1:- Import scanner class from java package.

Step2:- Declare string variable name, city, and int variable age

Step3:- Define a function getdetails() to ask the user to input name, city, age, using a display() function to display details

Step4: Declare another class "employee" which extends person class and have also datamembers desig, dept

Step5: Also define a class 'salary' which extends Employee with data member basic, ta, hra, IT, and grosspay.

Step6: Take input from user and using formula to calculate grosspay and display the details.

Step7: Create array of n persons and get details for student and invoke function from Employee and Salary class

Step8: Run and get expected output.

Program 9.3

```
 import java.util.*;
class Persondetail {
    String Name;
    int Age;
    String City;
    void getPersonDetail()
    {
    Scanner in = new Scanner(System.in);
    System.out.println(" Person's Name: ");
    String Name = in.nextLine();
    System.out.println(" Person's City: ");
    String City = in.nextLine();
    System.out.println(" Person's Age: ");
    int Age = in.nextInt();
//    System.out.println(" Person's City: ");
//    String City = in.nextLine();
```

```
  }
  void displayPersonDetail(){
    // System.out.println("name"+Name+"\t"+"Age"+Age+"\t"+"City"+City);
  }
}
class Employee extends Persondetail {
  String Designation;
  String Dept;
  void getEmployeeDetail()
  {
     Scanner in = new Scanner(System.in);
     System.out.println(" \n Employee details: ");

     System.out.println(" Employee's Designation: ");
     String Designation = in.nextLine();
     System.out.println(" Employee's Dept: ");
     String Dept = in.nextLine();
```

```
    }
    void displayEmployeeDetail(){
        //System.out.println("Employee's Designation:"+Designation+"\t"+"Employee's Dept:"+Dept);
    }
}
 class Salary extends Employee
        {


        double basic, ta,da,hra,IT;
        void getSalaryDetail()
        {
        Scanner in = new Scanner(System.in);
        System.out.println("\n  Salary details: ");
        System.out.println("  Salary basic: ");
        double basic = in.nextDouble();
        System.out.println(" Salary ta: ");
        double ta = in.nextDouble();
```

```
        System.out.println(" Salary da: ");
        double da = in.nextDouble();
        System.out.println(" Salary hra: ");
        double hra = in.nextDouble();
        System.out.println(" Salary IT: ");
        double IT = in.nextDouble();
    }
    void displaySalaryDetail()
    {
      // System.out.println("Salary basic:"+basic+"\t"+"Salary ta:"+ta+"\t"+"Salary da:"+da+"\t"+"Salary hra:"+hra+"\t"+"Salary IT:"+IT);
    }
}
class Person{
    public static void main(String args[]){
       //Persondetail P = new Persondetail();
      // P.getPersonDetail();
      // P.displayPersonDetail();
```

```
 // Employee E = new Employee();
//  E.getEmployeeDetail();
//  E.displayEmployeeDetail();

   Salary S = new Salary();
   S.getPersonDetail();
   S.getEmployeeDetail();
   S.getSalaryDetail();
  // S.getPersonDetail();
   S.displayPersonDetail();
   S.displayEmployeeDetail();
   S.displaySalaryDetail();

  }

}
```

9.4

Aim:- Write a Java program to implement Interface with the following details:

a) Vechicle class with company Name, year of manuf as fields.

b) Interface Loan with an abstract method public double calculateloan (double p, float r, int n): Where p, r, and n are principal, rate of interest and no. of years as arguments respectively.

c) Car: class inherits ~~Vechi~~ Vehicle class and implements interface Loan and has its own fields.

d) Bike class inherits Vechicle class and implements interface Loan and has its own fields.

e) Create appropriate objects to read, calculate and display all the details.

Algorithm:-

Step 1:- Import Scanner class from java.util package.

Step 2: Declare a class Vechicle with data members such as company Name, year of manufacturing.

Step 3: Use get details() function and display function to take input and display the details.

Step 4: Declare an abstract function to calculate Loan Inside the interface Loan.

Step 5: The class car extends Vechicle and implements the interface Loan with data members as p,r,t for calculating the simple Interest.

Step 6: similary, class Bike extends class Vechicle and implement interface Loan with data members.

Step 7: Inside the main create a car and bike object and invoke function on those object and display details.

Program 9.4

```
/*
 * To change this license header, choose License Headers in Project Properties.
 * To change this template file, choose Tools | Templates
 * and open the template in the editor.
 */


/**
 *
 * @author kishor
 */
public class Vehicle{
    String CompanyName;
    String yearOfManufacture;


  void run(){System.out.println("Vehicle is running");}
}
```

```
//Creating a child class


abstracct class Loan{
float loan(float p, float r, float n)
{
   float principal = p;
   float rate = r;
   float year = n;
   return (p*r*n)/100;
}


interface car implements Loan{
 float loan(float p, float r, float n); }
}


class Car extends Vehicle{
  public static void main(String args[]){
```

```
  //creating an instance of child class
  Car obj = new Car();
  //calling the method with child class instance
  obj.run();
  }
}



//Creating a child class
class Bike extends Vehicle{
  //defining the same method as in the parent class
  void run(){System.out.println("Bike is running safely");}

  public static void main(String args[]){
  Bike obj = new Bike();//creating object
  obj.run();//calling method  }
  }
```

OOPL Lab EX-10 Date: 12/12/20

10.1 **Aim:-** Write a Java program using swing to read Name and Age from user. Display message using message dialogue box as below.

a) Age < 13 "you are a kid".

b) Age between 13 and 20 "you are a teen"

c) Age > 21 "you are an Adult"

Algorithm:-

Step 1: Import scanner class from java.util package. and all of the classes from java and javax package.

~~Step 2: Declare a class Vechicle with data member such as company~~

Step 2: Inside the class declare a textfield for displaying the numbers an array of buttons. and grid layout for displaying the buttons in grid format and a panel to store all these.

Step 3: Inside the constructor of class create Jframe Object and add textfield, buttons, buttonpanel to the grame.

Step 4:- override the actionperformed function inside the actionListener interface check for the characters inside the textfield.

Step 5:- Depending upon the characters read from texfield i.e, Name and Age to decide your ~~are~~ age is greater or less than condition and ~~print~~ show a message respective to in a dialoge box.

Step 6:- run this code and get expected output.

Program 10.1

```
import javax.swing.JOptionPane;



public class AgeApp extends javax.swing.JFrame {



    public AgeApp() {
        initComponents();
    }



    private void initComponents() {

        jLabel1 = new javax.swing.JLabel();
        jTextField1 = new javax.swing.JTextField();
```

```
jLabel2 = new javax.swing.JLabel();
jTextField2 = new javax.swing.JTextField();
jLabel3 = new javax.swing.JLabel();
jButton1 = new javax.swing.JButton();

setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);

jLabel1.setText("Name:");

jLabel2.setText("Age:");

jTextField2.setText("jTextField2");

jLabel3.setBackground(new java.awt.Color(255, 51, 51));
jLabel3.setText("SwingProject1");

jButton1.setBackground(new java.awt.Color(51, 51, 255));
```

```
jButton1.setText("Submit");
jButton1.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton1ActionPerformed(evt);
    }
});

javax.swing.GroupLayout layout = new javax.swing.GroupLayout(getContentPane());
getContentPane().setLayout(layout);
layout.setHorizontalGroup(
    layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    .addGroup(layout.createSequentialGroup()
        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(layout.createSequentialGroup()
                .addGap(35, 35, 35)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addComponent(jLabel2)
```

```
                .addComponent(jLabel1, javax.swing.GroupLayout.PREFERRED_SIZE, 66, javax.swing.GroupLayout.PREFERRED_SIZE))
            .addGap(33, 33, 33)
            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING, false)
                .addComponent(jTextField1)
                .addComponent(jTextField2, javax.swing.GroupLayout.PREFERRED_SIZE, 216, javax.swing.GroupLayout.PREFERRED_SIZE)))
        .addGroup(layout.createSequentialGroup()
            .addGap(125, 125, 125)
            .addComponent(jLabel3, javax.swing.GroupLayout.PREFERRED_SIZE, 140, javax.swing.GroupLayout.PREFERRED_SIZE))
        .addGroup(layout.createSequentialGroup()
            .addGap(163, 163, 163)
            .addComponent(jButton1)))
      .addContainerGap(50, Short.MAX_VALUE))
);
layout.setVerticalGroup(
   layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
   .addGroup(javax.swing.GroupLayout.Alignment.TRAILING, layout.createSequentialGroup()
      .addGap(26, 26, 26)
```

```
            .addComponent(jLabel3, javax.swing.GroupLayout.PREFERRED_SIZE, 26, javax.swing.GroupLayout.PREFERRED_SIZE)
            .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED, 65, Short.MAX_VALUE)
            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
              .addComponent(jLabel1, javax.swing.GroupLayout.PREFERRED_SIZE, 20, javax.swing.GroupLayout.PREFERRED_SIZE)
              .addComponent(jTextField1, javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE))
            .addGap(31, 31, 31)
            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
              .addComponent(jLabel2)
              .addComponent(jTextField2, javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE))
            .addGap(49, 49, 49)
            .addComponent(jButton1)
            .addGap(40, 40, 40))
        );

        pack();
    }// </editor-fold>
```

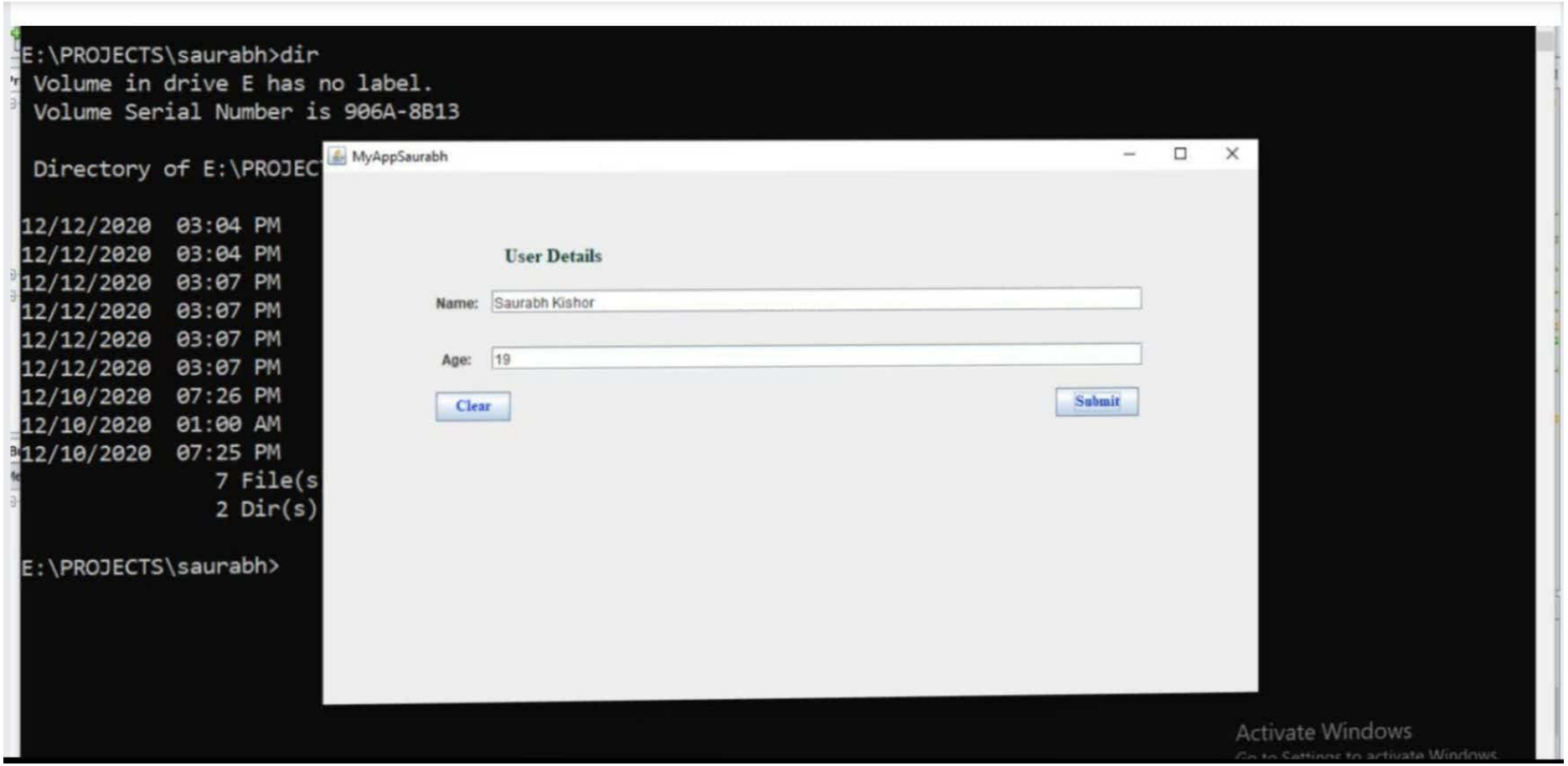
```
String age;
private void jButton1ActionPerformed(java.awt.event.ActionEvent evt) {

    int age=jTextField1.getText();

if(age<13){
    System.out.print("Age is greater than 13");



    System.out.println("You just clicked the button ...");
    JOptionPane.showMessageDialog(rootPane, "YOu are kid");



}
else if(age>13 && age<=20){
    System.out.print("Age is greater than 13 but lees than 20");
```

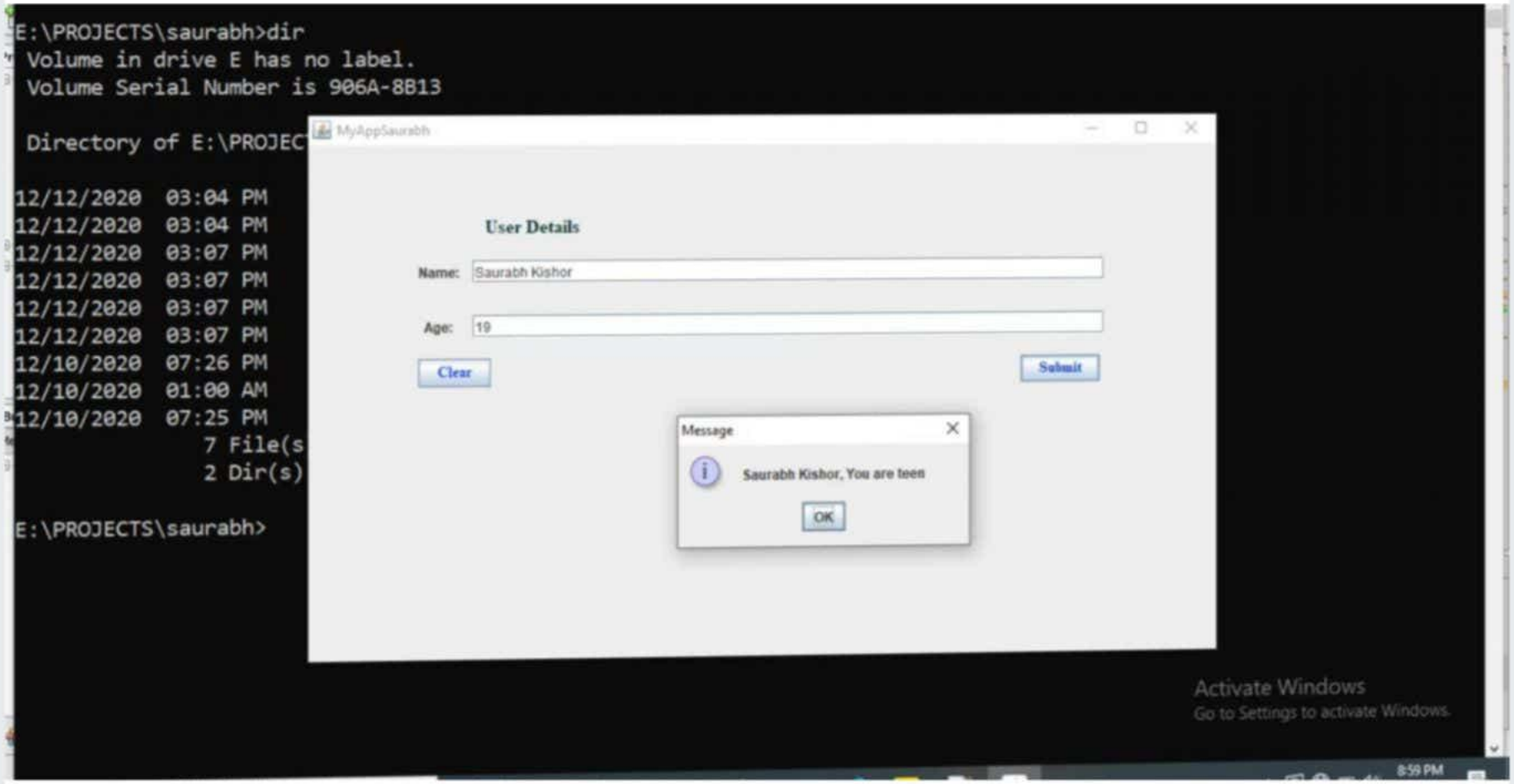
```
    System.out.println("You just clicked the button ...");
    JOptionPane.showMessageDialog(rootPane, "YOu are teen");
    // TODO add your handling code here:
 }
else{
   System.out.print("Age is greater than 21");



    System.out.println("You just clicked the button ...");
    JOptionPane.showMessageDialog(rootPane, "YOu are an Adult");
}


}


 public static void main(String args[]) {
    /* Set the Nimbus look and feel */
```

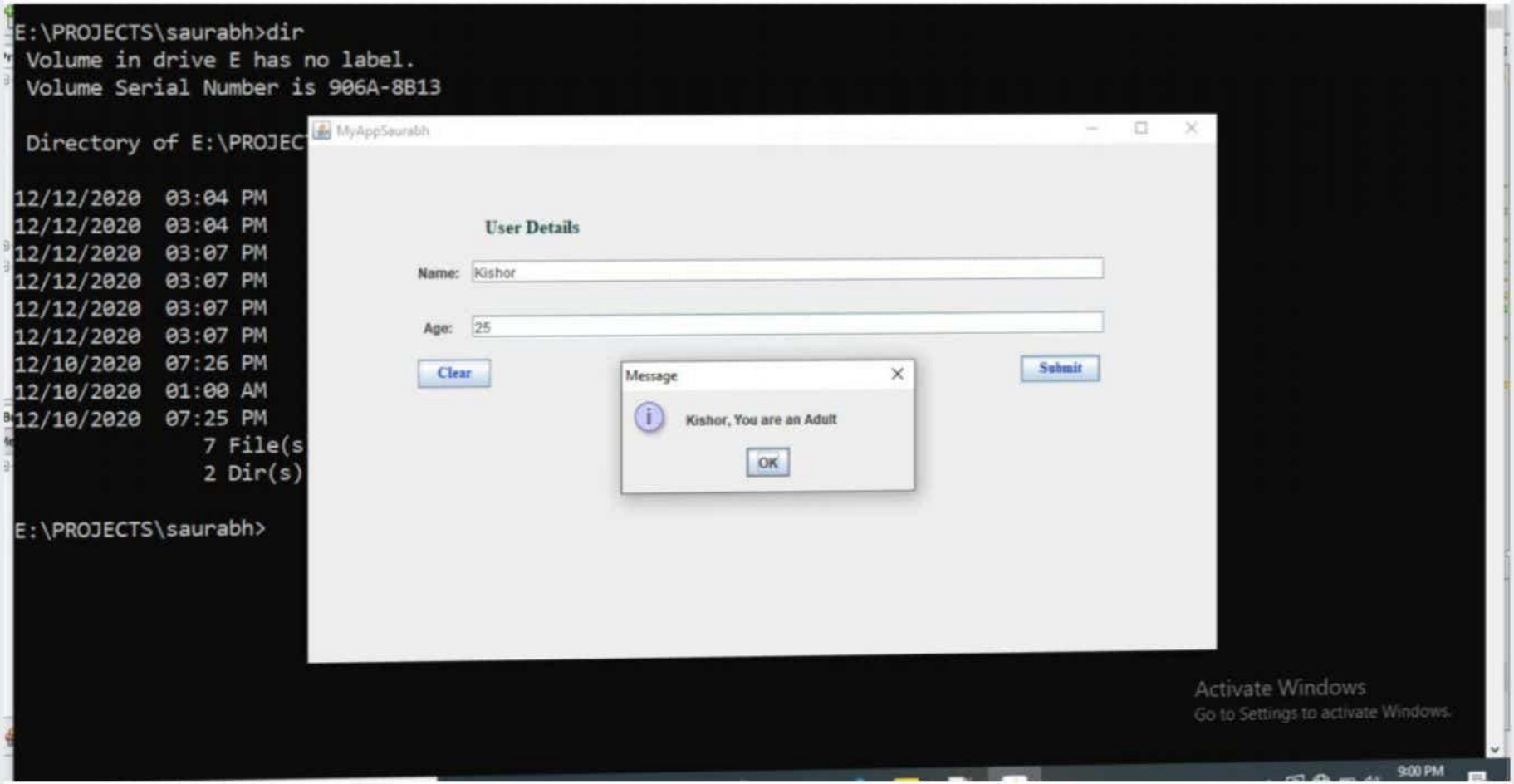
```
//<editor-fold defaultstate="collapsed" desc=" Look and feel setting code (optional) ">
/* If Nimbus (introduced in Java SE 6) is not available, stay with the default look and feel.
 * For details see http://download.oracle.com/javase/tutorial/uiswing/lookandfeel/plaf.html
 */
try {
    for (javax.swing.UIManager.LookAndFeelInfo info : javax.swing.UIManager.getInstalledLookAndFeels()) {
        if ("Nimbus".equals(info.getName())) {
            javax.swing.UIManager.setLookAndFeel(info.getClassName());
            break;
        }
    }
} catch (ClassNotFoundException ex) {
    java.util.logging.Logger.getLogger(AgeApp.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
} catch (InstantiationException ex) {
    java.util.logging.Logger.getLogger(AgeApp.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
} catch (IllegalAccessException ex) {
    java.util.logging.Logger.getLogger(AgeApp.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
```

```
    } catch (javax.swing.UnsupportedLookAndFeelException ex) {
        java.util.logging.Logger.getLogger(AgeApp.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
    }
    //</editor-fold>

    /* Create and display the form */
    java.awt.EventQueue.invokeLater(new Runnable() {
        public void run() {
            new AgeApp().setVisible(true);
        }
    });
}

// Variables declaration - do not modify
private javax.swing.JButton jButton1;
private javax.swing.JLabel jLabel1;
private javax.swing.JLabel jLabel2;
```

```
    private javax.swing.JLabel jLabel3;
    private javax.swing.JTextField jTextField1;
    private javax.swing.JTextField jTextField2;
    // End of variables declaration
}
```


E:\PROJECTS\saurabh>dir
Volume in drive E has no label.
Volume Serial Number is 906A-8B13
Directory of E:\PROJEC
12/12/2020 03:04 PM
12/12/2020 03:04 PM
12/12/2020 03:07 PM
12/12/2020 03:07 PM
12/12/2020 03:07 PM
12/12/2020 03:07 PM
12/10/2020 07:26 PM
12/10/2020 01:00 AM
12/10/2020 07:25 PM
7 File(s
2 Dir(s)
E:\PROJECTS\saurabh>
MyAppSaurabh
User Details
Name:
Saurabh Kishor
Age:
19
Clear
Submit
Activate Windows


E:\PROJECTS\saurabh>dir
Volume in drive E has no label.
Volume Serial Number is 906A-8B13
Directory of E:\PROJEC
12/12/2020 03:04 PM
12/12/2020 03:04 PM
12/12/2020 03:07 PM
12/12/2020 03:07 PM
12/12/2020 03:07 PM
12/12/2020 03:07 PM
12/10/2020 07:26 PM
12/10/2020 01:00 AM
12/10/2020 07:25 PM
7 File(s
2 Dir(s)
E:\PROJECTS\saurabh>
MyAppSaurabh
User Details
Name:
Saurabh Kishor
Age:
19
Clear
Submit
Message
Saurabh Kishor, You are teen
OK
Activate Windows
Go to Settings to activate Windows.
8:59 PM


E:\PROJECTS\saurabh>dir
Volume in drive E has no label.
Volume Serial Number is 906A-8B13
Directory of E:\PROJEC
12/12/2020 03:04 PM
12/12/2020 03:04 PM
12/12/2020 03:07 PM
12/12/2020 03:07 PM
12/12/2020 03:07 PM
12/12/2020 03:07 PM
12/10/2020 07:26 PM
12/10/2020 01:00 AM
12/10/2020 07:25 PM
7 File(s
2 Dir(s)
E:\PROJECTS\saurabh>
MyAppSaurabh
User Details
Name:
Kishor
Age:
25
Clear
Submit
Message
Kishor, You are an Adult
OK
Activate Windows
Go to Settings to activate Windows.
9:00 PM

10.2 Aim: Write a Java program using swing to create a Multiple choice Test Application (Include min 3 questions with 4 choices for each and display the Obtained marks)

Algorithm:-

Step1:- Import all the classes from swing and awt 'interface of Javax' and Java package respectively.

Step 2:- Declare the class which extends Jframe and implements Action Listenes Interface.

Step3: Declare Jlabels for Question, 4 options for each question using Radiobutton.

Step4: Declare 'Buttongroup to effectively control and align button for each of Question

Step5: Set the Labels with the string that display Question and add all the Jlabels to the JFrame. Set names to all radio button to ~~respecti~~ option for respective question.

Step6: Add actionListenes to all the RadioBtn to perform an action when a button is selected.

Override the function action performed and display the message as "Right answes" or "Wrong answa" Whenever a button is selected and increase the correct.

Step7: When the last Question is finished, then click on submit button to submit your answes. and when click submit button then show Massegebox as your total Score.

Step8: run and get expected output.

Program 10.2

```
import javax.swing.JOptionPane;

public class TestApp extends javax.swing.JFrame {



    public TestApp() {
        initComponents();
    }

    @SuppressWarnings("unchecked")
    // <editor-fold defaultstate="collapsed" desc="Generated Code">
    private void initComponents() {

        buttonGroup1 = new javax.swing.ButtonGroup();
```

```
buttonGroup2 = new javax.swing.ButtonGroup();
buttonGroup3 = new javax.swing.ButtonGroup();
buttonGroup4 = new javax.swing.ButtonGroup();
jLabel1 = new javax.swing.JLabel();
jLabel2 = new javax.swing.JLabel();
jLabel3 = new javax.swing.JLabel();
jLabel4 = new javax.swing.JLabel();
jLabel5 = new javax.swing.JLabel();
jLabel6 = new javax.swing.JLabel();
jRadioButton1 = new javax.swing.JRadioButton();
jTextField1 = new javax.swing.JTextField();
jRadioButton2 = new javax.swing.JRadioButton();
jRadioButton3 = new javax.swing.JRadioButton();
jRadioButton4 = new javax.swing.JRadioButton();
jTextField2 = new javax.swing.JTextField();
jRadioButton5 = new javax.swing.JRadioButton();
jRadioButton6 = new javax.swing.JRadioButton();
```

```
jRadioButton7 = new javax.swing.JRadioButton();

jRadioButton8 = new javax.swing.JRadioButton();

jRadioButton9 = new javax.swing.JRadioButton();

jRadioButton10 = new javax.swing.JRadioButton();

jRadioButton11 = new javax.swing.JRadioButton();

jRadioButton12 = new javax.swing.JRadioButton();

jRadioButton13 = new javax.swing.JRadioButton();

jRadioButton14 = new javax.swing.JRadioButton();

jRadioButton15 = new javax.swing.JRadioButton();

jRadioButton16 = new javax.swing.JRadioButton();

jTextField3 = new javax.swing.JTextField();

jTextField4 = new javax.swing.JTextField();

jButton1 = new javax.swing.JButton();


setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);

setTitle("TestApp-Saurabh Kishor");

setBackground(new java.awt.Color(153, 255, 153));
```

```
jLabel1.setFont(new java.awt.Font("Trebuchet MS", 1, 11)); // NOI18N
jLabel1.setText(" (Multiple Choice Question And Answer)");

jLabel2.setFont(new java.awt.Font("Times New Roman", 1, 15)); // NOI18N
jLabel2.setText(" TEST-1   (40 marks)");

jLabel3.setFont(new java.awt.Font("Tw Cen MT", 1, 14)); // NOI18N
jLabel3.setText("Question No:- 1");

jLabel4.setFont(new java.awt.Font("Tahoma", 1, 11)); // NOI18N
jLabel4.setText("Question No:- 2");

jLabel5.setFont(new java.awt.Font("Tahoma", 1, 11)); // NOI18N
jLabel5.setText("Question No:- 3");

jLabel6.setFont(new java.awt.Font("Tahoma", 1, 11)); // NOI18N
```

```
jLabel6.setText("Question No:- 4");


buttonGroup1.add(jRadioButton1);
jRadioButton1.setText("Read Only Memory");


jTextField1.setEditable(false);
jTextField1.setText("What is full form of ROM ?");


buttonGroup1.add(jRadioButton2);
jRadioButton2.setText(" Read Access Memory");


buttonGroup1.add(jRadioButton3);
jRadioButton3.setText("Read Of  Memory");


buttonGroup1.add(jRadioButton4);
jRadioButton4.setText("None of these");
```

```
jTextField2.setEditable(false);
jTextField2.setText("Which of the following is not a Java features?");

buttonGroup2.add(jRadioButton5);
jRadioButton5.setText("Dynamic");

buttonGroup2.add(jRadioButton6);
jRadioButton6.setText("Architecture Neutral");

buttonGroup2.add(jRadioButton7);
jRadioButton7.setText("Use of pointers");

buttonGroup2.add(jRadioButton8);
jRadioButton8.setText(" Array");

buttonGroup3.add(jRadioButton9);
jRadioButton9.setText("JVM");
```

```
buttonGroup3.add(jRadioButton10);
jRadioButton10.setText("JRE");

buttonGroup3.add(jRadioButton11);
jRadioButton11.setText("JDK");

buttonGroup3.add(jRadioButton12);
jRadioButton12.setText("JDB");

buttonGroup4.add(jRadioButton13);
jRadioButton13.setText("Object");

buttonGroup4.add(jRadioButton14);
jRadioButton14.setText("int");

jRadioButton15.setText("Long");
```

```
buttonGroup4.add(jRadioButton16);

jRadioButton16.setText("Void");


jTextField3.setEditable(false);

jTextField3.setText("_____ is used to find and fix bugs in the Java programs.");


jTextField4.setEditable(false);

jTextField4.setText("What is the return type of the hashCode() method in the Object class?");


jButton1.setBackground(new java.awt.Color(204, 255, 255));

jButton1.setFont(new java.awt.Font("Tw Cen MT", 1, 15)); // NOI18N

jButton1.setForeground(new java.awt.Color(0, 51, 255));

jButton1.setText("Submit");

jButton1.addActionListener(new java.awt.event.ActionListener() {

   public void actionPerformed(java.awt.event.ActionEvent evt) {

      jButton1ActionPerformed(evt);
```

```
    }
});

javax.swing.GroupLayout layout = new javax.swing.GroupLayout(getContentPane());
getContentPane().setLayout(layout);
layout.setHorizontalGroup(
    layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    .addGroup(layout.createSequentialGroup()
        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(layout.createSequentialGroup()
                .addGap(207, 207, 207)
                .addComponent(jLabel2, javax.swing.GroupLayout.PREFERRED_SIZE, 152, javax.swing.GroupLayout.PREFERRED_SIZE))
            .addGroup(layout.createSequentialGroup()
                .addGap(181, 181, 181)
                .addComponent(jLabel1, javax.swing.GroupLayout.PREFERRED_SIZE, 242, javax.swing.GroupLayout.PREFERRED_SIZE))
            .addGroup(layout.createSequentialGroup()
                .addGap(20, 20, 20)
```

```
.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    .addGroup(layout.createSequentialGroup()
        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(javax.swing.GroupLayout.Alignment.TRAILING, layout.createSequentialGroup()
                .addComponent(jRadioButton1)
                .addGap(66, 66, 66))
            .addGroup(layout.createSequentialGroup()
                .addComponent(jRadioButton3)
                .addGap(76, 76, 76)))
        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addComponent(jRadioButton4)
            .addComponent(jRadioButton2)))
    .addGroup(layout.createSequentialGroup()
        .addComponent(jLabel3, javax.swing.GroupLayout.PREFERRED_SIZE, 110, javax.swing.GroupLayout.PREFERRED_SIZE)
        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
        .addComponent(jTextField1, javax.swing.GroupLayout.PREFERRED_SIZE, 233, javax.swing.GroupLayout.PREFERRED_SIZE))
    .addGroup(layout.createSequentialGroup()
```

```
                .addComponent(jLabel4, javax.swing.GroupLayout.PREFERRED_SIZE, 118, javax.swing.GroupLayout.PREFERRED_SIZE)
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addComponent(jTextField2, javax.swing.GroupLayout.PREFERRED_SIZE, 369, javax.swing.GroupLayout.PREFERRED_SIZE))
            .addGroup(layout.createSequentialGroup()
                .addComponent(jLabel6, javax.swing.GroupLayout.PREFERRED_SIZE, 109, javax.swing.GroupLayout.PREFERRED_SIZE)
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
                .addComponent(jTextField4, javax.swing.GroupLayout.PREFERRED_SIZE, 364, javax.swing.GroupLayout.PREFERRED_SIZE))
            .addGroup(layout.createSequentialGroup()
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING, false)
                        .addComponent(jLabel5, javax.swing.GroupLayout.Alignment.LEADING, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                        .addComponent(jRadioButton5, javax.swing.GroupLayout.Alignment.LEADING, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                        .addComponent(jRadioButton7, javax.swing.GroupLayout.Alignment.LEADING, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
                    .addComponent(jRadioButton9)
                    .addComponent(jRadioButton11)
```

```
                .addComponent(jRadioButton13)
                .addComponent(jRadioButton15))
            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                .addGroup(layout.createSequentialGroup()
                    .addGap(95, 95, 95)
                    .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                        .addComponent(jRadioButton14)
                        .addComponent(jRadioButton12)
                        .addComponent(jRadioButton10)
                        .addComponent(jRadioButton8)
                        .addComponent(jRadioButton6)
                        .addComponent(jRadioButton16)
                        .addComponent(jButton1, javax.swing.GroupLayout.PREFERRED_SIZE, 117,
javax.swing.GroupLayout.PREFERRED_SIZE)))
                .addGroup(layout.createSequentialGroup()
                    .addGap(23, 23, 23)
                    .addComponent(jTextField3, javax.swing.GroupLayout.PREFERRED_SIZE, 369,
javax.swing.GroupLayout.PREFERRED_SIZE)))))))
```

```
            .addContainerGap(120, Short.MAX_VALUE))
        );
        layout.setVerticalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(layout.createSequentialGroup()
                .addContainerGap()
                .addComponent(jLabel2, javax.swing.GroupLayout.PREFERRED_SIZE, 27, javax.swing.GroupLayout.PREFERRED_SIZE)
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addComponent(jLabel1, javax.swing.GroupLayout.PREFERRED_SIZE, 24, javax.swing.GroupLayout.PREFERRED_SIZE)
                .addGap(18, 18, 18)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING)
                    .addGroup(layout.createSequentialGroup()
                        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                            .addComponent(jLabel3, javax.swing.GroupLayout.PREFERRED_SIZE, 21, javax.swing.GroupLayout.PREFERRED_SIZE)
                            .addComponent(jTextField1, javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE))
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
```

```
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jRadioButton1)
                    .addComponent(jRadioButton2))
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jRadioButton4)
                    .addComponent(jRadioButton3))
                .addGap(32, 32, 32))
            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                .addComponent(jLabel4, javax.swing.GroupLayout.PREFERRED_SIZE, 26, javax.swing.GroupLayout.PREFERRED_SIZE)
                .addComponent(jTextField2, javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE)))
        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
            .addComponent(jRadioButton5)
            .addComponent(jRadioButton6))
        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
```

```
            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                .addComponent(jRadioButton7)
                .addComponent(jRadioButton8))
            .addGap(18, 18, 18)
            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                .addComponent(jLabel5, javax.swing.GroupLayout.PREFERRED_SIZE, 24, javax.swing.GroupLayout.PREFERRED_SIZE)
                .addComponent(jTextField3, javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE))
            .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                .addComponent(jRadioButton9)
                .addComponent(jRadioButton10))
            .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                .addComponent(jRadioButton11)
                .addComponent(jRadioButton12))
            .addGap(18, 18, 18)
```

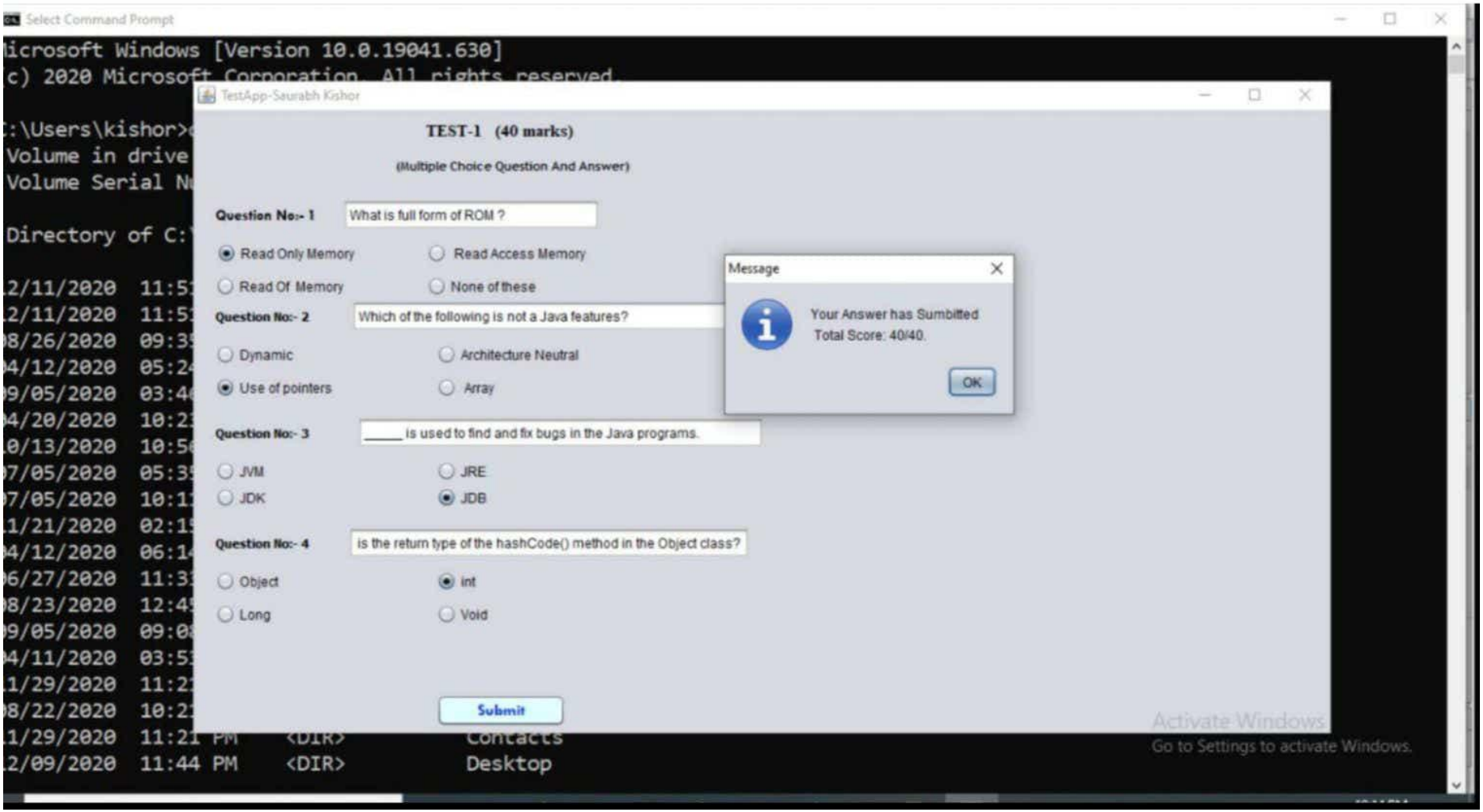
```
            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                .addComponent(jLabel6, javax.swing.GroupLayout.PREFERRED_SIZE, 23, javax.swing.GroupLayout.PREFERRED_SIZE)
                .addComponent(jTextField4, javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE))
            .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                .addComponent(jRadioButton13)
                .addComponent(jRadioButton14))
            .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                .addComponent(jRadioButton15)
                .addComponent(jRadioButton16))
            .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED, 13, Short.MAX_VALUE)
            .addComponent(jButton1)
            .addContainerGap())
        );
```

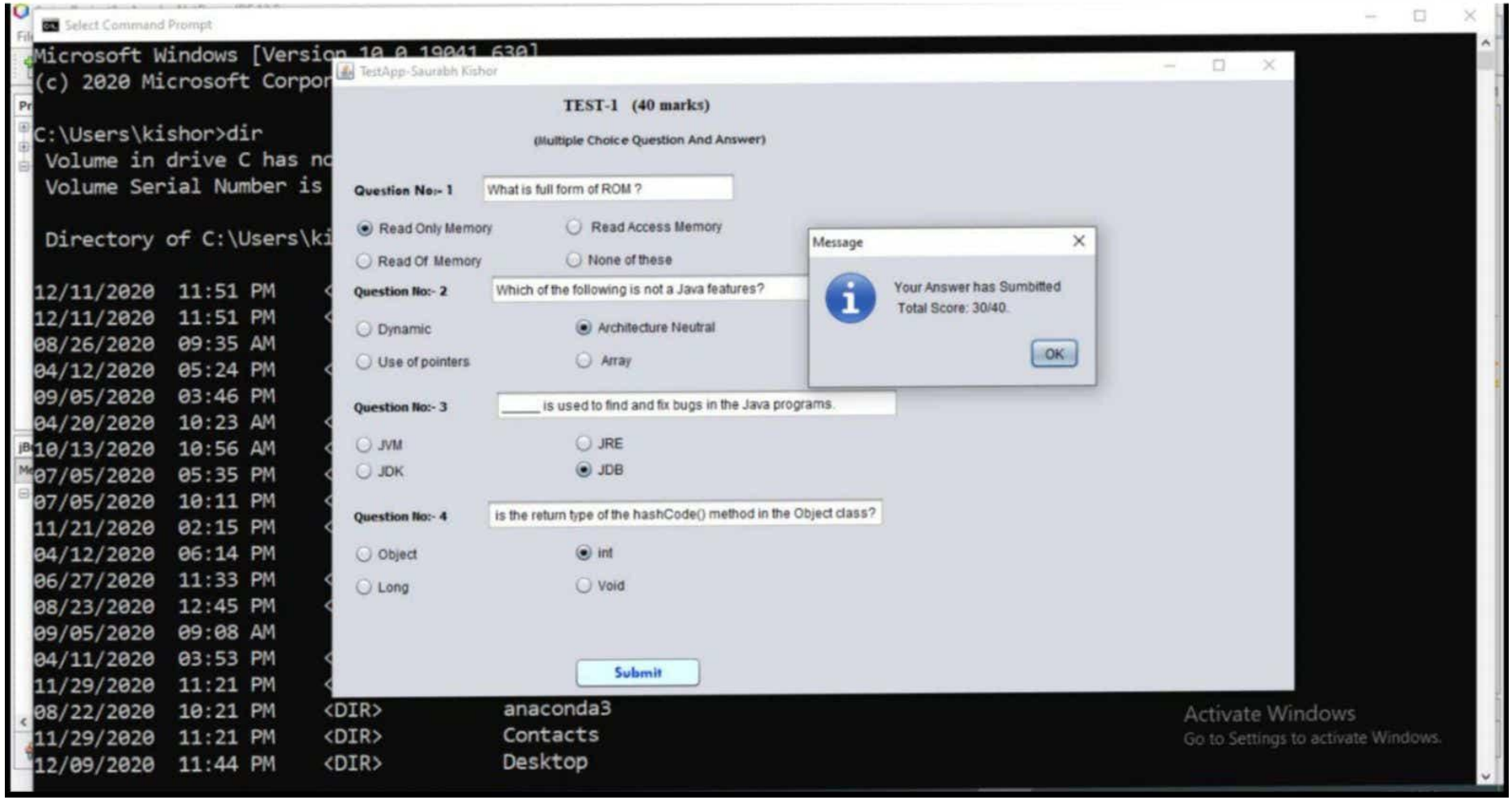
```
    pack();
}// </editor-fold>

private void jButton1ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
    System.out.println(" Submit Clicked ");
    JOptionPane.showMessageDialog(rootPane,"Your Answer has Sumbitted\n Total Score: 30/40.");

}

public static void main(String args[]) {

    java.awt.EventQueue.invokeLater(new Runnable() {
        public void run() {
            new TestApp().setVisible(true);
        }
```

```
    });
}

// Variables declaration - do not modify
private javax.swing.ButtonGroup buttonGroup1;
private javax.swing.ButtonGroup buttonGroup2;
private javax.swing.ButtonGroup buttonGroup3;
private javax.swing.ButtonGroup buttonGroup4;
private javax.swing.JButton jButton1;
private javax.swing.JLabel jLabel1;
private javax.swing.JLabel jLabel2;
private javax.swing.JLabel jLabel3;
private javax.swing.JLabel jLabel4;
private javax.swing.JLabel jLabel5;
private javax.swing.JLabel jLabel6;
private javax.swing.JRadioButton jRadioButton1;
private javax.swing.JRadioButton jRadioButton10;
```

```
private javax.swing.JRadioButton jRadioButton11;
private javax.swing.JRadioButton jRadioButton12;
private javax.swing.JRadioButton jRadioButton13;
private javax.swing.JRadioButton jRadioButton14;
private javax.swing.JRadioButton jRadioButton15;
private javax.swing.JRadioButton jRadioButton16;
private javax.swing.JRadioButton jRadioButton2;
private javax.swing.JRadioButton jRadioButton3;
private javax.swing.JRadioButton jRadioButton4;
private javax.swing.JRadioButton jRadioButton5;
private javax.swing.JRadioButton jRadioButton6;
private javax.swing.JRadioButton jRadioButton7;
private javax.swing.JRadioButton jRadioButton8;
private javax.swing.JRadioButton jRadioButton9;
private javax.swing.JTextField jTextField1;
private javax.swing.JTextField jTextField2;
private javax.swing.JTextField jTextField3;
```

```
    private javax.swing.JTextField jTextField4;
    // End of variables declaration
}
```


Select Command Prompt
Microsoft Windows [Version 10.0.19041.630]
(c) 2020 Microsoft Corporation. All rights reserved.
C:\Users\kishor>
Volume in drive
Volume Serial Nu
Directory of C:
12/11/2020 11:5
12/11/2020 11:5
08/26/2020 09:3
04/12/2020 05:2
09/05/2020 03:4
04/20/2020 10:2
10/13/2020 10:5
07/05/2020 05:3
07/05/2020 10:1
01/21/2020 02:1
04/12/2020 06:1
06/27/2020 11:3
08/23/2020 12:4
09/05/2020 09:0
04/11/2020 03:5
01/29/2020 11:2
08/22/2020 10:2
01/29/2020 11:21 PM <DIR> Contacts
12/09/2020 11:44 PM <DIR> Desktop
TestApp-Saurabh Kishor
TEST-1 (40 marks)
(Multiple Choice Question And Answer)
Question No:- 1
What is full form of ROM ?
Read Only Memory
Read Access Memory
Read Of Memory
None of these
Question No:- 2
Which of the following is not a Java features?
Dynamic
Architecture Neutral
Use of pointers
Array
Question No:- 3
_____ is used to find and fix bugs in the Java programs.
JVM
JRE
JDK
JDB
Question No:- 4
is the return type of the hashCode() method in the Object class?
Object
int
Long
Void
Submit
Message
Your Answer has Sumbitted
Total Score: 40/40.
OK
Activate Windows
Go to Settings to activate Windows.


Select Command Prompt
Microsoft Windows [Version 10.0.19041.630]
(c) 2020 Microsoft Corpor
C:\Users\kishor>dir
Volume in drive C has no
Volume Serial Number is
Directory of C:\Users\ki
12/11/2020 11:51 PM
12/11/2020 11:51 PM
08/26/2020 09:35 AM
04/12/2020 05:24 PM
09/05/2020 03:46 PM
04/20/2020 10:23 AM
10/13/2020 10:56 AM
07/05/2020 05:35 PM
07/05/2020 10:11 PM
11/21/2020 02:15 PM
04/12/2020 06:14 PM
06/27/2020 11:33 PM
08/23/2020 12:45 PM
09/05/2020 09:08 AM
04/11/2020 03:53 PM
11/29/2020 11:21 PM
08/22/2020 10:21 PM <DIR> anaconda3
11/29/2020 11:21 PM <DIR> Contacts
12/09/2020 11:44 PM <DIR> Desktop
TestApp-Saurabh Kishor
TEST-1 (40 marks)
(Multiple Choice Question And Answer)
Question No:- 1
What is full form of ROM ?
Read Only Memory
Read Access Memory
Read Of Memory
None of these
Question No:- 2
Which of the following is not a Java features?
Dynamic
Architecture Neutral
Use of pointers
Array
Question No:- 3
_____ is used to find and fix bugs in the Java programs.
JVM
JRE
JDK
JDB
Question No:- 4
is the return type of the hashCode() method in the Object class?
Object
int
Long
Void
Submit
Message
Your Answer has Sumbitted
Total Score: 30/40
OK
Activate Windows
Go to Settings to activate Windows.

10.3 **Aim:** Write a java program using JDBC connectivity to

a) create a table Emp with Id, Name, Job and salary as fields.

b) Insert records into the table Emp insert query.

c) Update any one record of the Emp table update query.

d) Display all the records of Emp table using select query.

Algorithm:

step1:- Import all the classes from java.sql.package.

step2:- Inside the class Employee initialize database URL

```
String url = "jdbc:mysql://localhost/employee"
```

Initialize connection, Resultset and statement object to NULL.

step3:- start connection to connect database and then executeQuery and create table Emp.

step4:- using executUpdate sql query, Insert query. and to retrieve the details of the table and iterate over the resultset object and print the column value of each row and display.

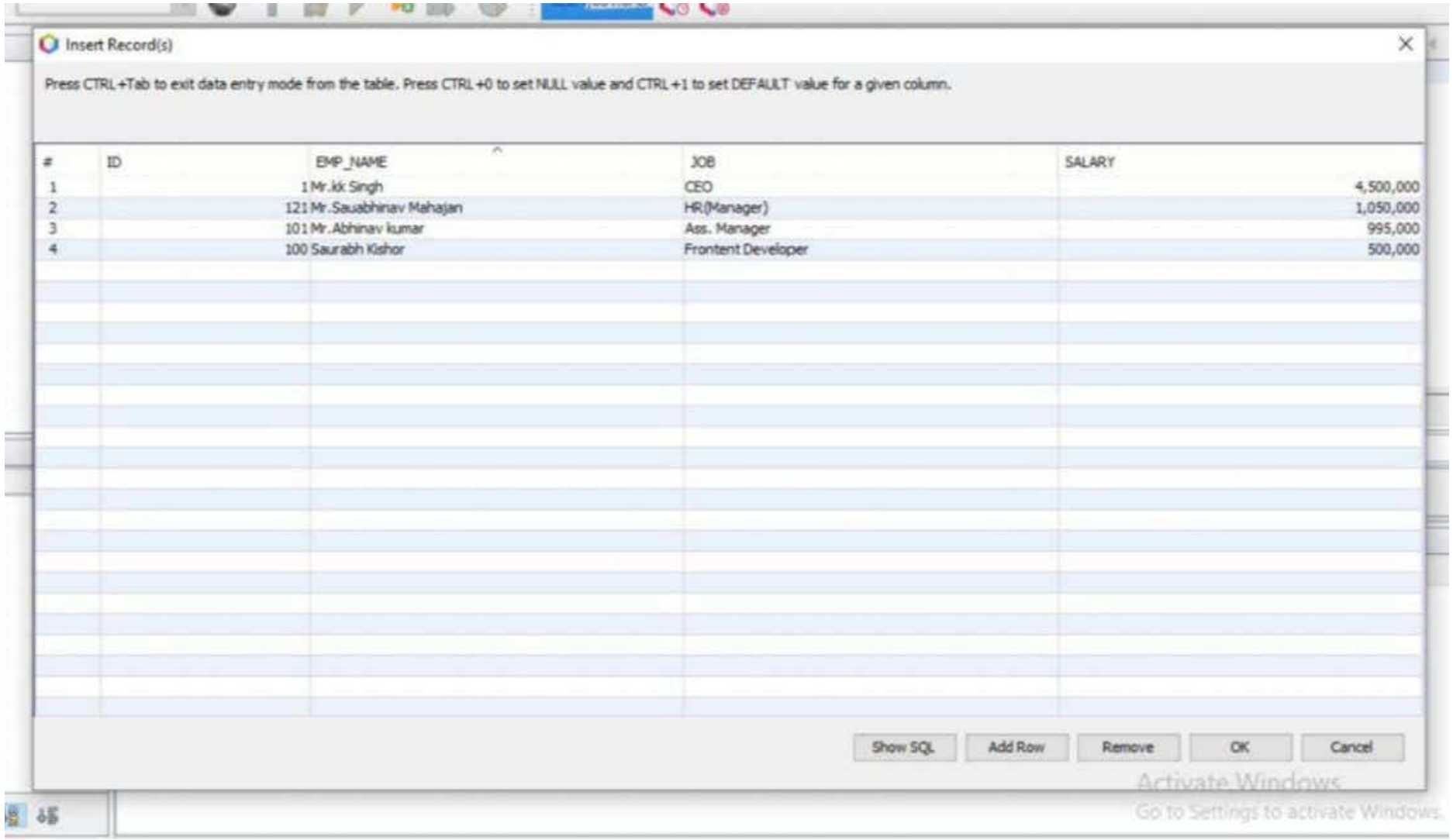
step5:- After execution the code ~~close~~ close the connection, resultset by invoking close() function on resultset and connection objects.

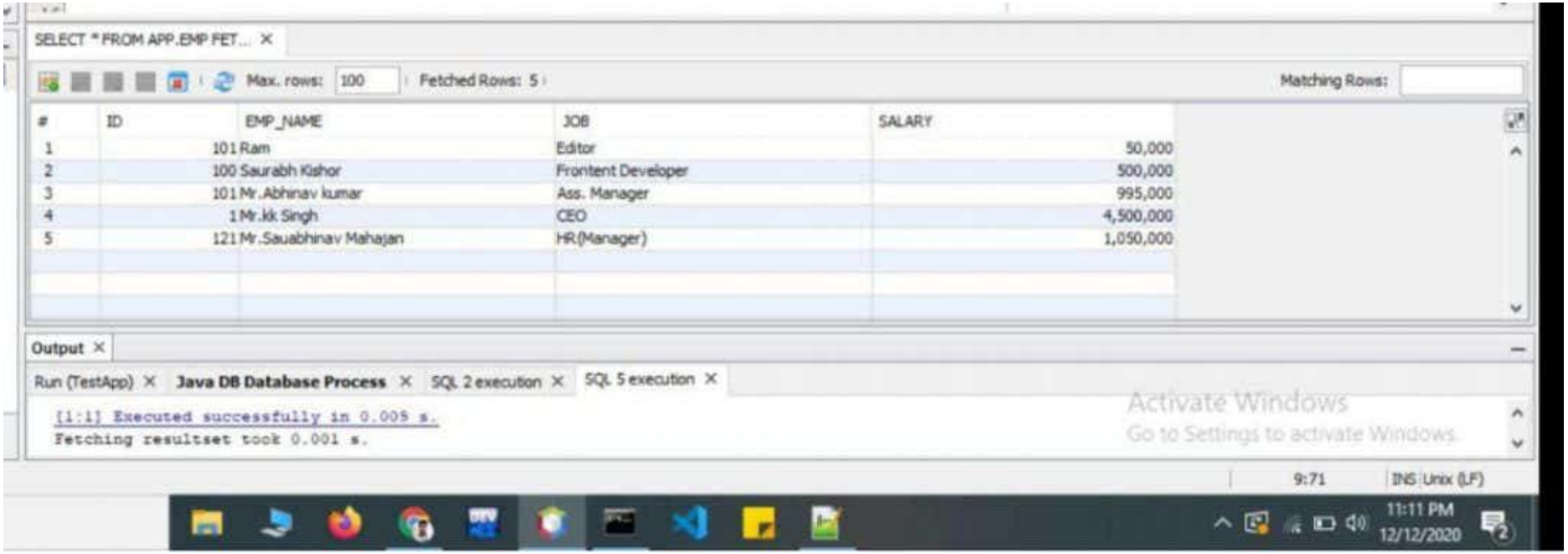
step6: Run this code and get expected output.

Program 10.3

```
import java.sql.*;
class Emp{
public static void main(String args[]){
try{
Class.forName("oracle.jdbc.driver.OracleDriver");

Connection con=DriverManager.getConnection("jdbc:oracle:thin:@localhost:1521:xe","system","oracle");

PreparedStatement stmt=con.prepareStatement("insert into Emp values(id,"Ename",'"Job"', '"Email+"', '"+Mob"', '"+Salary"',null)");
String query5 = "Insert into students values(108,'CEO','Ask@gmail.com','987685478','Saurabhinav',null)";
String query5 = "Insert into students values(101,'Developer','pkh@gmail.com','887645878','Arabhinav',null)";
String query6 = "Insert into students values(108,'Manager','sk@gmail.com','757685478','PawanMishra',null)";

stmt.setInt(1,101);
stmt.setString(2,"Ratan");
```

```
int i=stmt.executeUpdate();
System.out.println(i+" records inserted");

PreparedStatement stmt=con.prepareStatement("update emp set name=saurabh where id=100");
stmt.setString(1,"Sonoo");//1 specifies the first parameter in the query i.e. name
stmt.setInt(2,101);

int i=stmt.executeUpdate();
System.out.println(i+" records updated");

con.close();

}catch(Exception e){ System.out.println(e);}

}
}
```


Insert Record(s)
Press CTRL+Tab to exit data entry mode from the table. Press CTRL+0 to set NULL value and CTRL+1 to set DEFAULT value for a given column.
ID EMP_NAME JOB SALARY
1 1 Mr.kk Singh CEO 4,500,000
2 121 Mr.Saubhinav Mahajan HR(Manager) 1,050,000
3 101 Mr.Abhinav kumar Ass. Manager 995,000
4 100 Saurabh Kishor Frontent Developer 500,000
Show SQL
Add Row
Remove
OK
Cancel
Activate Windows
Go to Settings to activate Windows.


SELECT * FROM APP.EMP FET...
Max. rows: 100
Fetched Rows: 5
Matching Rows:
ID EMP_NAME JOB SALARY
1 101 Ram Editor 50,000
2 100 Saurabh Kishor Frontent Developer 500,000
3 101 Mr.Abhinav kumar Ass. Manager 995,000
4 1 Mr.kk Singh CEO 4,500,000
5 121 Mr.Sauabhinav Mahajan HR(Manager) 1,050,000
Output
Run (TestApp)
Java DB Database Process
SQL 2 execution
SQL 5 execution
[1:1] Executed successfully in 0.005 s.
Fetching resultset took 0.001 s.
Activate Windows
Go to Settings to activate Windows.
9:71
INS Unix (LF)
11:11 PM
12/12/2020

OOPL LAB EX-11

11.1

Aim: Write a Java program using swing to develop a simple calculator.

Algorithm:-

step1:- Import the necessary classes from Java and Javax package.

step2:- Inside a class declare a texfield for displaying the numbers, and buttons and grid layout for displaying the button in grid formate and also label for naming textfield.

step3:- Inside a class create Jframe object and add the textfield, buttons, buttonpanel, to the frame.

step4:- override the actionperformed function inside the actionlistenes interface to get values ~~inp~~ from inside the textfield and store these value in a temp variable.

step5. Set addition, subtraction, division and Multiplication operations ~~for~~ the buttons and carried out on number occuring just before the operator and after the operator.

step6:- Use parseInteger to convert string value to Integer which we stored in temp variable.

step7:- perform the operation and get correct Answer and store this answer in a variable and finally show the final Answer on screen i.e, textfield1.

step8:- run this code and get expected output.

Program 11.1

```
import javax.swing.JOptionPane;
import javax.swing.JTextField;

public class Calculator extends javax.swing.JFrame {
double num,ans;
    int cal;
   public void arithemetic_operator(){
       switch(cal){
           case 1:
               ans = num + Double.parseDouble(jTextField5.getText());
               jTextField5.setText(Double.toString(ans));
               break;

           case 2:
               ans = num - Double.parseDouble(jTextField5.getText());
```

```
            jTextField5.setText(Double.toString(ans));
            break;

        case 3:
            ans = num * Double.parseDouble(jTextField5.getText());
            jTextField5.setText(Double.toString(ans));
            break;


        case 4:
            ans = num / Double.parseDouble(jTextField5.getText());
            jTextField5.setText(Double.toString(ans));
            break;
    }

}
    public Calculator() {
```

```
    initComponents();


}
public void enable(){
    jTextField5.setEnabled(true);


    jButton1.setEnabled(true);
    jButton2.setEnabled(true);
    jButton3.setEnabled(true);
    jButton4.setEnabled(true);
    jButton5.setEnabled(true);
    jButton6.setEnabled(true);
    jButton7.setEnabled(true);
    jButton8.setEnabled(true);
    jButton9.setEnabled(true);
    jButton10.setEnabled(true);
    jButton11.setEnabled(true);
```

```
    jButton12.setEnabled(true);
    jButton13.setEnabled(true);
    jButton14.setEnabled(true);
    jButton15.setEnabled(true);
    jButton16.setEnabled(true);
    jButton17.setEnabled(true);
    jButton18.setEnabled(true);
    jButton19.setEnabled(true);

}
public void disable(){
    jTextField5.setEnabled(false);

    jButton1.setEnabled(false);
    jButton2.setEnabled(false);
    jButton3.setEnabled(false);
    jButton4.setEnabled(false);
```

```
    jButton5.setEnabled(false);
    jButton6.setEnabled(false);
    jButton7.setEnabled(false);
    jButton8.setEnabled(false);
    jButton9.setEnabled(false);
    jButton10.setEnabled(false);
    jButton11.setEnabled(false);
    jButton12.setEnabled(false);
    jButton13.setEnabled(false);
    jButton14.setEnabled(false);
    jButton15.setEnabled(false);
    jButton16.setEnabled(false);
    jButton17.setEnabled(false);
    jButton18.setEnabled(false);
    jButton19.setEnabled(false);
}
```

```
@SuppressWarnings("unchecked")
// <editor-fold defaultstate="collapsed" desc="Generated Code">
private void initComponents() {

    jScrollPane1 = new javax.swing.JScrollPane();
    jTree1 = new javax.swing.JTree();
    jScrollPane2 = new javax.swing.JScrollPane();
    jTree2 = new javax.swing.JTree();
    buttonGroup1 = new javax.swing.ButtonGroup();
    jLabel10 = new javax.swing.JLabel();
    jTextField5 = new javax.swing.JTextField();
    jButton1 = new javax.swing.JButton();
    jButton2 = new javax.swing.JButton();
    jButton3 = new javax.swing.JButton();
    jButton4 = new javax.swing.JButton();
    jButton5 = new javax.swing.JButton();
    jButton6 = new javax.swing.JButton();
```

```
jButton7 = new javax.swing.JButton();

jButton9 = new javax.swing.JButton();

jButton10 = new javax.swing.JButton();

jButton8 = new javax.swing.JButton();

jButton11 = new javax.swing.JButton();

jButton12 = new javax.swing.JButton();

jButton13 = new javax.swing.JButton();

jButton14 = new javax.swing.JButton();

jButton15 = new javax.swing.JButton();

jButton16 = new javax.swing.JButton();

jButton17 = new javax.swing.JButton();

jButton18 = new javax.swing.JButton();

jButton19 = new javax.swing.JButton();

jRadioButton1 = new javax.swing.JRadioButton();

jRadioButton2 = new javax.swing.JRadioButton();

jLabel1 = new javax.swing.JLabel();
```

```
jScrollPane1.setViewportView(jTree1);

jScrollPane2.setViewportView(jTree2);

setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);
setTitle("Calculator");
setBackground(new java.awt.Color(0, 0, 51));
setType(java.awt.Window.Type.UTILITY);

jLabel10.setBackground(new java.awt.Color(102, 102, 255));
jLabel10.setFont(new java.awt.Font("Tw Cen MT", 1, 25)); // NOI18N
jLabel10.setForeground(new java.awt.Color(255, 0, 0));
jLabel10.setText("     Calculator");

jTextField5.setEditable(false);
jTextField5.setFont(new java.awt.Font("Dialog", 0, 24)); // NOI18N
jTextField5.setText("0");
```

```
jTextField5.setBorder(javax.swing.BorderFactory.createLineBorder(new java.awt.Color(0, 0, 0)));
jTextField5.setCursor(new java.awt.Cursor(java.awt.Cursor.DEFAULT_CURSOR));

jButton1.setBackground(new java.awt.Color(204, 204, 204));
jButton1.setFont(new java.awt.Font("Tw Cen MT Condensed Extra Bold", 0, 13)); // NOI18N
jButton1.setForeground(new java.awt.Color(51, 0, 0));
jButton1.setText("Add");
jButton1.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton1ActionPerformed(evt);
    }
});

jButton2.setFont(new java.awt.Font("Tw Cen MT Condensed Extra Bold", 0, 13)); // NOI18N
jButton2.setForeground(new java.awt.Color(51, 0, 51));
jButton2.setText(" Subtraction ");
jButton2.addActionListener(new java.awt.event.ActionListener() {
```

```
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton2ActionPerformed(evt);
    }
});

jButton3.setFont(new java.awt.Font("Tw Cen MT Condensed Extra Bold", 0, 13)); // NOI18N
jButton3.setForeground(new java.awt.Color(51, 0, 0));
jButton3.setText("Multiplication");
jButton3.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton3ActionPerformed(evt);
    }
});

jButton4.setFont(new java.awt.Font("Tw Cen MT Condensed Extra Bold", 0, 13)); // NOI18N
jButton4.setForeground(new java.awt.Color(51, 0, 0));
jButton4.setText("Division");
```

```
jButton4.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton4ActionPerformed(evt);
    }
});

jButton5.setFont(new java.awt.Font("Times New Roman", 0, 14)); // NOI18N
jButton5.setText("1");
jButton5.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton5ActionPerformed(evt);
    }
});

jButton6.setFont(new java.awt.Font("Tahoma", 0, 12)); // NOI18N
jButton6.setText("2");
jButton6.addActionListener(new java.awt.event.ActionListener() {
```

```
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton6ActionPerformed(evt);
    }
});

jButton7.setFont(new java.awt.Font("Tahoma", 0, 12)); // NOI18N
jButton7.setText("3");
jButton7.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton7ActionPerformed(evt);
    }
});

jButton9.setFont(new java.awt.Font("Tahoma", 0, 12)); // NOI18N
jButton9.setText("5");
jButton9.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
```

```
        jButton9ActionPerformed(evt);
    }
});

jButton10.setFont(new java.awt.Font("Tahoma", 0, 12)); // NOI18N
jButton10.setText("6");
jButton10.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton10ActionPerformed(evt);
    }
});

jButton8.setFont(new java.awt.Font("Tahoma", 0, 12)); // NOI18N
jButton8.setText("4");
jButton8.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton8ActionPerformed(evt);
```

```
    }
});

jButton11.setFont(new java.awt.Font("Tahoma", 0, 12)); // NOI18N
jButton11.setText("7");
jButton11.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton11ActionPerformed(evt);
    }
});

jButton12.setFont(new java.awt.Font("Tahoma", 0, 12)); // NOI18N
jButton12.setText("8");
jButton12.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton12ActionPerformed(evt);
    }
```

```
});

jButton13.setFont(new java.awt.Font("Tahoma", 0, 12)); // NOI18N
jButton13.setText("9");
jButton13.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton13ActionPerformed(evt);
    }
});

jButton14.setFont(new java.awt.Font("Tahoma", 0, 12)); // NOI18N
jButton14.setText("0");
jButton14.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton14ActionPerformed(evt);
    }
});
```

```
jButton15.setFont(new java.awt.Font("Tahoma", 0, 12)); // NOI18N
jButton15.setText("=");
jButton15.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton15ActionPerformed(evt);
    }
});

jButton16.setFont(new java.awt.Font("Tahoma", 1, 14)); // NOI18N
jButton16.setText(".");
jButton16.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton16ActionPerformed(evt);
    }
});
```

```
jButton17.setFont(new java.awt.Font("Tahoma", 0, 12)); // NOI18N
jButton17.setText("C");
jButton17.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton17ActionPerformed(evt);
    }
});

jButton18.setFont(new java.awt.Font("Tahoma", 0, 10)); // NOI18N
jButton18.setText("%");
jButton18.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton18ActionPerformed(evt);
    }
});

jButton19.setFont(new java.awt.Font("Tahoma", 0, 12)); // NOI18N
```

```
jButton19.setText("<");
jButton19.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton19ActionPerformed(evt);
    }
});

buttonGroup1.add(jRadioButton1);
jRadioButton1.setText("On");
jRadioButton1.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jRadioButton1ActionPerformed(evt);
    }
});

buttonGroup1.add(jRadioButton2);
jRadioButton2.setText("Off");
```

```
jRadioButton2.setContentAreaFilled(false);
jRadioButton2.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jRadioButton2ActionPerformed(evt);
    }
});

javax.swing.GroupLayout layout = new javax.swing.GroupLayout(getContentPane());
getContentPane().setLayout(layout);
layout.setHorizontalGroup(
    layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    .addGroup(layout.createSequentialGroup()
        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(layout.createSequentialGroup()
                .addGap(89, 89, 89)
                .addComponent(jLabel10, javax.swing.GroupLayout.PREFERRED_SIZE, 154, javax.swing.GroupLayout.PREFERRED_SIZE)
                .addGap(18, 18, 18)
```

```
                .addComponent(jLabel1, javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
            .addGroup(javax.swing.GroupLayout.Alignment.TRAILING, layout.createSequentialGroup()
                .addContainerGap()
                .addComponent(jTextField5))
            .addGroup(layout.createSequentialGroup()
                .addGap(20, 20, 20)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING, false)
                        .addComponent(jButton4, javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE)
                        .addComponent(jButton3, javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE)
                        .addComponent(jButton1, javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE)
                        .addComponent(jButton2, javax.swing.GroupLayout.Alignment.LEADING, javax.swing.GroupLayout.PREFERRED_SIZE, 97,
javax.swing.GroupLayout.PREFERRED_SIZE))
                    .addComponent(jRadioButton2)
                    .addComponent(jRadioButton1))
```

```
                .addGap(30, 30, 30)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addGroup(layout.createSequentialGroup()
                        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING, false)
                            .addComponent(jButton14, javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE)
                            .addComponent(jButton5, javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE)
                            .addComponent(jButton8, javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE)
                            .addComponent(jButton11))
                        .addGap(37, 37, 37)
                        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING, false)
                            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                                .addGroup(javax.swing.GroupLayout.Alignment.TRAILING, layout.createSequentialGroup()
                                    .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING, false)
                                        .addComponent(jButton9, javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE)
```

```
                .addComponent(jButton12))
            .addGap(38, 38, 38)
            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                .addComponent(jButton7, javax.swing.GroupLayout.PREFERRED_SIZE, 39,
javax.swing.GroupLayout.PREFERRED_SIZE)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING, false)
                    .addComponent(jButton10, javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE)
                    .addComponent(jButton13))))
            .addGroup(javax.swing.GroupLayout.Alignment.TRAILING, layout.createSequentialGroup()
                .addComponent(jButton6, javax.swing.GroupLayout.PREFERRED_SIZE, 39, javax.swing.GroupLayout.PREFERRED_SIZE)
                .addGap(77, 77, 77)))
        .addGroup(layout.createSequentialGroup()
            .addComponent(jButton16)
            .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED, javax.swing.GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE)
            .addComponent(jButton15, javax.swing.GroupLayout.PREFERRED_SIZE, 49,
javax.swing.GroupLayout.PREFERRED_SIZE))))
```

```
                    .addGroup(layout.createSequentialGroup()
                        .addComponent(jButton17, javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE)
                        .addGap(37, 37, 37)
                        .addComponent(jButton18)
                        .addGap(32, 32, 32)
                        .addComponent(jButton19)))))
            .addContainerGap())
        );
        layout.setVerticalGroup(
           layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
           .addGroup(layout.createSequentialGroup()
              .addContainerGap()
              .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                 .addGroup(layout.createSequentialGroup()
                    .addComponent(jLabel10, javax.swing.GroupLayout.PREFERRED_SIZE, 37, javax.swing.GroupLayout.PREFERRED_SIZE)
                    .addGap(19, 19, 19))
```

```
    .addGroup(javax.swing.GroupLayout.Alignment.TRAILING, layout.createSequentialGroup()
        .addComponent(jLabel1, javax.swing.GroupLayout.PREFERRED_SIZE, 20, javax.swing.GroupLayout.PREFERRED_SIZE)
        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)))
.addComponent(jTextField5, javax.swing.GroupLayout.PREFERRED_SIZE, 45, javax.swing.GroupLayout.PREFERRED_SIZE)
.addGap(18, 18, 18)
.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING, false)
    .addGroup(layout.createSequentialGroup()
        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING, false)
            .addGroup(layout.createSequentialGroup()
                .addComponent(jButton18, javax.swing.GroupLayout.DEFAULT_SIZE, 24, Short.MAX_VALUE)
                .addGap(1, 1, 1))
            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                .addComponent(jButton19)
                .addComponent(jButton17)))
        .addGap(34, 34, 34)
        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
            .addComponent(jButton12)
```

```
    .addComponent(jButton13)
    .addComponent(jButton11))
.addGap(18, 18, 18)
.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    .addComponent(jButton10)
    .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
        .addComponent(jButton9)
        .addComponent(jButton8)))
.addGap(18, 18, 18)
.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
    .addComponent(jButton7)
    .addComponent(jButton6)
    .addComponent(jButton5))
.addGap(13, 13, 13)
.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    .addComponent(jButton15)
    .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
```

```
                    .addComponent(jButton16)
                    .addComponent(jButton14))))
                .addGroup(layout.createSequentialGroup()
                    .addComponent(jRadioButton1)
                    .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                    .addComponent(jRadioButton2)
                    .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED, javax.swing.GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE)
                    .addComponent(jButton1)
                    .addGap(18, 18, 18)
                    .addComponent(jButton2)
                    .addGap(18, 18, 18)
                    .addComponent(jButton3)
                    .addGap(18, 18, 18)
                    .addComponent(jButton4)))
            .addContainerGap(50, Short.MAX_VALUE))
        );
```

```
    pack();
}// </editor-fold>
int n5;
private void jButton8ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
    jTextField5.setText(jTextField5.getText()+"4");
    String temp4 = jTextField5.getText();
    n5 = Integer.parseInt(temp);

}

int n1,n2;

private void jButton5ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
    System.out.println("clicked 1 ");
```

```
    jTextField5.setText(jTextField5.getText()+"1");
    String temp = jTextField5.getText();
    n1 = Integer.parseInt(temp);
    System.out.println("n1="+n1);

}

private void jButton6ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
    System.out.println("clicked 2 ");
    jTextField5.setText(jTextField5.getText()+"2");
    String temp1 = jTextField5.getText();
    n2 = Integer.parseInt(temp1);
    System.out.println("n2="+n2);

}
 int n3;
```

```
private void jButton7ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
    System.out.println("clicked 3 ");
    jTextField5.setText(jTextField5.getText()+"3");
    String temp2 = jTextField5.getText();
    n3 = Integer.parseInt(temp2);
    System.out.println("n3="+n3);
}
    int result;
    String temp;
private void jButton1ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
    System.out.println("clicked Add button ");

    num = Double.parseDouble(jTextField5.getText());
    cal = 1;
    jTextField5.setText(" ");
```

```
     jLabel1.setText(num+"+");


}


private void jButton2ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
    System.out.println("clicked Subtraction button ");
   // jTextField5.setText(jTextField5.getText()+"-");


    num = Double.parseDouble(jTextField5.getText());
    cal = 2;
    jTextField5.setText(" ");
     jLabel1.setText(num+"-");


}


private void jButton15ActionPerformed(java.awt.event.ActionEvent evt) {
```

```
    arithemetic_operator();
    jLabel1.setText(" ");


}

private void jButton10ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
    System.out.println("Clicked 6 ");
    jTextField5.setText(jTextField5.getText()+"6");
    String temp6 = jTextField5.getText();
    int n6 = Integer.parseInt(temp6);
    System.out.println("n6:="+n6);

}
```

```
private void jButton11ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
     System.out.println("Clicked 7 ");
    jTextField5.setText(jTextField5.getText()+"7");
    String temp7 = jTextField5.getText();
    int n7 = Integer.parseInt(temp7);
    System.out.println("n7:="+n7);

}

private void jButton12ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
     System.out.println("Clicked 8 ");
    jTextField5.setText(jTextField5.getText()+"8");
    String temp8 = jTextField5.getText();
    int n8 = Integer.parseInt(temp8);
    System.out.println("n8:="+n8);
```

```
}

private void jButton13ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
     System.out.println("Clicked 9 ");
    jTextField5.setText(jTextField5.getText()+"9");
    String temp9 = jTextField5.getText();
    int n9 = Integer.parseInt(temp9);
    System.out.println("n9:="+n9);

}

private void jButton14ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
     System.out.println("Clicked 0 ");
    jTextField5.setText(jTextField5.getText()+"0");
```

```
    String temp0 = jTextField5.getText();
    int n0 = Integer.parseInt(temp0);
    System.out.println("n0:="+n0);

}

private void jButton16ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
     System.out.println("Clicked . ");
    jTextField5.setText(jTextField5.getText()+".");
    String temp10 = jTextField5.getText();
    int n10 = Integer.parseInt(temp10);
    System.out.println("n10:="+n10);

}
    int mul;
private void jButton3ActionPerformed(java.awt.event.ActionEvent evt) {
```

```
     System.out.println("Clicked Multiplication Btn");
    //jTextField5.setText(jTextField5.getText()+"*");

    num = Double.parseDouble(jTextField5.getText());
    cal = 3;
    jTextField5.setText(" ");
    jLabel1.setText(num+"*");

}

private void jButton4ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
     System.out.println("Clicked division Btn: ");
    num = Double.parseDouble(jTextField5.getText());
    cal = 4;
    jTextField5.setText(" ");
```

```
    jLabel1.setText(num+"/");

}

private void jButton9ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
    System.out.println("Clicked 5 ");
    String temp5 = jTextField5.getText();
    jTextField5.setText(temp5+"5");

    int N5 = Integer.parseInt(temp5);
    System.out.println("n5:="+N5);

}

private void jButton17ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
```

```
    jTextField5.setText(" ");



 }
String store;
 private void jButton18ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
    jTextField5.setText(jTextField5.getText()+"%");
    //String store;
 }

 private void jButton19ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
     int len = jTextField5.getText().length();
     int num = jTextField5.getText().length()-1;
     if(len>0){
         StringBuilder back = new StringBuilder(jTextField5.getText());
```

```
        back.deleteCharAt(num);
        store = back.toString();
        jTextField5.setText(store);
    }
}

private void jRadioButton1ActionPerformed(java.awt.event.ActionEvent evt) {
         enable();
}
private void jRadioButton2ActionPerformed(java.awt.event.ActionEvent evt) {
         disable();
}

  public static void main(String args[]) {
    /* Set the Nimbus look and feel */
    //<editor-fold defaultstate="collapsed" desc=" Look and feel setting code (optional) ">
    /* If Nimbus (introduced in Java SE 6) is not available, stay with the default look and feel.
```

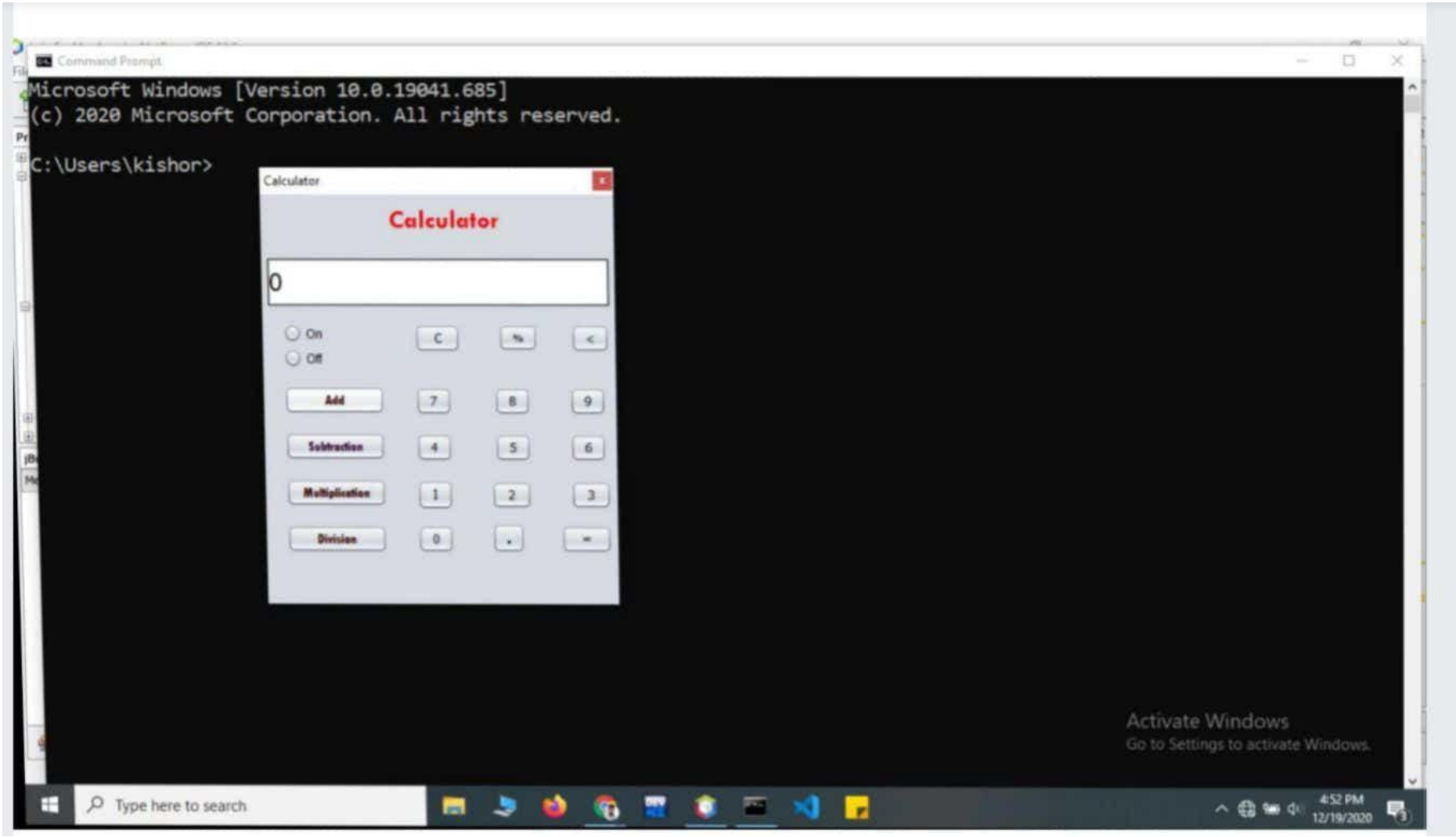
```
 * For details see http://download.oracle.com/javase/tutorial/uiswing/lookandfeel/plaf.html
 */
try {
    for (javax.swing.UIManager.LookAndFeelInfo info : javax.swing.UIManager.getInstalledLookAndFeels()) {
        if ("Nimbus".equals(info.getName())) {
            javax.swing.UIManager.setLookAndFeel(info.getClassName());
            break;
        }
    }
} catch (ClassNotFoundException ex) {
    java.util.logging.Logger.getLogger(Calculator.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
} catch (InstantiationException ex) {
    java.util.logging.Logger.getLogger(Calculator.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
} catch (IllegalAccessException ex) {
    java.util.logging.Logger.getLogger(Calculator.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
} catch (javax.swing.UnsupportedLookAndFeelException ex) {
    java.util.logging.Logger.getLogger(Calculator.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
```

```
    }
    //</editor-fold>

    /* Create and display the form */
    java.awt.EventQueue.invokeLater(new Runnable() {
        public void run() {
            new Calculator().setVisible(true);
        }
    });

    System.out.println("program started...");

}

// Variables declaration - do not modify
private javax.swing.ButtonGroup buttonGroup1;
private javax.swing.JButton jButton1;
```

```
private javax.swing.JButton jButton10;
private javax.swing.JButton jButton11;
private javax.swing.JButton jButton12;
private javax.swing.JButton jButton13;
private javax.swing.JButton jButton14;
private javax.swing.JButton jButton15;
private javax.swing.JButton jButton16;
private javax.swing.JButton jButton17;
private javax.swing.JButton jButton18;
private javax.swing.JButton jButton19;
private javax.swing.JButton jButton2;
private javax.swing.JButton jButton3;
private javax.swing.JButton jButton4;
private javax.swing.JButton jButton5;
private javax.swing.JButton jButton6;
private javax.swing.JButton jButton7;
private javax.swing.JButton jButton8;
```

```
    private javax.swing.JButton jButton9;
    private javax.swing.JLabel jLabel1;
    private javax.swing.JLabel jLabel10;
    private javax.swing.JRadioButton jRadioButton1;
    private javax.swing.JRadioButton jRadioButton2;
    private javax.swing.JScrollPane jScrollPane1;
    private javax.swing.JScrollPane jScrollPane2;
    private javax.swing.JTextField jTextField5;
    private javax.swing.JTree jTree1;
    private javax.swing.JTree jTree2;
    // End of variables declaration
}
```

Output:


Command Prompt
Microsoft Windows [Version 10.0.19041.685]
(c) 2020 Microsoft Corporation. All rights reserved.
C:\Users\kishor>
Calculator
Calculator
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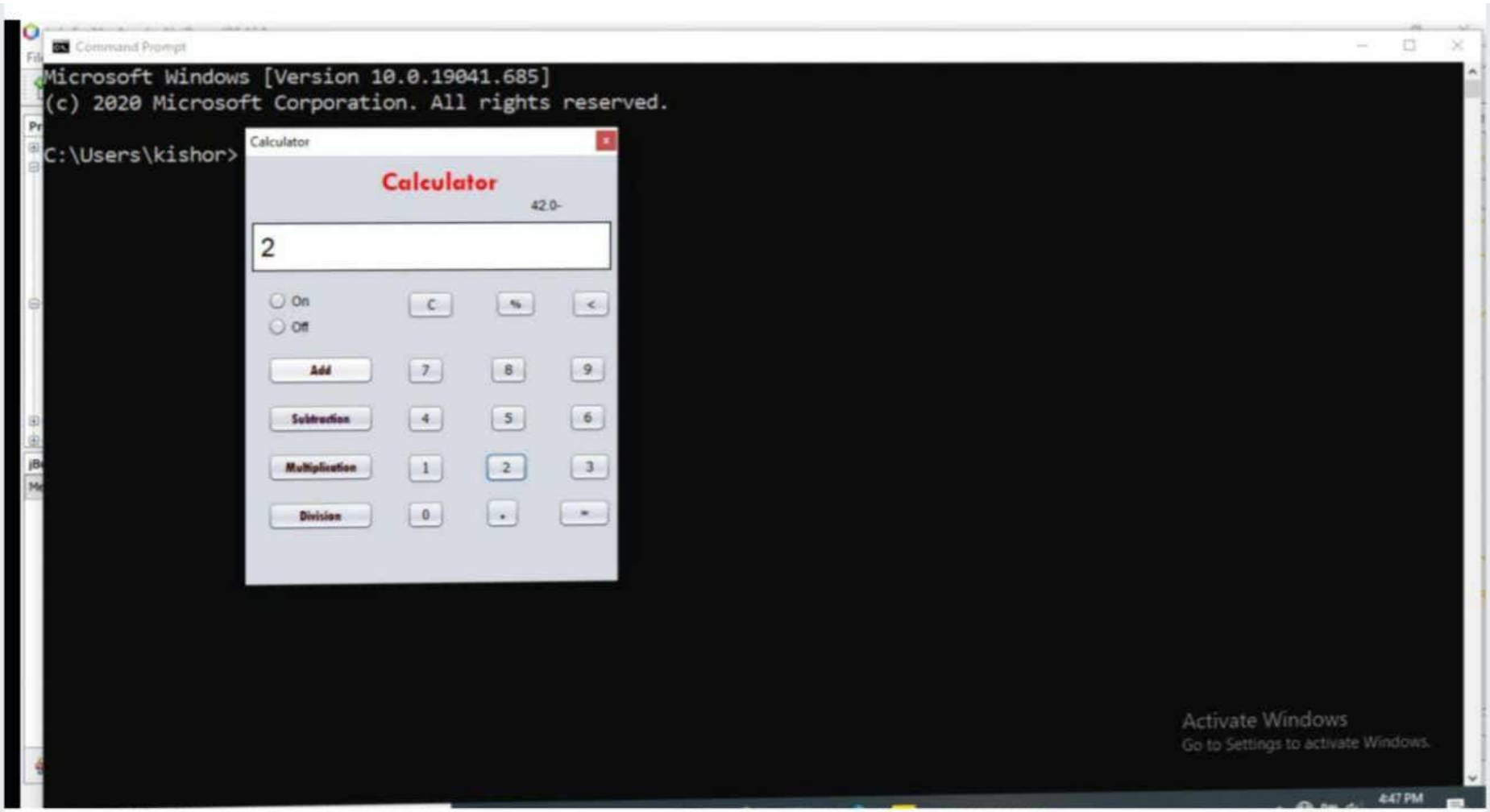
Type here to search
4:52 PM
12/19/2020


Command Prompt
Microsoft Windows [Version 10.0.19041.685]
(c) 2020 Microsoft Corporation. All rights reserved.
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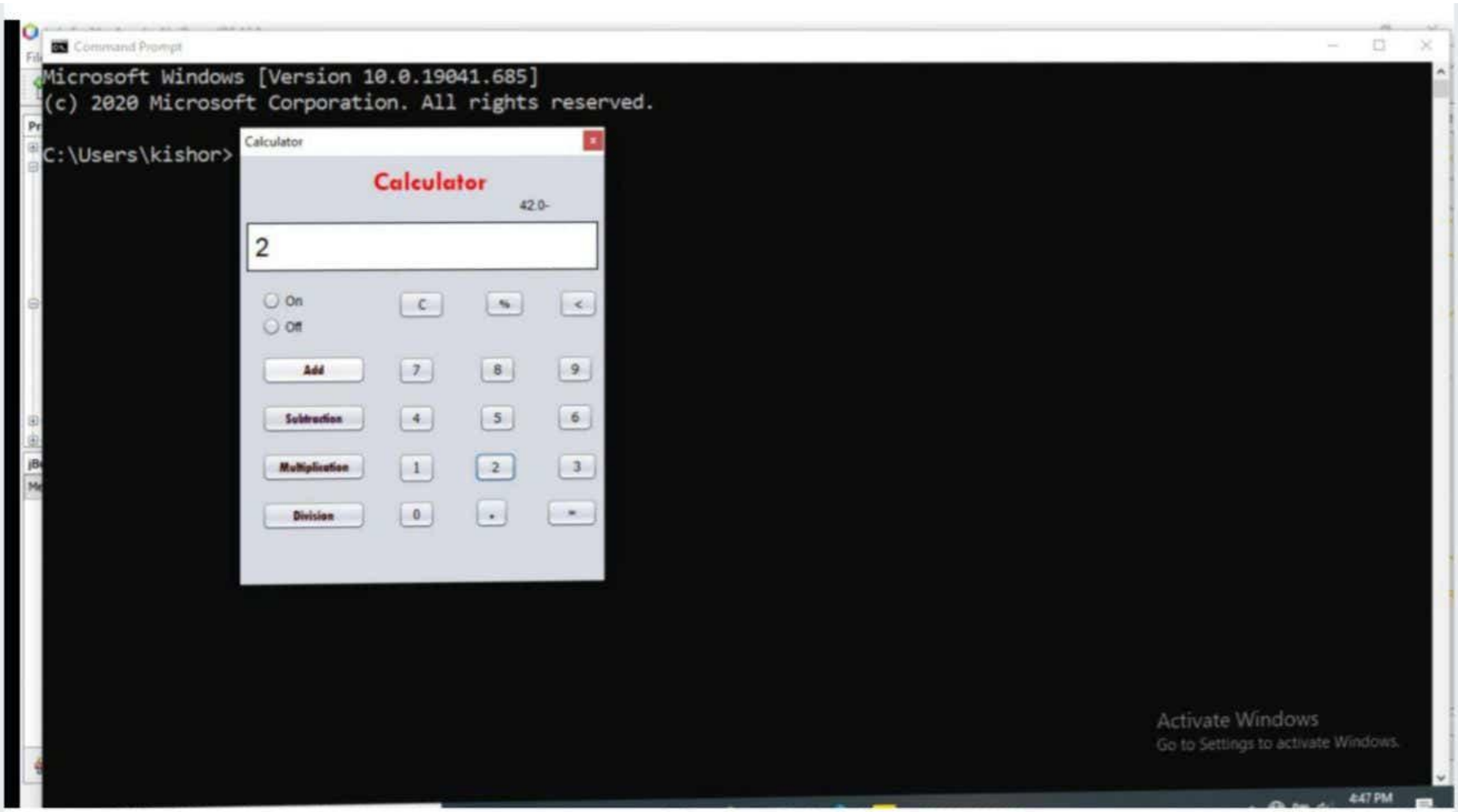
Command Prompt
Microsoft Windows [Version 10.0.19041.685]
(c) 2020 Microsoft Corporation. All rights reserved.
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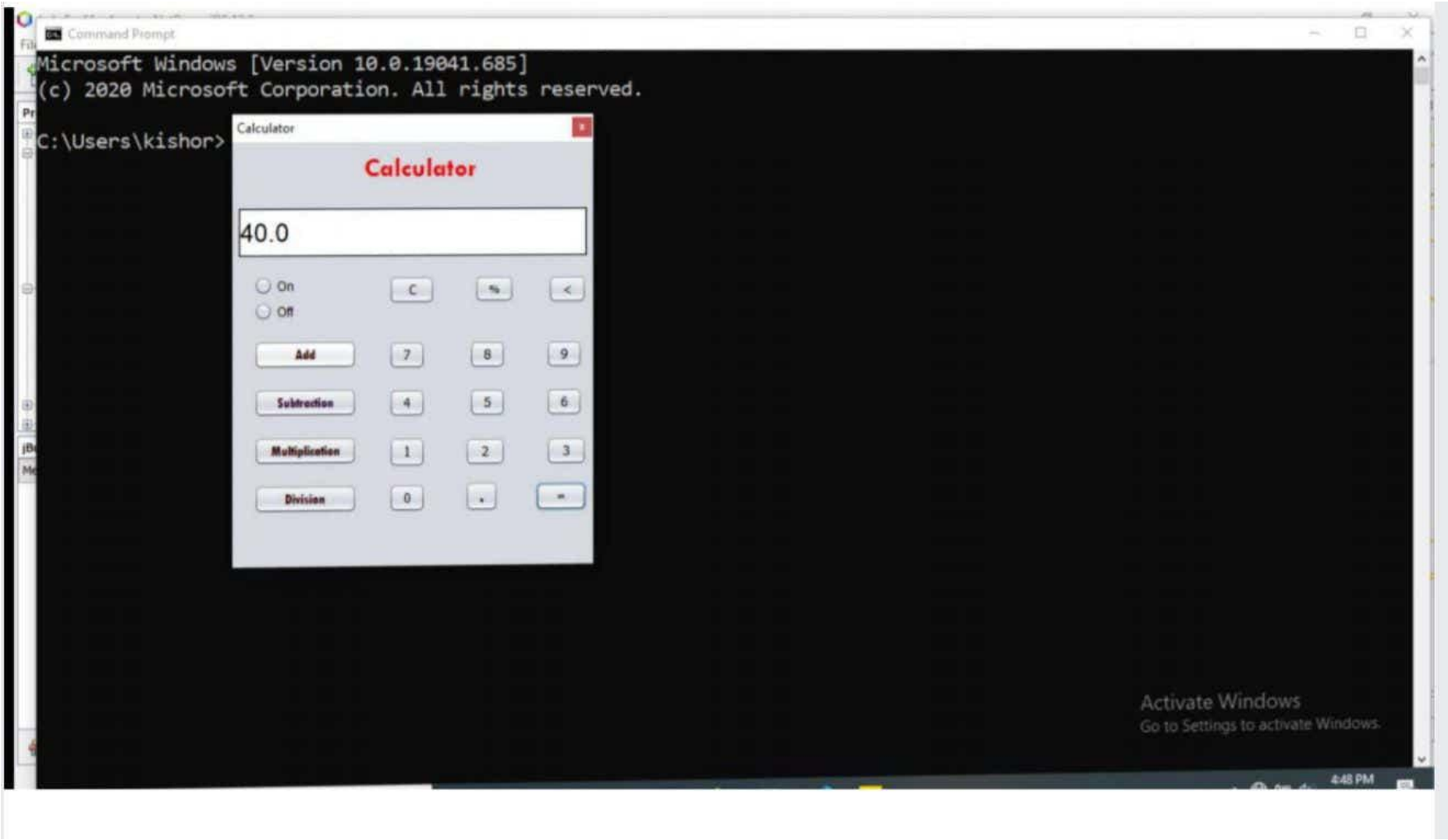
Command Prompt
Microsoft Windows [Version 10.0.19041.685]
(c) 2020 Microsoft Corporation. All rights reserved.
C:\Users\kishor>
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11.2

Aim:- Write a Java program using LinkedList to implement the following.

a. Create a class Iteam with Itemno, ItemName, Price.
b. Generate a list of item using LinkedList.
c. Add a new item to the list.
d. Display the list of items.
e. Sort the items based on price (use comparator and Lambda)
f. Display the sorted list of items.
g. Remove ith item form the list.
h. Display the list of items.

Algorithm:-

step1:- Import all ~~classes~~ Libraries from the Java.util package.

step2:- Declare a class Iteam with string type data member Item name and integer type datamember item no, item price, item name.

step3:- Using the constructor create an object with the parameters passed to it

step4:- Declare a function tostring which helps in representing datamembers in string formate.

step5:- Inside the main function of another class, declare a Linkelist of type item i.e. object of item.

step6:- Using add function to add nodes to the list and print the list initially when it is unsorted using get(i) function.

step7:- Using the sort function of collection class to pass parameters such as the listname, comparator and the parameter on which to carry out the sorting) sort the list.

step8:- Using remove function to remove the item and display the

Program 11.2

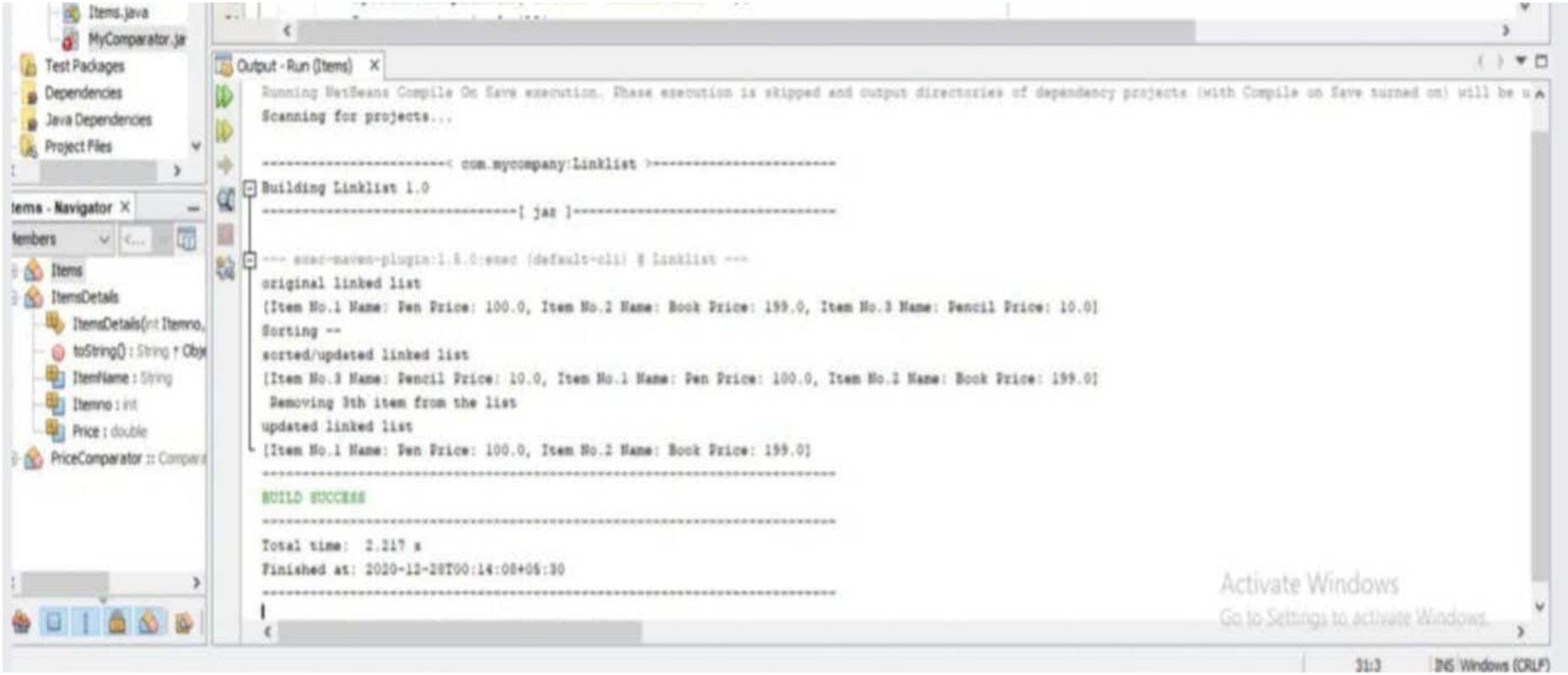
```
package com.mycompany.linklist;


import java.util.*;


class ItemsDetails{
   int Itemno;
   String ItemName;
   double Price ;
   ItemsDetails(int Itemno, String ItemName, double Price)
   {
      this.Itemno = Itemno;
      this.ItemName = ItemName;
      this.Price = Price;
   }
      public String toString(){
      return "Item No."+Itemno + " Name: " + ItemName + " Price: "+ Price;}
```

```
}
class PriceComparator implements Comparator{
    public int compare(Object o1,Object o2){
        ItemsDetails itm1 =(ItemsDetails)o1;
        ItemsDetails itm2 =( ItemsDetails )o2;

        if(itm1.Price==itm2.Price)
            return 0;
        else if(itm1.Price>itm2.Price)
            return 1;
        else
            return -1;
    }
}

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

```
        ItemsDetails itm1 = new ItemsDetails(1,"Pen",100);
        ItemsDetails itm2 = new ItemsDetails(2,"Book",199);
        ItemsDetails itm3 = new ItemsDetails(3,"Pencil",10);
//        System.out.println("ItemDetails: "+ itm1);

        LinkedList<ItemsDetails> ll = new LinkedList<ItemsDetails>();

        ll.add(itm1);
        ll.add(itm2);
        ll.add(itm3);

        System.out.println("original linked list");
        System.out.println(ll);

        System.out.println("Sorting --");

        PriceComparator pc = new PriceComparator();
```

```
    Collections.sort(ll, pc);


    System.out.println("sorted  linked list: ");
    System.out.println(ll);


    System.out.println(" Removing 3th item from the list  ");
    ll.remove(itm3);
    System.out.println("updated linked list");
    System.out.println(ll);
}


}
```

Output:


Items.java
MyComparator.ja
Test Packages
Dependencies
Java Dependencies
Project Files
Items - Navigator
Members
Items
ItemsDetails
ItemsDetails(int Itemno,
toString() : String
ItemName : String
Itemno : int
Price : double
PriceComparator :: Compare
Output - Run (Items)
Running NetBeans Compile On Save execution. Phase execution is skipped and output directories of dependency projects (with Compile on Save turned on) will be u
Scanning for projects...
---------------------< com.mycompany:Linklist >---------------------
Building Linklist 1.0
--------------------------------[jar]---------------------------------
--- exec-maven-plugin:1.5.0:exec (default-cli) @ Linklist ---
original linked list
[Item No.1 Name: Pen Price: 100.0, Item No.2 Name: Book Price: 199.0, Item No.3 Name: Pencil Price: 10.0]
Sorting --
sorted/updated linked list
[Item No.3 Name: Pencil Price: 10.0, Item No.1 Name: Pen Price: 100.0, Item No.2 Name: Book Price: 199.0]
Removing 9th item from the list
updated linked list
[Item No.1 Name: Pen Price: 100.0, Item No.2 Name: Book Price: 199.0]

BUILD SUCCESS

Total time: 2.217 s
Finished at: 2020-12-28T00:14:08+05:30

Activate Windows
Go to Settings to activate Windows.
31:3
INS Windows (CRLF)

11.3

Aim:- Write a javafx program to display a rectangle Fill the shape with a colour when user click on a button.

Algorithm:-

Step1:- Import all ~~Libraries~~ Libraries from Javafx package.

Step2:- Declare a class rectangle which extends class Application declare inside Javafx package.

Step3:- Override the function start and set the tittle of primarystage.

Step4:- Create a group object and a rectangle object and specify the demensions and ~~coord~~ coordinates of the rectangle.

Step5:- Add a button to the group to change the color of rectangle when clicked.

Step6:- Override the EventHandles function to set the color of rectangle when clicked.

Step7:- Using the ~~setscreen~~ setscene member function display the scene and call the show member function.

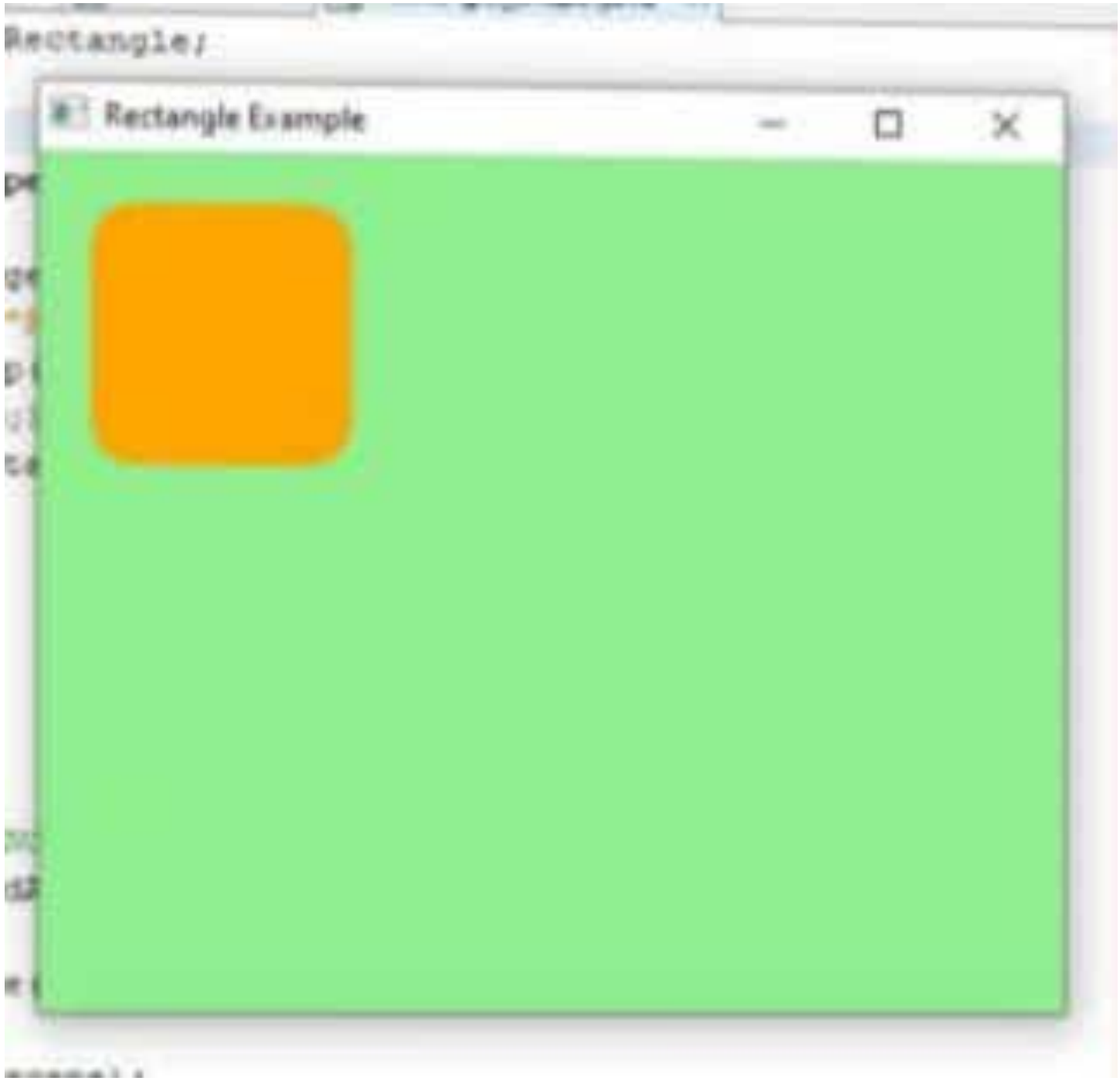
Step8:- run this code and get expected output.

Program 11.3

```
package Application;

import javafx.application.Application;

import javafx.scene.control.Button;

import javafx.event.EventHandler;

import javafx.event.ActionEvent;

import javafx.scene.Group;

import javafx.scene.Scene;

import javafx.scene.paint.Color;

import javafx.scene.shape.Rectangle;

import javafx.stage.Stage;


public class Rectangle_Shape extends Application{


    public void start(Stage primaryStage) throws Exception {

   primaryStage.setTitle("Rectangle Example");
```

```
    Group group = new Group();
            // Create a Rectangle
    Rectangle rect=new Rectangle();
            rect.setX(20);
    rect.setY(20);
    rect.setWidth(100);
    rect.setHeight(100);

rect.setArcHeight(35);
    rect.setArcWidth(35);
    rect.setFill(Color.ORANGE);
    group.getChildren().addAll(rect);
//Create a Scene
    Scene scene = new Scene(group,200,300,Color.LIGHTGREEN);
//Prepare a Stage
    primaryStage.setScene(scene);
    primaryStage.show();
```

```
}

public static void main(String[] args) {

    launch(args);  }

}
```


Rectangle;
Rectangle Example