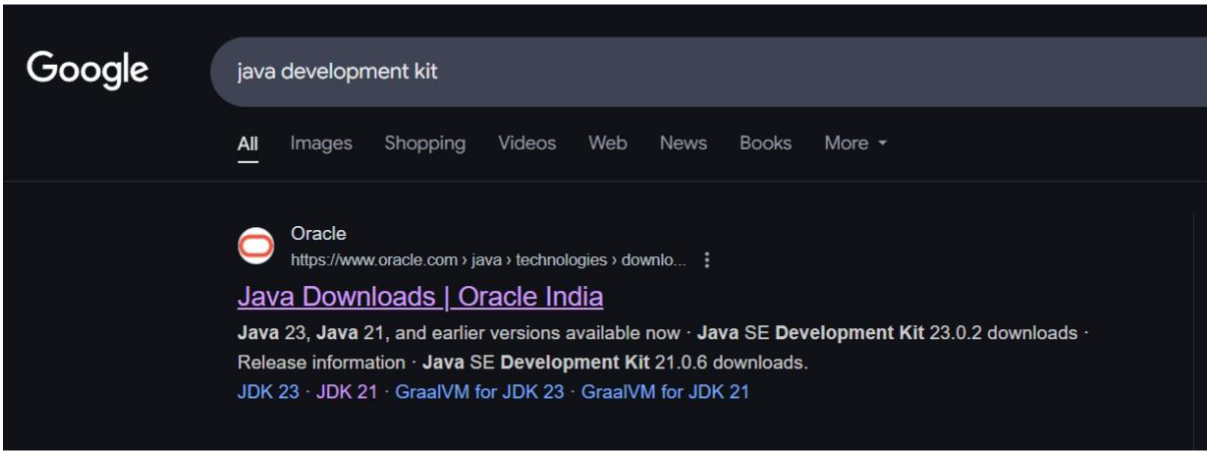
sWEEK-1

PROGRAME-1

AIM: Download and installation of java

Step 1 : Search for java development kit in chrome to download java

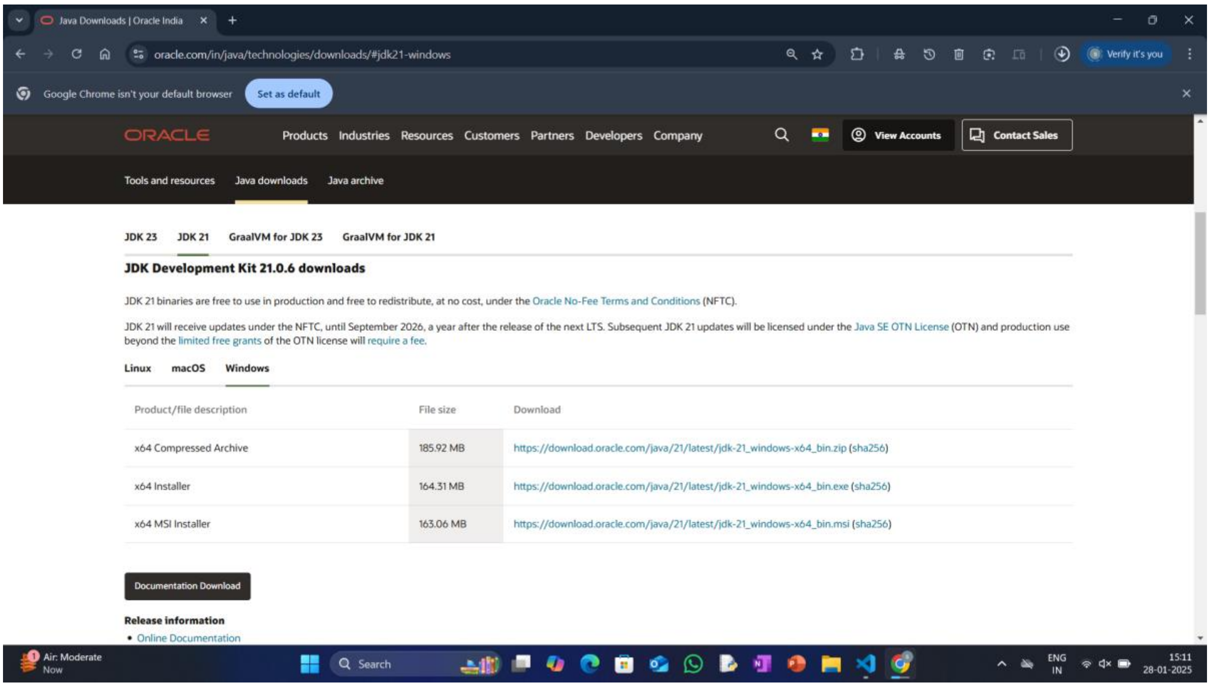


Java Downloads | Oracle India

Java 23, **Java** 21, and earlier versions available now · **Java** SE **Development Kit** 23.0.2 downloads · Release information · **Java** SE **Development Kit** 21.0.6 downloads.

JDK 23 · JDK 21 · GraalVM for JDK 23 · GraalVM for JDK 21

Step 2:Open oracle website. Then select JDK21 and download the type of version for your computer



JDK Development Kit 21.0.6 downloads

JDK 21 binaries are free to use in production and free to redistribute, at no cost, under the Oracle No-Fee Terms and Conditions (NFTC).

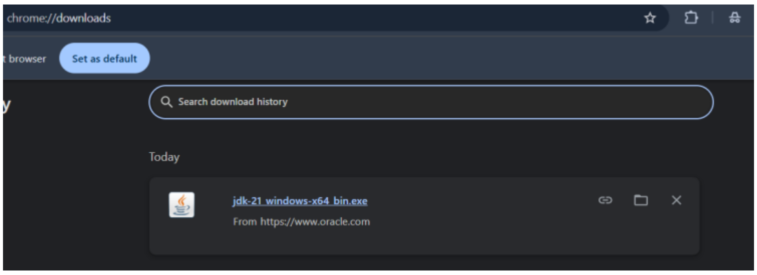
JDK 21 will receive updates under the NFTC, until September 2026, a year after the release of the next LTS. Subsequent JDK 21 updates will be licensed under the Java SE OTN License (OTN) and production use beyond the limited free grants of the OTN license will require a fee.

Product/file description	File size	Download
x64 Compressed Archive	185.92 MB	https://download.oracle.com/java/21/latest/jdk-21_windows-x64_bin.zip (sha256)
x64 Installer	164.31 MB	https://download.oracle.com/java/21/latest/jdk-21_windows-x64_bin.exe (sha256)
x64 MSI Installer	163.06 MB	https://download.oracle.com/java/21/latest/jdk-21_windows-x64_bin.msi (sha256)

Release information

- Online Documentation

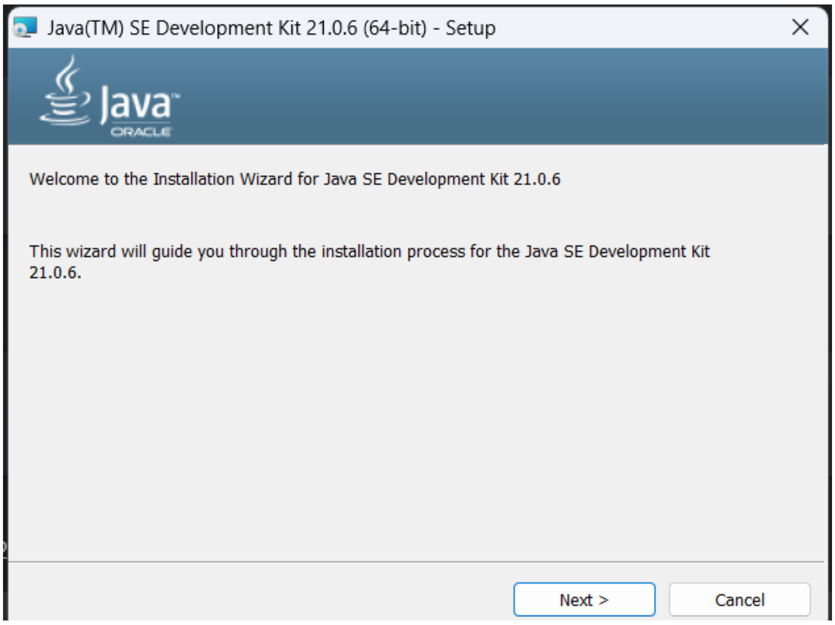
Step 3: after downloading , it will appear like the link below. Click on the link for futher installation of java software.



jdk-21_windows-x64_bin.exe

From https://www.oracle.com

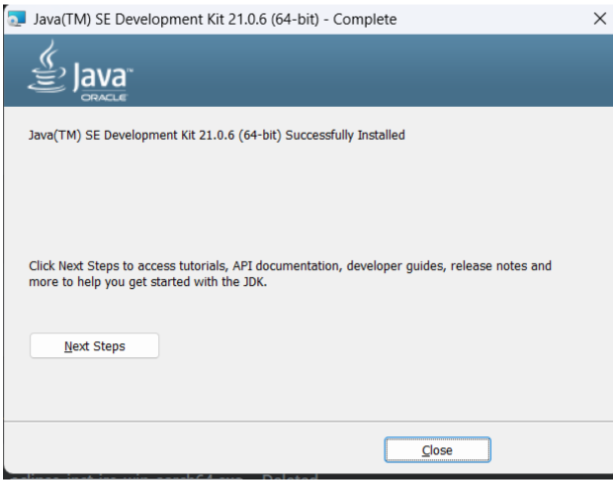
Step 4: click on the next button for futher process of installation of java in computer. At the end section click on next button for final installation.



Welcome to the Installation Wizard for Java SE Development Kit 21.0.6

This wizard will guide you through the installation process for the Java SE Development Kit 21.0.6.

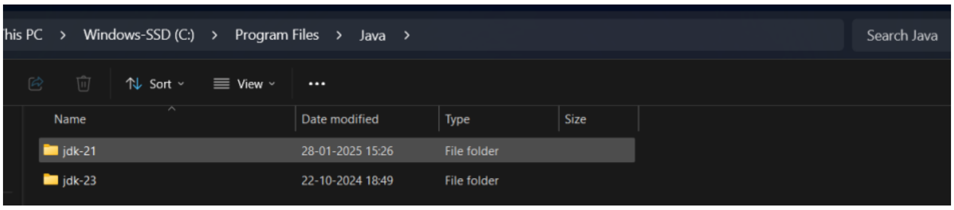
Step 5: at the end section click on the close button to end the installation.



Java(TM) SE Development Kit 21.0.6 (64-bit) Successfully Installed

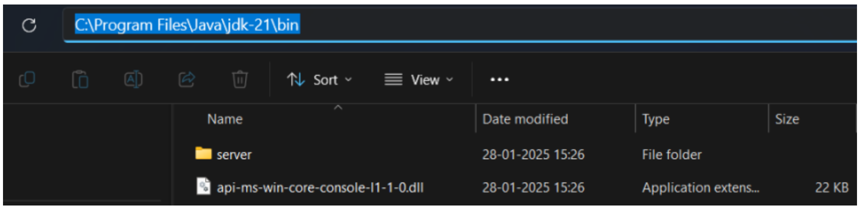
Click Next Steps to access tutorials, API documentation, developer guides, release notes and more to help you get started with the JDK.

Step6 :to copy the path of the jdk kit in pc go to file manger<< local (c:) <<program files<<java<<jdk 21<<bin .



Name	Date modified	Type	Size
jdk-21	28-01-2025 15:26	File folder	
jdk-23	22-10-2024 18:49	File folder	

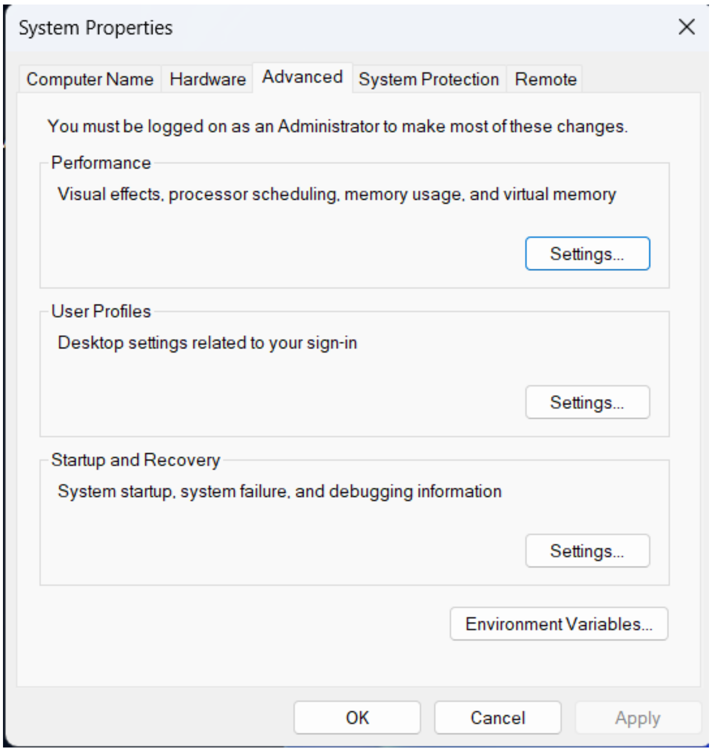
Step 7: copy path on the navigation bar .



C:\Program Files\Java\jdk-21\bin

Name	Date modified	Type	Size
server	28-01-2025 15:26	File folder	
api-ms-win-core-console-l1-1-0.dll	28-01-2025 15:26	Application extens...	22 KB

Step 8: now open environmental variables to sset the path in computer.<<click on the environmental variables.



System Properties

You must be logged on as an Administrator to make most of these changes.

Performance

Visual effects, processor scheduling, memory usage, and virtual memory

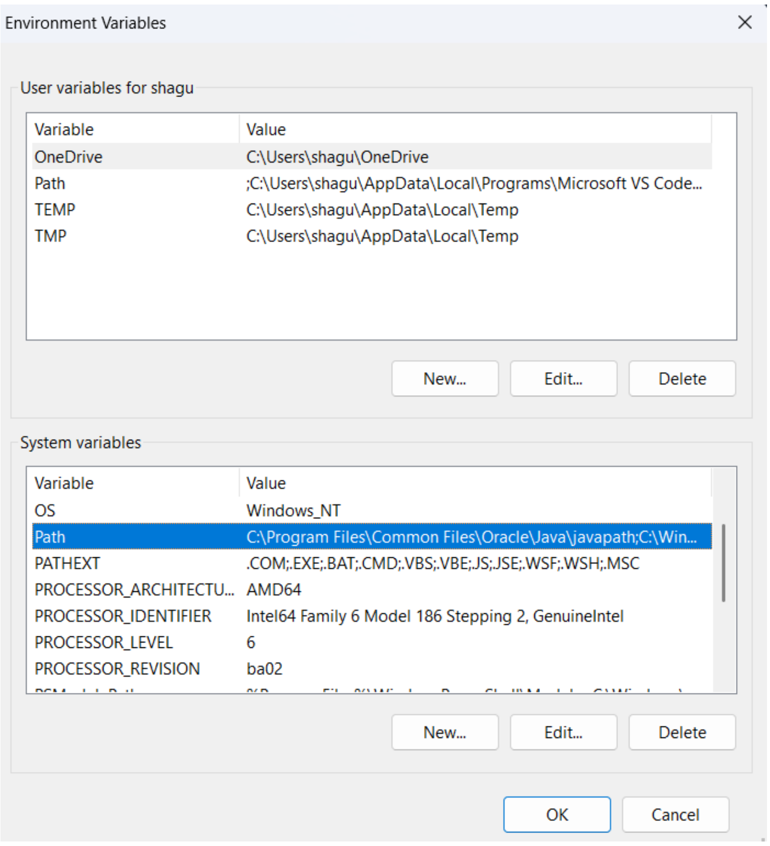
User Profiles

Desktop settings related to your sign-in

Startup and Recovery

System startup, system failure, and debugging information

Step 9:after environmental variables another slide will appear of two sections as user variables and system variables<<click on the system variables.<<path<<click on the edit option below .



Environment Variables

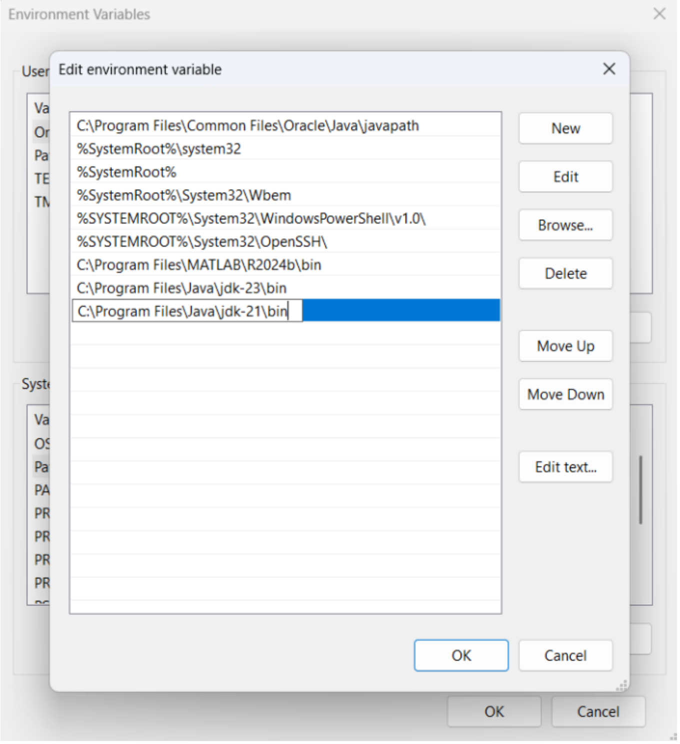
User variables for shagu

Variable	Value
OneDrive	C:\Users\shagu\OneDrive
Path	;C:\Users\shagu\AppData\Local\Programs\Microsoft VS Code...
TEMP	C:\Users\shagu\AppData\Local\Temp
TMP	C:\Users\shagu\AppData\Local\Temp

System variables

Variable	Value
OS	Windows_NT
Path	C:\Program Files\Common Files\Oracle\Java\javapath;C:\Win...
PATHEXT	.COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;.JSE;.WSF;.WSH;.MSC
PROCESSOR_ARCHITECTU...	AMD64
PROCESSOR_IDENTIFIER	Intel64 Family 6 Model 186 Stepping 2, GenuineIntel
PROCESSOR_LEVEL	6
PROCESSOR_REVISION	ba02

Step 10:select new << past the path with we have copied on the navigation bar .

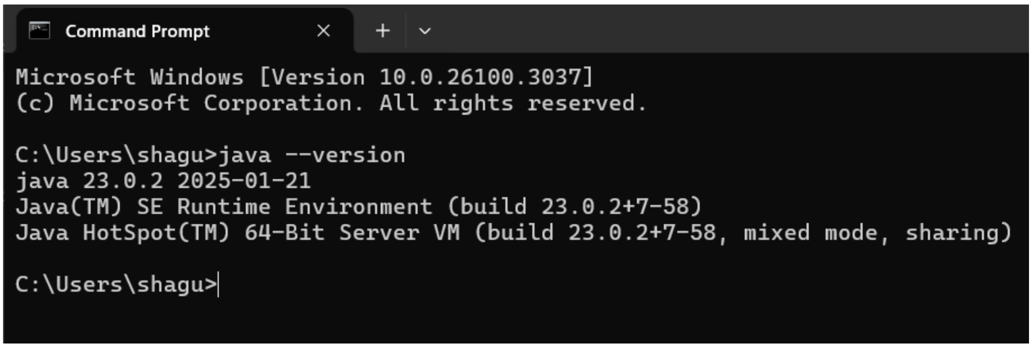


Environment Variables

Edit environment variable

```
C:\Program Files\Common Files\Oracle\Java\javapath
%SystemRoot%\system32
%SystemRoot%
%SystemRoot%\System32\Wbem
%SYSTEMROOT%\System32\WindowsPowerShell\v1.0\
%SYSTEMROOT%\System32\OpenSSH\
C:\Program Files\MATLAB\R2024b\bin
C:\Program Files\Java\jdk-23\bin
C:\Program Files\Java\jdk-21\bin
```

Step 11:to check the version installed <<open command prompt<<type java - - version <<enter<<downloaded version will be displayed.



```
Microsoft Windows [Version 10.0.26100.3037]
(c) Microsoft Corporation. All rights reserved.

C:\Users\shagu>java --version
java 23.0.2 2025-01-21
Java(TM) SE Runtime Environment (build 23.0.2+7-58)
Java HotSpot(TM) 64-Bit Server VM (build 23.0.2+7-58, mixed mode, sharing)

C:\Users\shagu>
```

PROGRAM 2:

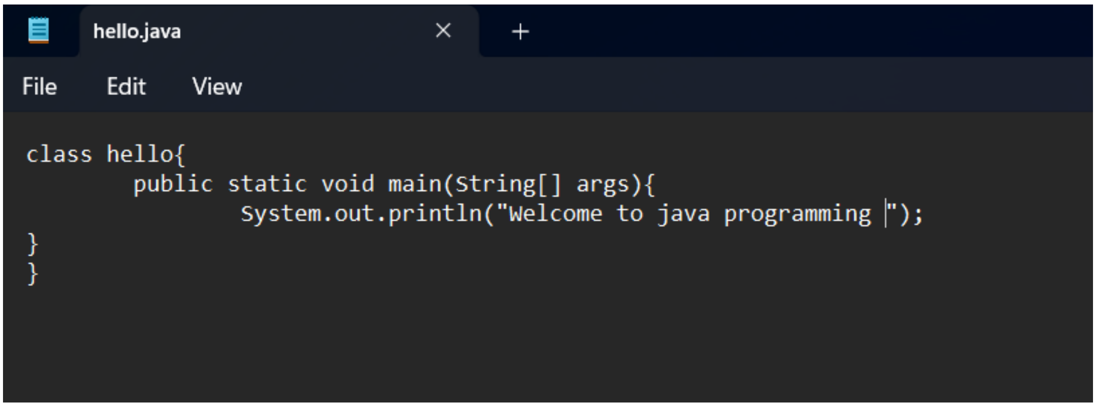
AIM: To write a java program to print the message

"Welcome programming printing ".

Step 1:open notepad<<save the note pad in the path[desktop<<oops<<week 1<<hello.java

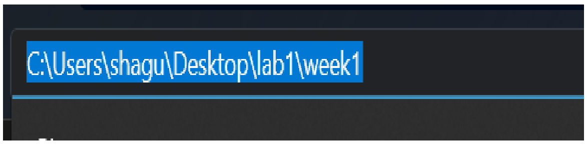
CODE:

```
class hello{
        public static void main(String [ ] args){
                System.out.println("Welcome to java programming");
        }
}
```

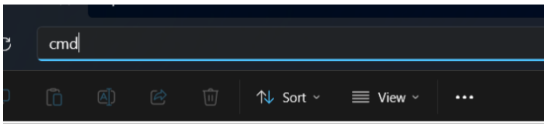


```
class hello{
        public static void main(String[] args){
                System.out.println("Welcome to java programming ");
}
}
```

Step 2: to the path clear it and type cmd for running the program.



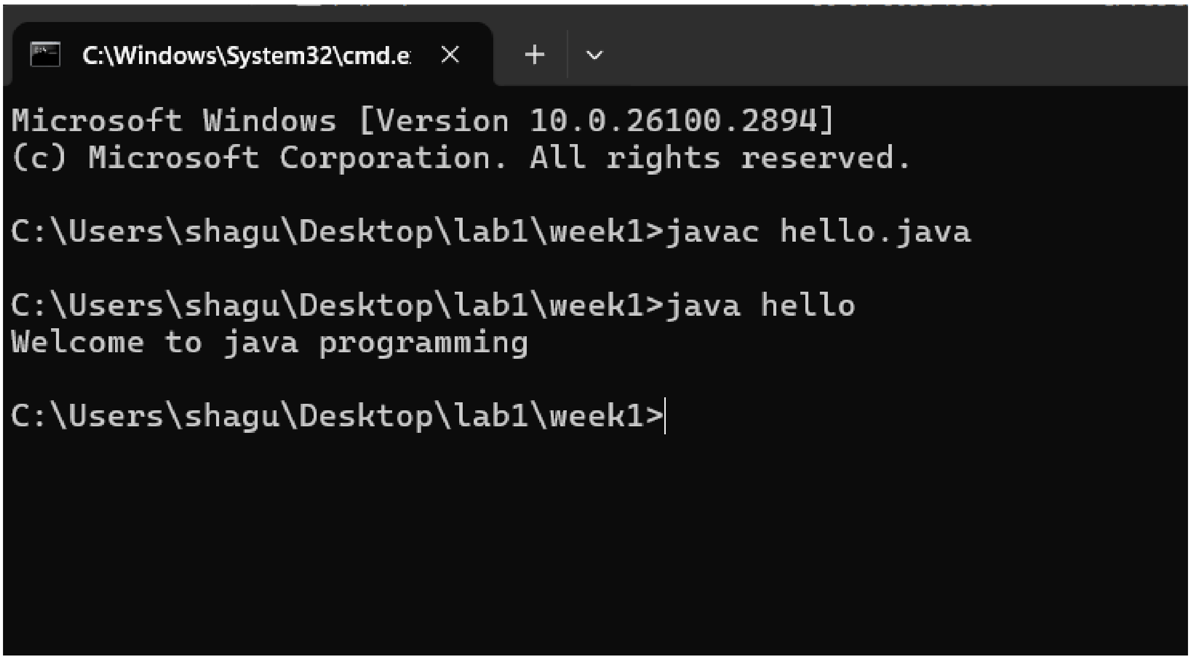
C:\Users\shagu\Desktop\lab1\week1



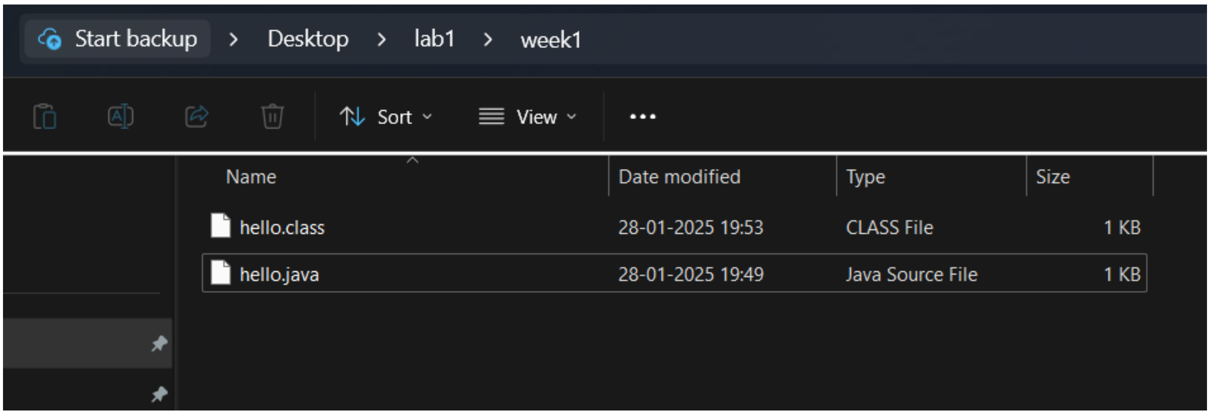
cmd

Step 3:follow commands as: javac hello.java<<enter<<jav hello

The program runs successfully.And creates a java clsss as shown below .



```
Microsoft Windows [Version 10.0.26100.2894]
(c) Microsoft Corporation. All rights reserved.

C:\Users\shagu\Desktop\lab1\week1>javac hello.java

C:\Users\shagu\Desktop\lab1\week1>java hello
Welcome to java programming

C:\Users\shagu\Desktop\lab1\week1>
```



Name	Date modified	Type	Size
hello.class	28-01-2025 19:53	CLASS File	1 KB
hello.java	28-01-2025 19:49	Java Source File	1 KB

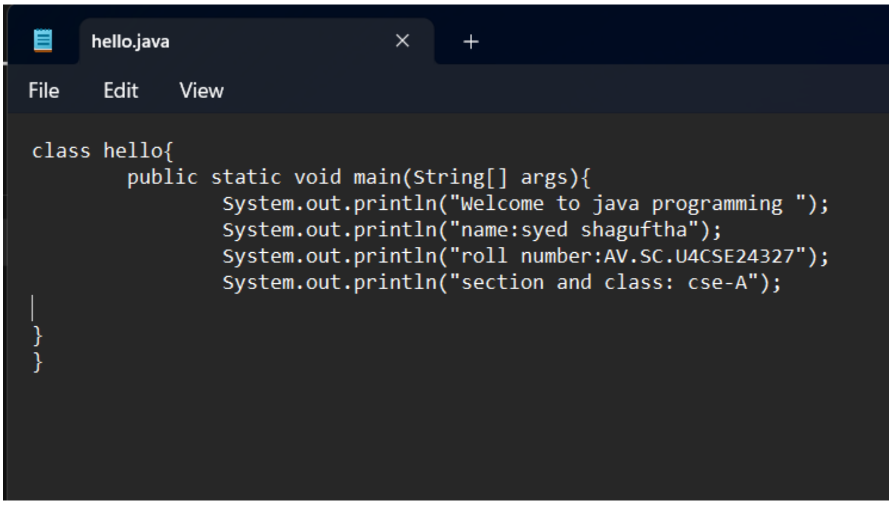
PROGRAME 3:

AIM : To write a java program to print the name,section and roll no .

Step 1:open notepad<<save the note pad in the path[desktop<<oops<<week 1<<hello.java

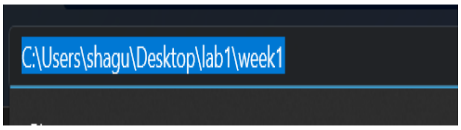
CODE:

```
class hello{
        public static void main(String [ ] args){
                System.out.println(“name : syed ”);
                System.out.println(“roll number  : AV.SC.U4CSE244444 ”);
                System.out.println(“class and section: CSE -A ”);
        }
}
```

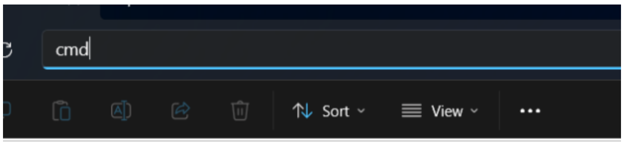


```
class hello{
        public static void main(String[] args){
                System.out.println("Welcome to java programming ");
                System.out.println("name:syed shaguftha");
                System.out.println("roll number:AV.SC.U4CSE24327");
                System.out.println("section and class: cse-A");

}
}
```

Step 2: to the path clear it and type cmd for running the program.



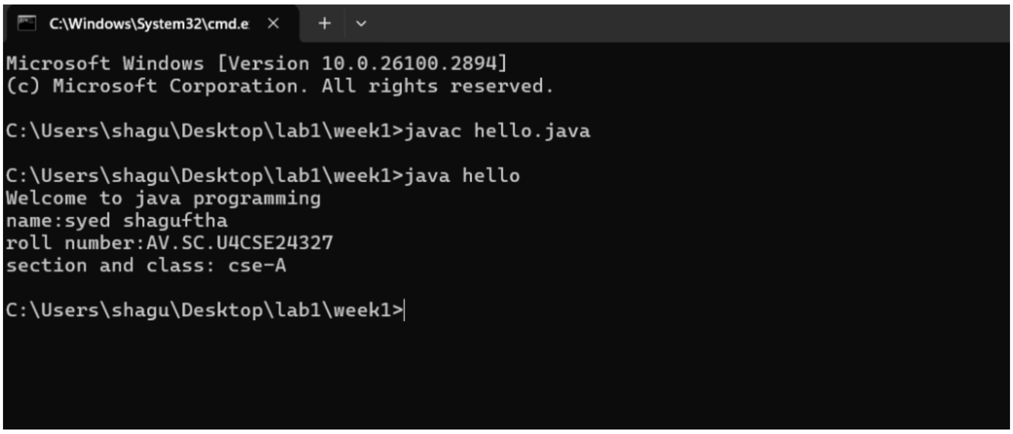
```
C:\Users\shagu\Desktop\lab1\week1
```



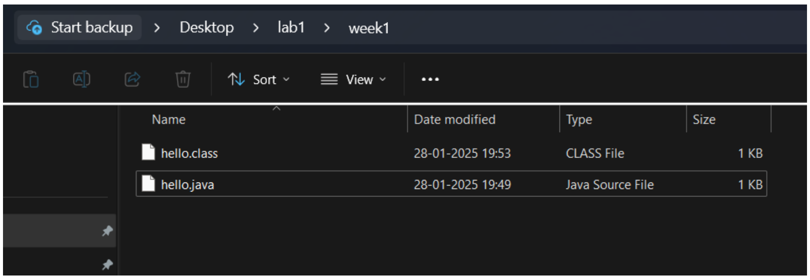
```
cmd
```

Step 3:follow commands as: javac hello.java<<enter<<jav hello

The program runs successfully.And creates a java clsss as shown below .



```
Microsoft Windows [Version 10.0.26100.2894]
(c) Microsoft Corporation. All rights reserved.

C:\Users\shagu\Desktop\lab1\week1>javac hello.java

C:\Users\shagu\Desktop\lab1\week1>java hello
Welcome to java programming
name:syed shaguftha
roll number:AV.SC.U4CSE24327
section and class: cse-A

C:\Users\shagu\Desktop\lab1\week1>
```



Name	Date modified	Type	Size
hello.class	28-01-2025 19:53	CLASS File	1 KB
hello.java	28-01-2025 19:49	Java Source File	1 KB

WEEK-2:

PROGRAM 1:

AIM: To write java program to calculate the area of rectangle .

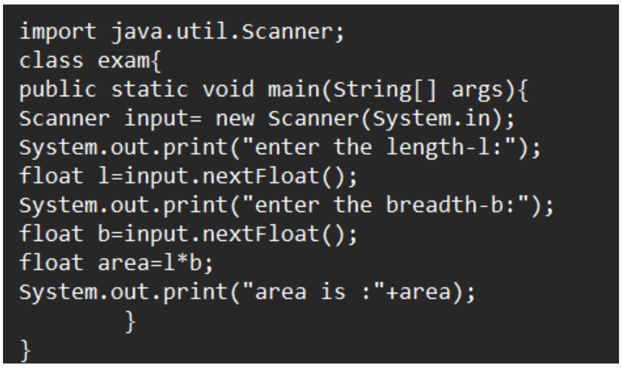
Step 1:open notepad<<save the note pad in the path[desktop<<oops<<week 1<<exam.java

CODE:

```
import java.util.Scanner;

class exam{

        public static void main(String[] args){

                Scanner input= new Scannner(System.in);

                System.out.print(“enter the length-l:”);

                float  l=input.nextFloat();

                System.out.print(“enter the length-l:”);
```

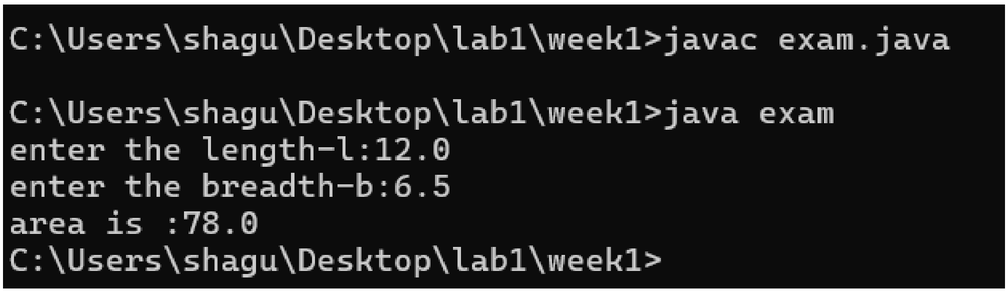
```
            float  l=input.nextFloat();

            System.out.print(“enter the breadth-b”);

            float  l=input.nextFloat();

             float area=l*b;

            System.out.print(“area is :”+area);

      }

}
```

Step 2:open code in commond prompt and run it.



```
import java.util.Scanner;
class exam{
public static void main(String[] args){
Scanner input= new Scanner(System.in);
System.out.print("enter the length-l:");
float l=input.nextFloat();
System.out.print("enter the breadth-b:");
float b=input.nextFloat();
float area=l*b;
System.out.print("area is :"+area);
        }
}
```

Step 3:enter the commands as javac exam.java <<java exam.the program is excuted successfully.



```
C:\Users\shagu\Desktop\lab1\week1>javac exam.java

C:\Users\shagu\Desktop\lab1\week1>java exam
enter the length-l:12.0
enter the breadth-b:6.5
area is :78.0
C:\Users\shagu\Desktop\lab1\week1>
```

Step 4:after runner the program system automatically creates a class for it .

ERRORS:

S.NO	ERROR MEASSAGE	ERROR RECTIFICATION
1.	Error:”;”expected	Inserted “;”in line7
2.	Error:”?”unkown sysmbol	Replaced”?”with “:”

IMPORTANT POINTS:

1. used Scanner library to get input from user in run time .

2. ”import java.util.Scanner;”-step to import library.

3. “Scanner input=new Scanner(System.in);”-step to use the scanner .

PROGRAM-2:

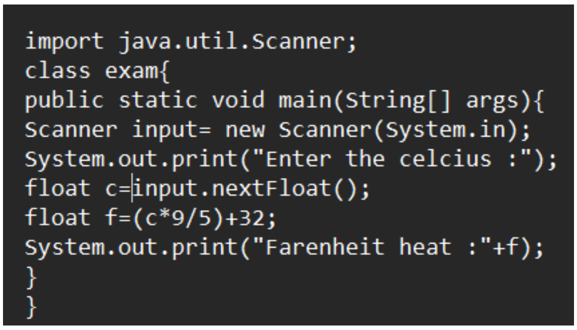
A. **AIM: To write java program to convert temperature from celcius to farenheit and vice via.**

Step 1:open notepad<<save the note pad in the path[desktop<<oops<<week 1<<exam.java

CODE:

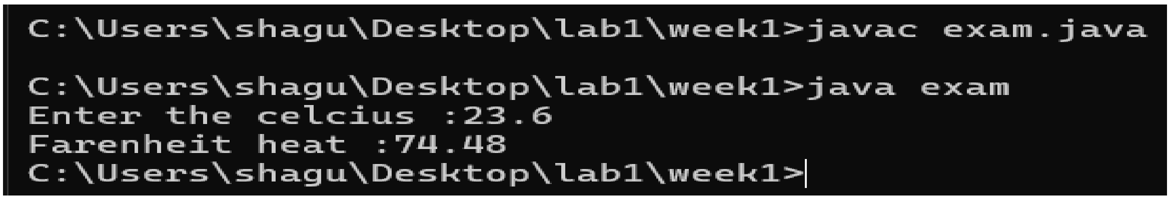
```
//code for celciius to farenheit

import java.util.Scanner;

class exam{

        public static void main(String[ ] args){

                Scanner input=new Scanner(System.in);

                System.out.print(“Enter the celcius :”);

                float c:input.nextFloat();

                float f=(c*9/5)+32;

                System.out.print(“Farenheit heat :”+f);

        }

}
```

Step 2:open in commond prompt and run it.



```
import java.util.Scanner;
class exam{
public static void main(String[] args){
Scanner input= new Scanner(System.in);
System.out.print("Enter the celcius :");
float c=input.nextFloat();
float f=(c*9/5)+32;
System.out.print("Farenheit heat :"+f);
}
}
```

Step 3: enter the commands as javac exam <<java exam the program is excuted successfully.



```
C:\Users\shagu\Desktop\lab1\week1>javac exam.java

C:\Users\shagu\Desktop\lab1\week1>java exam
Enter the celcius :23.6
Farenheit heat :74.48
C:\Users\shagu\Desktop\lab1\week1>
```

Step 4:After runner the program system automatically creates a class of it.

ERRORS:

S.NO	ERROR MESSAGE	ERROR RECTIFICATION
1.	Error :”:” unknow symbol	Replace”:” with”=”
2.	Error: “scanner”small letter case censitive	“Scanner”

IMPORTANT POINTS:

1.used Scanner library to get input from user in run time.

2.”import java.util.Scanner;”-step to import library.

3.”Scanner input= new Scanner(System.in);”-step to use the scanner.

PROGRAM

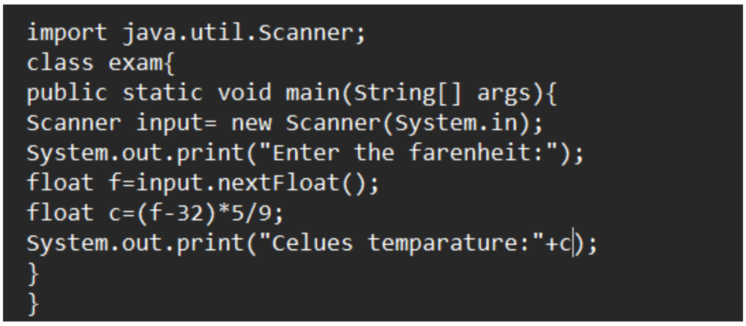
B. **AIM:To write java program to convert temperature from farenheit to celceius.**

CODE:

```
//code for farenheit  to celciius

import java.util.Scanner;

class exam{

        public static void main(String[ ] args){

                Scanner input=new Scanner(System.in);

                System.out.print(“Enter the farenheit :”);

                float f:input.nextFloat();

                float c=(f-32)*5/9;

                System.out.print(“celcius temparature :”+c);

        }
```

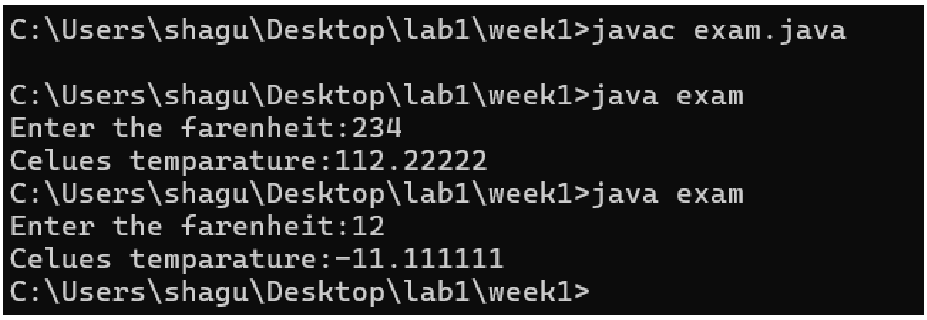
}

Step 2:open in commond prompt and run it.



```
import java.util.Scanner;
class exam{
public static void main(String[] args){
Scanner input= new Scanner(System.in);
System.out.print("Enter the farenheit:");
float f=input.nextFloat();
float c=(f-32)*5/9;
System.out.print("Celues temparature:"+c);
}
}
```

Step 3: enter the commands as javac exam <<java exam the program is excuted successfully.



```
C:\Users\shagu\Desktop\lab1\week1>javac exam.java

C:\Users\shagu\Desktop\lab1\week1>java exam
Enter the farenheit:234
Celues temparature:112.22222
C:\Users\shagu\Desktop\lab1\week1>java exam
Enter the farenheit:12
Celues temparature:-11.111111
C:\Users\shagu\Desktop\lab1\week1>
```

Step 4:After runner the program system automatically creates a class of it.

ERRORS:

S.NO	ERROR MESSAGE	ERROR RECTIFICATION
1.	Error :”oout” unknow keyword	Replace”oout” with”out”
2.	Error: “scanner”small letter case censitive	“Scanner”

IMPORTANT POINTS:

1.used Scanner library to get input from user in run time.

2.”import java.util.Scanner;”-step to import library.

3.”Scanner input= new Scanner(System.in);”-step to use the scanner.

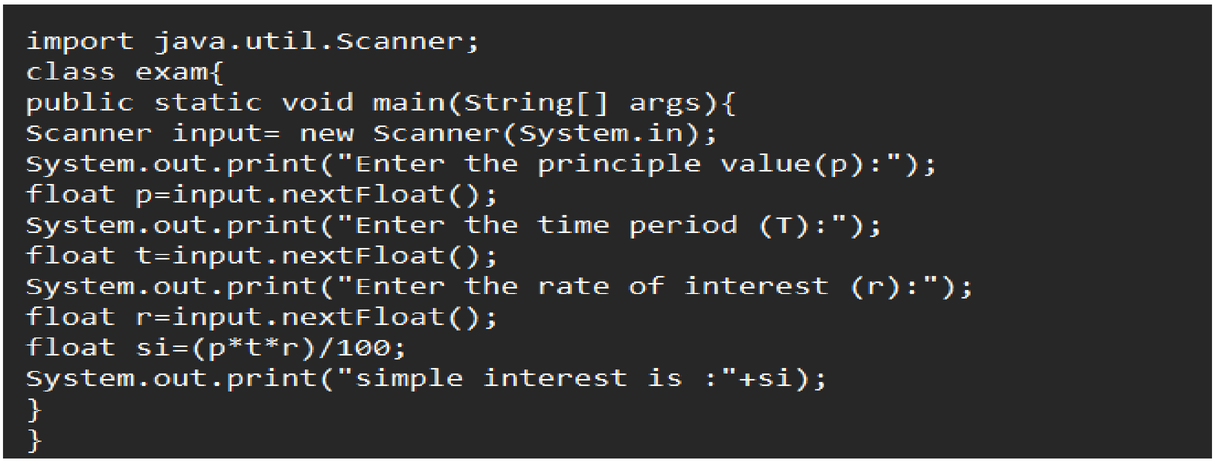
PROGRAM

C. AIM: To write java program to calculate the simple

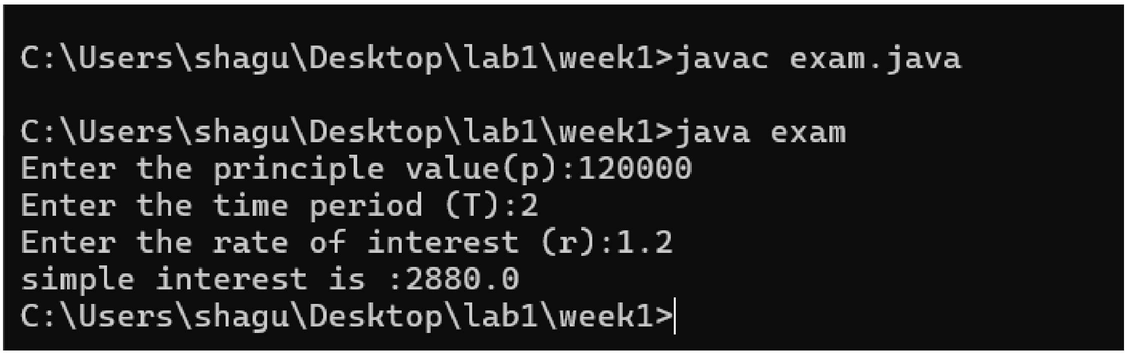
CODE:

```
Import  java.util.Scanner;
```

```
class  exam{
          public  static void main(String[ ] args){
                    Scanner input=new Scanner(System.in);
                    System.out.print(“enter the principle value(p):”);
                    float  p=input.nextFloat();
                    System.out.print(“enter the rate of interest value(r):”);
                    float  r=input.nextFloat();
                    System.out.print(“enter the time period value(t):”);
                    float  t=input.nextFloat();
                    float  si=(p*t*r)/100;
                    System.out.println(“simple interest is:”+si);
          }
}
```



```
import java.util.Scanner;
class exam{
public static void main(String[] args){
Scanner input= new Scanner(System.in);
System.out.print("Enter the principle value(p):");
float p=input.nextFloat();
System.out.print("Enter the time period (T):");
float t=input.nextFloat();
System.out.print("Enter the rate of interest (r):");
float r=input.nextFloat();
float si=(p*t*r)/100;
System.out.print("simple interest is :"+si);
}
}
```



```
C:\Users\shagu\Desktop\lab1\week1>javac exam.java

C:\Users\shagu\Desktop\lab1\week1>java exam
Enter the principle value(p):120000
Enter the time period (T):2
Enter the rate of interest (r):1.2
simple interest is :2880.0
C:\Users\shagu\Desktop\lab1\week1>
```

ERRORS:

S.NO	ERROR MESSAGE	ERROR RECTIFICATION
1.	Error :”T” is not declred	Replace:”T” with”t”
2.	Error : expected’;’ in line 8	Insert ‘;’ in line 8 end

IMPORTANT POINTS:

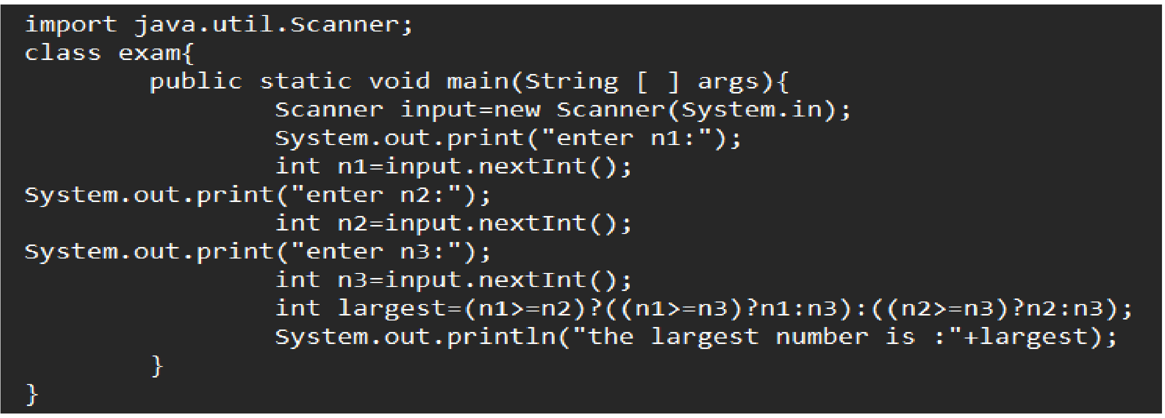
1.java is a case sensitive language so “apple” is different from “APPLE”,so clear declaration of variables is important..

D. AIM: To write a program to find the largest of three numbers using ternary operators.

Step 1:open notepad<<save the note pad in the path[desktop<<oops<<week 1<<exam.java

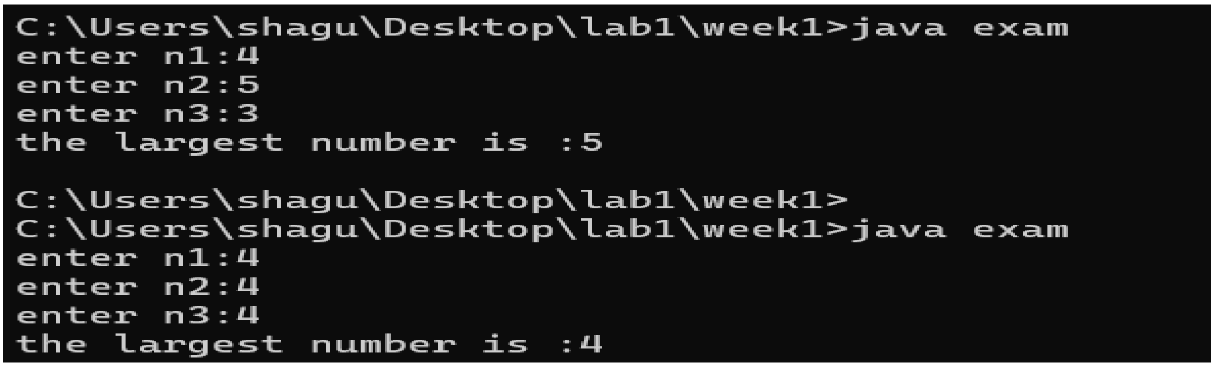
CODE:

```
import java.util.Scanner;

class exam{

        public static void main(String [ ] args){

                Scanner input=new Scanner(System.in);

                System.out.print(“enter n1:”);

                int n1=input.nextInt();

                System.out.print(“enter n2:”);

                int n2=input.nextInt();

                System.out.print(“enter n3:”);

                int n3=input.nextInt();

                int largest=(n1>=n2)?((n1>=n3)?n1:n3):((n2>=n3)?n2:n3);

                System.out.println(“the lsrgest number is :”+lsrgest);

        }
```



```
import java.util.Scanner;
class exam{
        public static void main(String [ ] args){
                Scanner input=new Scanner(System.in);
                System.out.print("enter n1:");
                int n1=input.nextInt();
System.out.print("enter n2:");
                int n2=input.nextInt();
System.out.print("enter n3:");
                int n3=input.nextInt();
                int largest=(n1>=n2)?((n1>=n3)?n1:n3):((n2>=n3)?n2:n3);
                System.out.println("the largest number is :"+largest);
        }
}
```

}



```
C:\Users\shagu\Desktop\lab1\week1>java exam
enter n1:4
enter n2:5
enter n3:3
the largest number is :5

C:\Users\shagu\Desktop\lab1\week1>
C:\Users\shagu\Desktop\lab1\week1>java exam
enter n1:4
enter n2:4
enter n3:4
the largest number is :4
```

ERRORS:

S.NO	ERROR MESSAGE	ERROR RECTIFICATION
1.	Error :”;” expected in line 6	Insert”;” in end of line 6
2.	Error :”nextint();” non identified	Replace”next.Int();”

IMPORTANT POINTS:

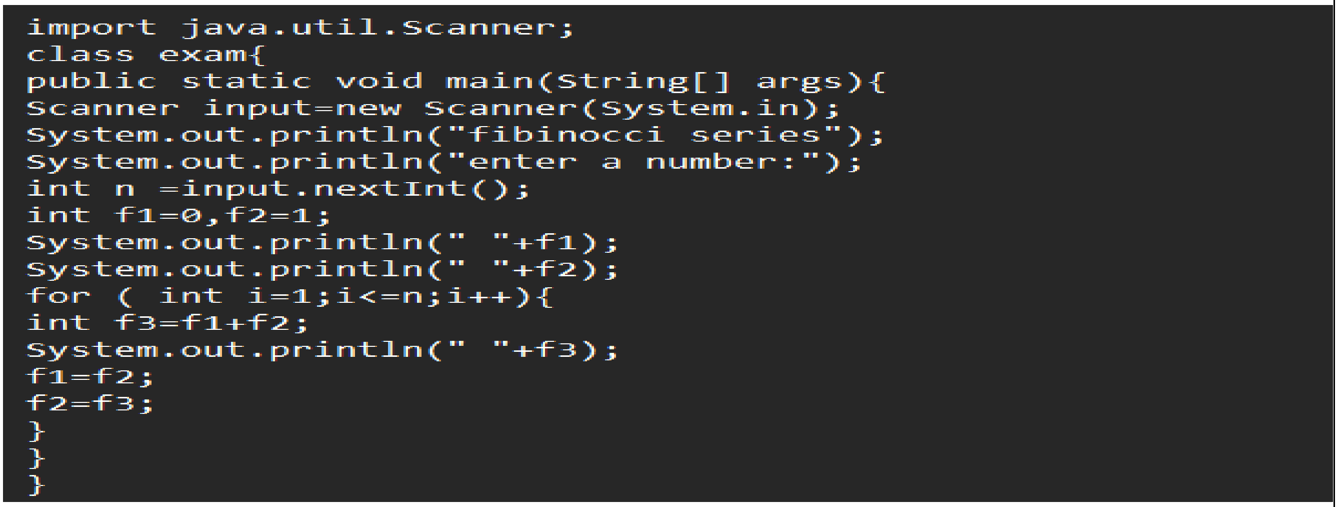
1. **Ternary operators: a shorthand for the if-else statement, used to execute condition-based operations in a single line.**
2. **It evaluates a Boolean condition and returns trueValue if the condition is true, otherwise it returns falseValue.**

E. AIM: To write a program for the factorial of the numbers.

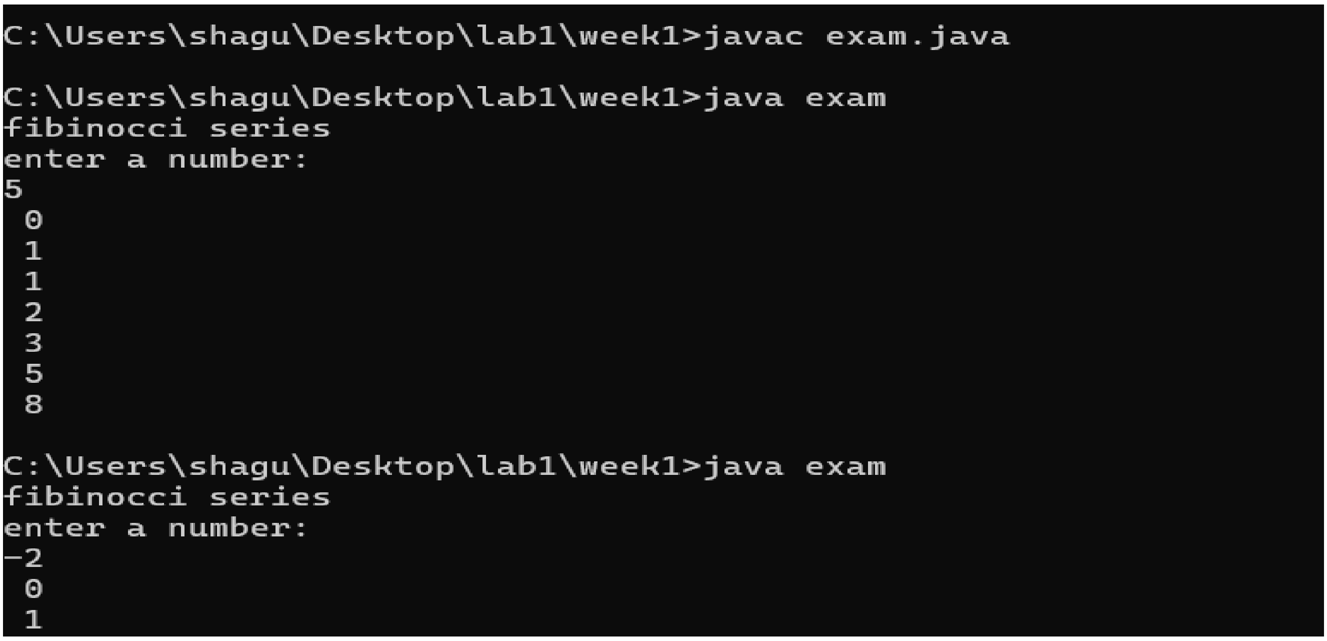
Step 1:open notepad<<save the note pad in the path[desktop<<oops<<week 1<<exam.java

CODE:

```
import java.util.Scanner;

class exam{

        public static void main(String[] args){

                Scanner input=new Scanner(System.in);
                System.out.println("fibinocci series");
                System.out.println("enter a number:");
                int n =input.nextInt();
                int f1=0,f2=1;<br>
                System.out.println(" "+f1);
                System.out.println(" "+f2);
                for ( int i=1;i<=n;i++){
                    int f3=f1+f2;
                    System.out.println(" "+f3);
                    f1=f2;
                    f2=f3;
                }
        }
}
```



```
import java.util.Scanner;
class exam{
public static void main(String[] args){
Scanner input=new Scanner(System.in);
System.out.println("fibinocci series");
System.out.println("enter a number:");
int n =input.nextInt();
int f1=0,f2=1;
System.out.println(" "+f1);
System.out.println(" "+f2);
for ( int i=1;i<=n;i++){
int f3=f1+f2;
System.out.println(" "+f3);
f1=f2;
f2=f3;
}
}
}
```



```
C:\Users\shagu\Desktop\lab1\week1>javac exam.java

C:\Users\shagu\Desktop\lab1\week1>java exam
fibinocci series
enter a number:
5
 0
 1
 1
 2
 3
 5
 8

C:\Users\shagu\Desktop\lab1\week1>java exam
fibinocci series
enter a number:
-2
 0
 1
```

ERRORS:

S.NO	ERROR MESSAGE	ERROR RECTIFICATION
1.	Error: line-9 illegal start of expression	Rebuilt of the line -9
2.	Error :iteration error	Correct iteration inserted

IMPORTANT POINTS:

1.Java for loop is a control flow statement that allows code to be executed repeatedly based on a given condition.

2.The for loop in java provides an efficient way to iterate over a range of values ,execute code multiple times,or traverse arrays and collections.

WEEK-3

PROGRAME-1

AIM: To write a program for car color and all respective complextions using constructor and method.

Step 1:open notepad<<save the note pad in the path[desktop<<oops<<week 1<<car.java

CODE:

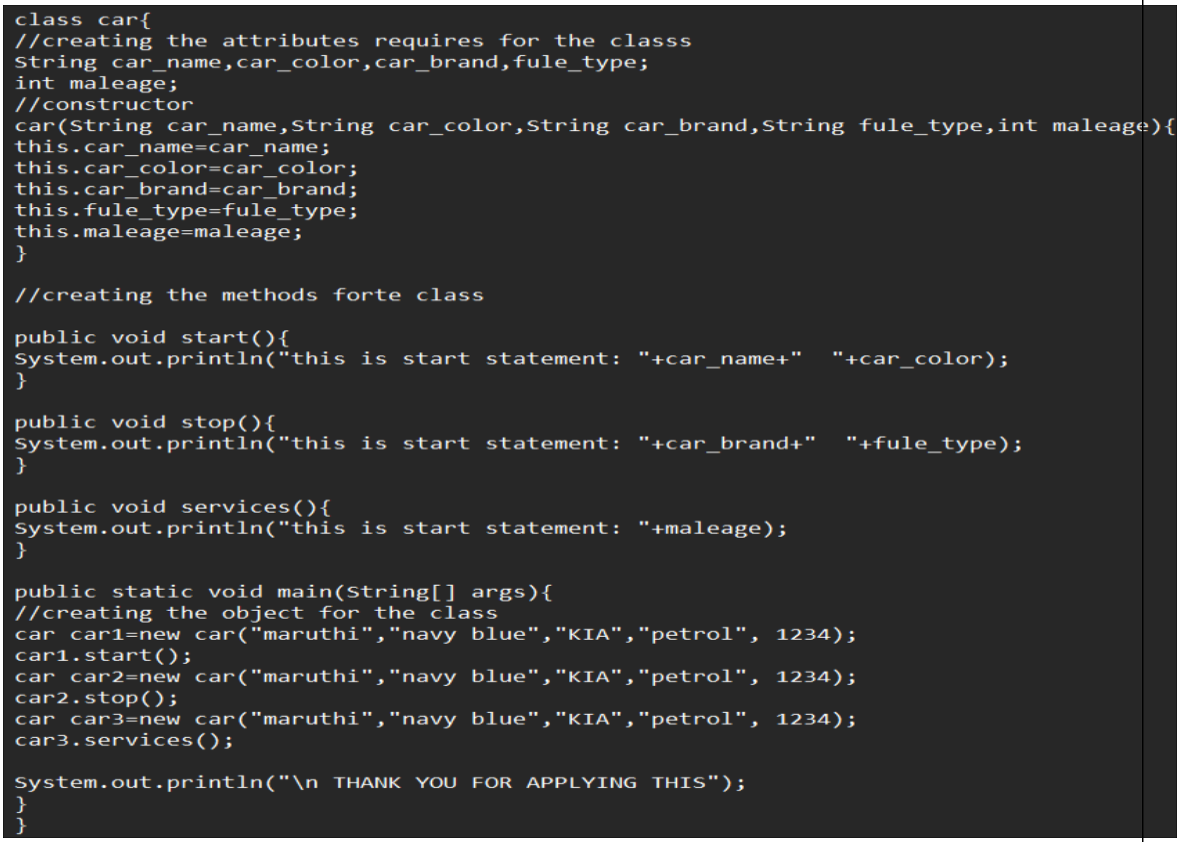
```
Class car{
```

```
//creating the attributes requires for the classs
String car_name,car_color,car_brand,fule_type;
int maleage;
//constructor
car(String car_name,String car_color,String car_brand,String fule_type,int maleage){
this.car_name=car_name;
this.car_color=car_color;
this.car_brand=car_brand;
this.fule_type=fule_type;
this.maleage=maleage;
}
//creating the methods forte class
public void start(){
System.out.println("this is start statement: "+car_name+"  "+car_color);
}
public void stop(){
System.out.println("this is start statement: "+car_brand+"  "+fule_type);
}
public void services(){
System.out.println("this is start statement: "+maleage);
}
public static void main(String[] args){
//creating the object for the class
car car1=new car("maruthi","navy blue","KIA","petrol", 1234);
car1.start();
car car2=new car("maruthi","navy blue","KIA","petrol", 1234);
car2.stop();
car car3=new car("maruthi","navy blue","KIA","petrol", 1234);

car3.services();

System.out.println("\n THANK YOU FOR APPLYING THIS");

}

}
```

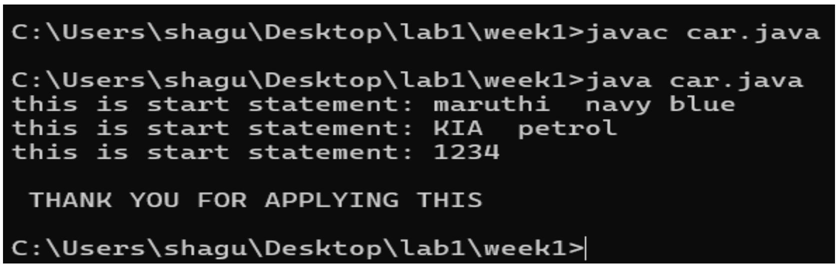
CLASS DIAGRAM:

Car()
+car_name:string +car_color:string +car_brand:string +fule_type: int +maleage:int

+start:void()
+stop:void()
+static:void()



```
class car{
//creating the attributes requires for the classs
String car_name,car_color,car_brand,fule_type;
int maleage;
//constructor
car(String car_name,String car_color,String car_brand,String fule_type,int maleage){
this.car_name=car_name;
this.car_color=car_color;
this.car_brand=car_brand;
this.fule_type=fule_type;
this.maleage=maleage;
}

//creating the methods forte class

public void start(){
System.out.println("this is start statement: "+car_name+"  "+car_color);
}

public void stop(){
System.out.println("this is start statement: "+car_brand+"  "+fule_type);
}

public void services(){
System.out.println("this is start statement: "+maleage);
}

public static void main(String[] args){
//creating the object for the class
car car1=new car("maruthi","navy blue","KIA","petrol", 1234);
car1.start();
car car2=new car("maruthi","navy blue","KIA","petrol", 1234);
car2.stop();
car car3=new car("maruthi","navy blue","KIA","petrol", 1234);
car3.services();

System.out.println("\n THANK YOU FOR APPLYING THIS");
}
}
```



```
C:\Users\shagu\Desktop\lab1\week1>javac car.java

C:\Users\shagu\Desktop\lab1\week1>java car.java
this is start statement: maruthi  navy blue
this is start statement: KIA  petrol
this is start statement: 1234

 THANK YOU FOR APPLYING THIS

C:\Users\shagu\Desktop\lab1\week1>
```

ERRORS:

S.NO	ERROR MESSAGE	ERROR RECTIFICATION
1.	Error: line7 expected ‘;	Inserted ‘;’
2.	Error :line 7 unknow’__’	Removed ‘_’
3.	Error : correct data type declararion in constructor	Rectified by declaring the data type as String and int.

IMPORTANT POINTS:

1. Java constructor is used to save the variables present in different or same class or methods.
2. In Java, the this keyword refers to the current instance of a class. It is commonly used to distinguish between instance variables and parameters with the same name, or to refer to the current object from within a method or constructor.

3. In Java, a method is a block of code that performs a specific task and can be invoked to execute that task. It typically consists of a method signature (name, return type, and parameters) and the body of the method, which contains the logic.

PROGRAM

AIM: To write a program for car color and all respective complextions using constructor and method.

Step 1:open notepad<<save the note pad in the path[desktop<<oops<<week 1<<BANK.java

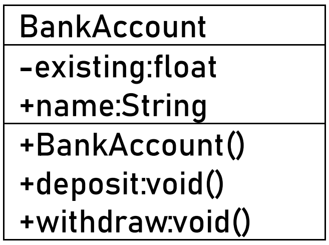
CODE:

```
import java.util.Scanner;

class BankAccount {

 // Class-level variable to store balance

    private float existing;

    private Scanner input; // Single Scanner instance for input
```

```
public  String name;
// Constructor
public BankAccount() {
    input = new Scanner(System.in);
    System.out.println("Enter the account holder name :");
    this.name=input.next();

    System.out.print("Enter existing amount in bank account: ");
    this.existing = input.nextFloat();
}
// Deposit method
public void deposit() {
    System.out.print("Enter amount to be deposited: ");
    float deposit = input.nextFloat();
    existing += deposit;
    System.out.println("Existing amount now is: " + existing);
}
// Withdrawal method
public void withdrawal() {
    System.out.print("Enter amount to be withdrawn: ");
    float withdrawal = input.nextFloat();
    if (existing < withdrawal) {
        System.out.println("Not sufficient balance.");
    } else {
        existing -= withdrawal;
        System.out.println("Remaining balance: " + existing);
    }
}
```

```
        // Main method
        public static void main(String[] args) {
            BankAccount customer1 = new BankAccount();
            customer1.deposit();
            customer1.withdrawal();
            System.out.println("thank you " + customer1.name + " for using our bank");
    }
    }
```

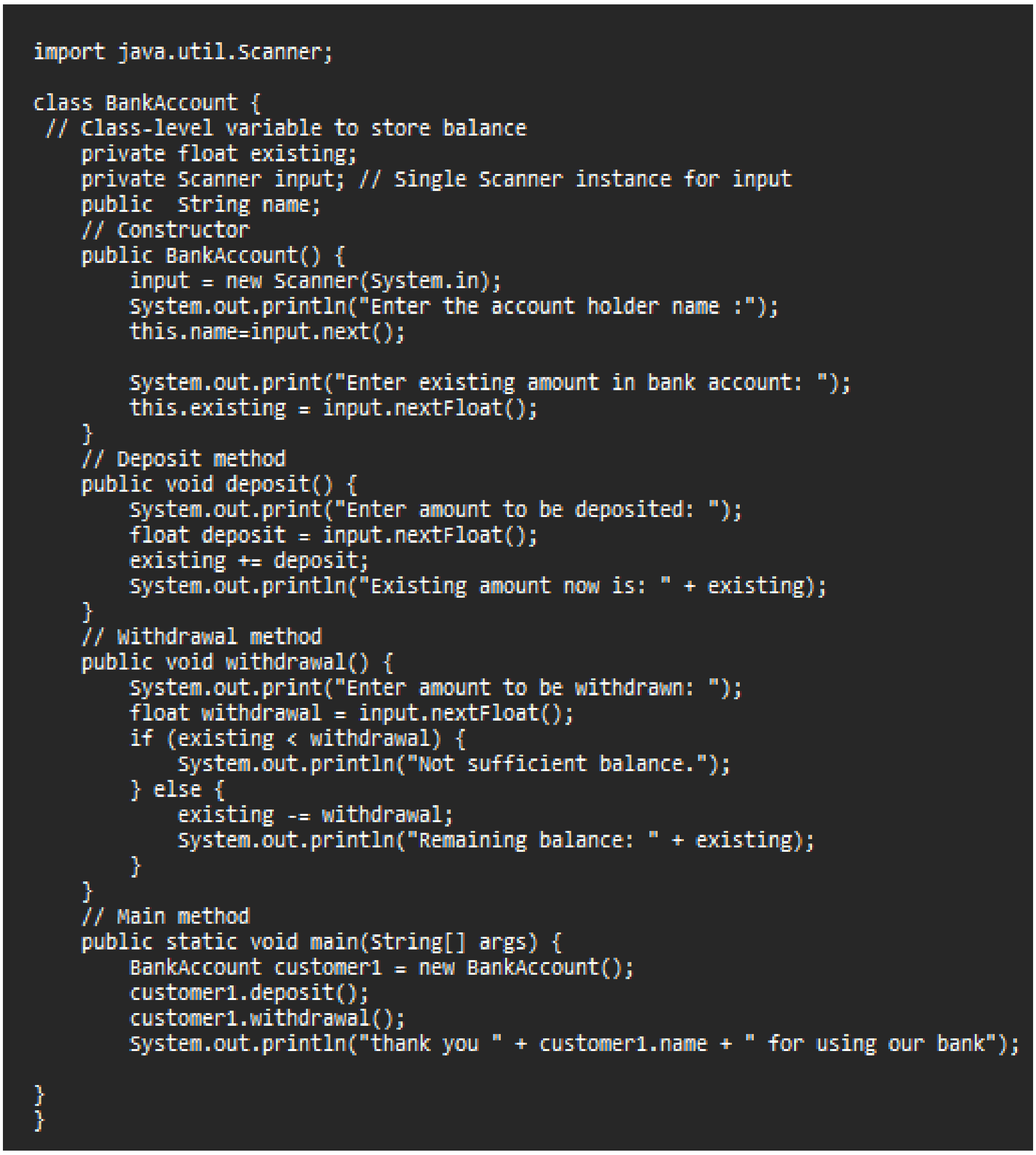
CLASS DIAGRAM:



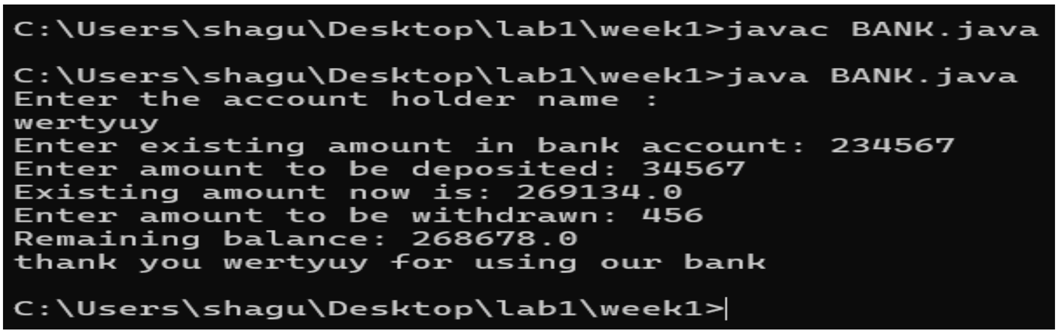
BankAccount

-existing:float
+name:String

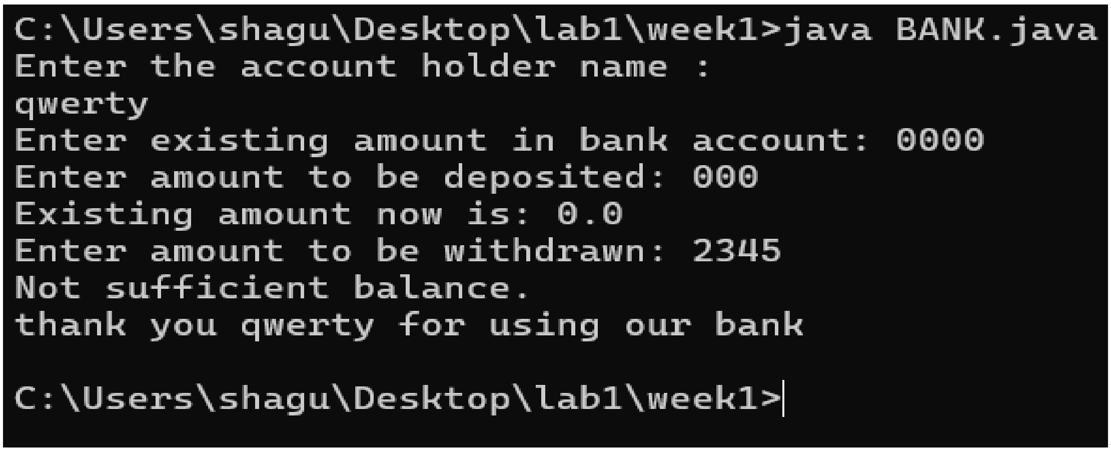
+BankAccount()
+deposit:void()
+withdraw:void()



```
import java.util.Scanner;

class BankAccount {
 // Class-level variable to store balance
    private float existing;
    private Scanner input; // Single Scanner instance for input
    public  String name;
    // Constructor
    public BankAccount() {
        input = new Scanner(System.in);
        System.out.println("Enter the account holder name :");
        this.name=input.next();

        System.out.print("Enter existing amount in bank account: ");
        this.existing = input.nextFloat();
    }
    // Deposit method
    public void deposit() {
        System.out.print("Enter amount to be deposited: ");
        float deposit = input.nextFloat();
        existing += deposit;
        System.out.println("Existing amount now is: " + existing);
    }
    // Withdrawal method
    public void withdrawal() {
        System.out.print("Enter amount to be withdrawn: ");
        float withdrawal = input.nextFloat();
        if (existing < withdrawal) {
            System.out.println("Not sufficient balance.");
        } else {
            existing -= withdrawal;
            System.out.println("Remaining balance: " + existing);
        }
    }
    // Main method
    public static void main(String[] args) {
        BankAccount customer1 = new BankAccount();
        customer1.deposit();
        customer1.withdrawal();
        System.out.println("thank you " + customer1.name + " for using our bank");

}
}
```



```
C:\Users\shagu\Desktop\lab1\week1>javac BANK.java

C:\Users\shagu\Desktop\lab1\week1>java BANK.java
Enter the account holder name :
wertyuy
Enter existing amount in bank account: 234567
Enter amount to be deposited: 34567
Existing amount now is: 269134.0
Enter amount to be withdrawn: 456
Remaining balance: 268678.0
thank you wertyuy for using our bank

C:\Users\shagu\Desktop\lab1\week1>
```



```
C:\Users\shagu\Desktop\lab1\week1>java BANK.java
Enter the account holder name :
qwerty
Enter existing amount in bank account: 0000
Enter amount to be deposited: 000
Existing amount now is: 0.0
Enter amount to be withdrawn: 2345
Not sufficient balance.
thank you qwerty for using our bank

C:\Users\shagu\Desktop\lab1\week1>
```

ERRORS:

S.NO	ERROR MESSAGE	ERROR RECTIFICATION
4.	Error: nextString(); wrong identifier	Rectification: next();
5.	Error :line 7 unknow’__’	Removed ‘_’
6.	Error : if statement ‘{}’ expected	Inserted ‘{}’

IMPORTANT POINTS:

2. Java constructor is used to save the variables present in different or same class or methods.

2. In Java, the this keyword refers to the current instance of a class. It is commonly used to distinguish between instance variables and parameters with the same name, or to refer to the current object from within a method or constructor.

3. In Java, a method is a block of code that performs a specific task and can be invoked to execute that task. It typically consists of a method signature (name, return type, and parameters) and the body of the method, which contains the logic.

WEEK-4

PROGRAME-1

AIM: To write a program for printing the title of the book and the author and year of publication using the constructors

Step 1:open notepad<<save the note pad in the path[desktop<<oops<<week 1<<person.java

CODE:

```
class book{
//creating the variable
public String title_of_book;
public String author;
public int year_publication;
//creating a constructor
book(String title_of_book,String author,int year_publication){
this.title_of_book=title_of_book;
this.author=author;
this.year_publication=year_publication;
}
//creating the method to print DETAILS
public void details(){
System.out.println("the title of the book is: "+title_of_book+"\nThe author of te book is: "+author+"\nthe year of publication is:"+year_publication+"\n");
}
//creating the main class and objects for the method
public static void main(String[] args){
book one=new book("THE GREAT INDIAN RIVERS","DR.SHIVARAM",1989);
one.details();
book two=new book("ANGLES IN TIBET","S.SLUMP",2001);
```

two.details();

System.out.println("\nThese are the details of the two books which are famously treading nowadays\n THANK YOU ");

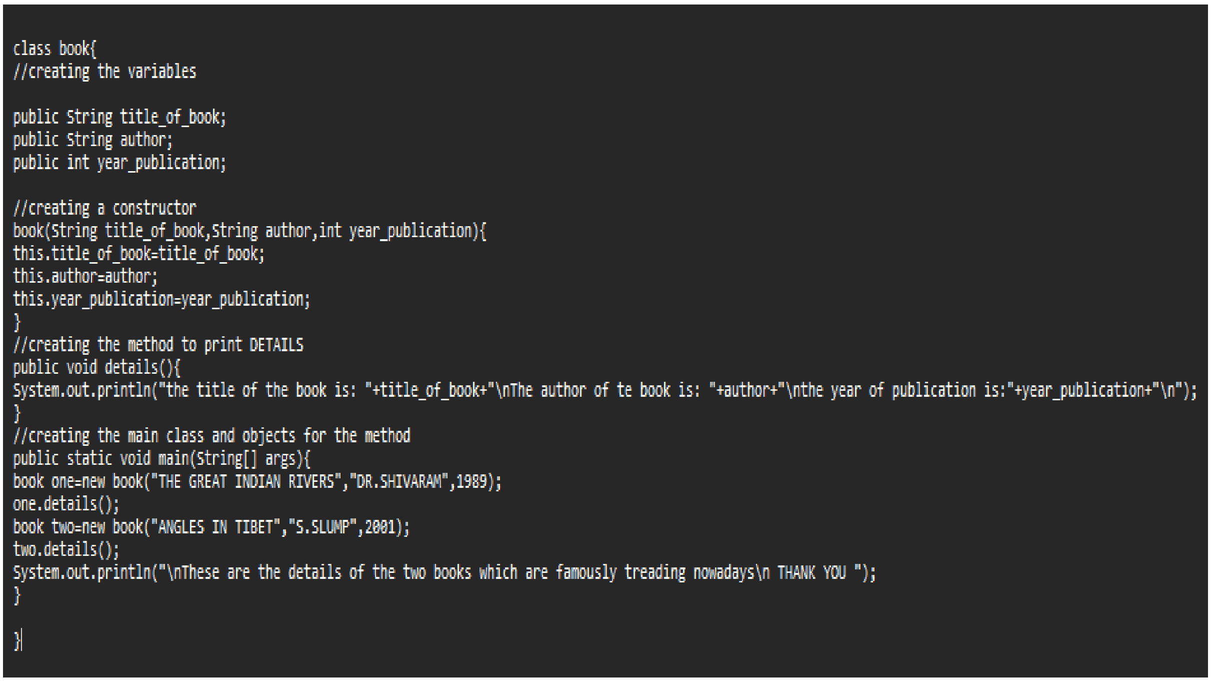
}

}

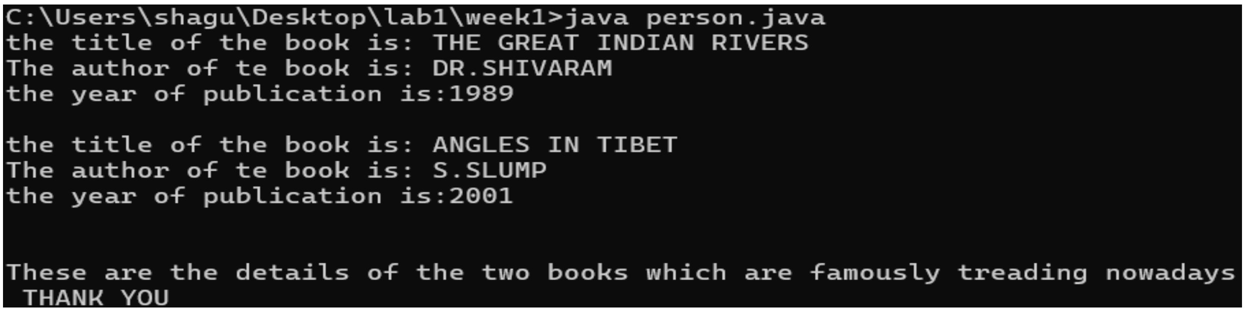
CLASS DIAGRAM:

Book
+title_of_book:string +author:string +year_publication:int

+book()
+detailes:void()



```
class book{
//creating the variables

public String title_of_book;
public String author;
public int year_publication;

//creating a constructor
book(String title_of_book,String author,int year_publication){
this.title_of_book=title_of_book;
this.author=author;
this.year_publication=year_publication;
}
//creating the method to print DETAILS
public void details(){
System.out.println("the title of the book is: "+title_of_book+"\nThe author of te book is: "+author+"\nthe year of publication is:"+year_publication+"\n");
}
//creating the main class and objects for the method
public static void main(String[] args){
book one=new book("THE GREAT INDIAN RIVERS","DR.SHIVARAM",1989);
one.details();
book two=new book("ANGLES IN TIBET","S.SLUMP",2001);
two.details();
System.out.println("\nThese are the details of the two books which are famously treading nowadays\n THANK YOU ");
}

}
```



```
C:\Users\shagu\Desktop\lab1\week1>java person.java
the title of the book is: THE GREAT INDIAN RIVERS
The author of te book is: DR.SHIVARAM
the year of publication is:1989

the title of the book is: ANGLES IN TIBET
The author of te book is: S.SLUMP
the year of publication is:2001


These are the details of the two books which are famously treading nowadays
 THANK YOU
```

ERRORS:

S.NO	ERROR MESSAGE	ERROR RECTIFICATION
1.	Error: " this.year_public;=year_public;"	Rectification: removed the ';'
2.	Error :"missing ';'- "System.out.println("...");	Inserted the ';' in the line.

IMPORTANT POINTS:

1. Java constructor is used to save the variables present in different or same class or methods.
2. In Java, the this keyword refers to the current instance of a class. It is commonly used to distinguish between instance variables and parameters with the same name, or to refer to the current object from within a method or constructor.

PROGRAME-2s

AIM: To write a program for printing the title of the book and the author and year of publication using the constructors

Step 1:open notepad<<save the note pad in the path[desktop<<oops<<week 1<<exam.java

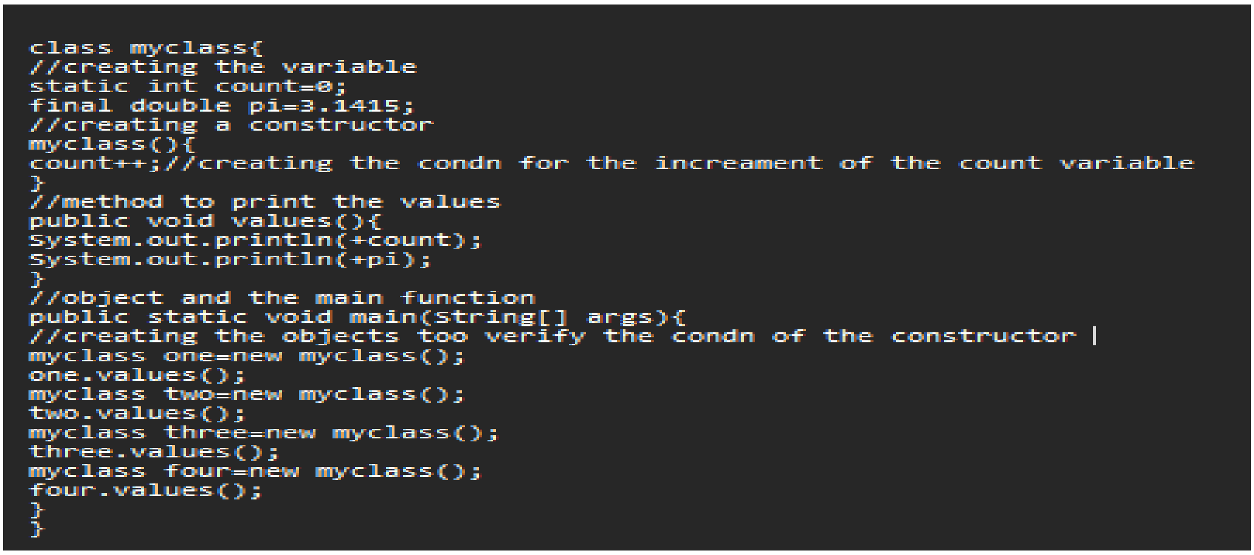
CODE:

```
class myclass{

//creating the variables

static int count=0;

final double pi=3.1415;

//creating a constructor

myclass(){

count++;// creatinfg the condition for the increment of the static count
variable

}

//method to print the values

public void values(){

System.out.println(+count);

System.out.println(+pi);

}
//object and the main function
public static void main(String[] args){
//creating the four objects to check the code for the condition of constructor
myclass one=new myclass();
one.values();
myclass two=new myclass();
two.values();
myclass three=new myclass();
three.values();
myclass four=new myclass();
four.values();
}
}
```

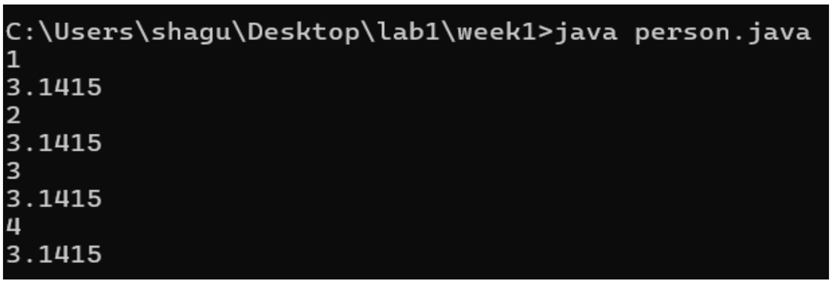
CLASS DUAGRAM:

Myclass
-count:0 -pi:3.1415

+myclass()
+values:void()



```
class myclass{
//creating the variable
static int count=0;
final double pi=3.1415;
//creating a constructor
myclass(){
count++;//creating the condn for the increament of the count variable
}
//method to print the values
public void values(){
System.out.println(+count);
System.out.println(+pi);
}
//object and the main function
public static void main(String[] args){
//creating the objects too verify the condn of the constructor
myclass one=new myclass();
one.values();
myclass two=new myclass();
two.values();
myclass three=new myclass();
three.values();
myclass four=new myclass();
four.values();
}
}
```



```
C:\Users\shagu\Desktop\lab1\week1>java person.java
1
3.1415
2
3.1415
3
3.1415
4
3.1415
```

ERRORS:

S.NO	ERROR MESSAGE	ERROR RECTIFICATION
1.	Error: argument required of type int	Rectification: rectified the argument issue.
2.	Error :line 7 unknow'__'	Removed '_'
3.	Error : if statement ';' expected	Inserted:count++;

IMPORTANT POINTS:

1. Java constructor is used to save the variables present in different or same class or methods.
2. In Java, the ++ operator increments a variable by 1, either as **pre-increment** (++x) or **post-increment** (x++).
3. In Java:
    1. **static**: A static variable belongs to the class, not instances, meaning all objects share the same value.
    2. **final**: A final variable cannot be modified once assigned, making it constant.

WEEK-5

PROGRAME-1

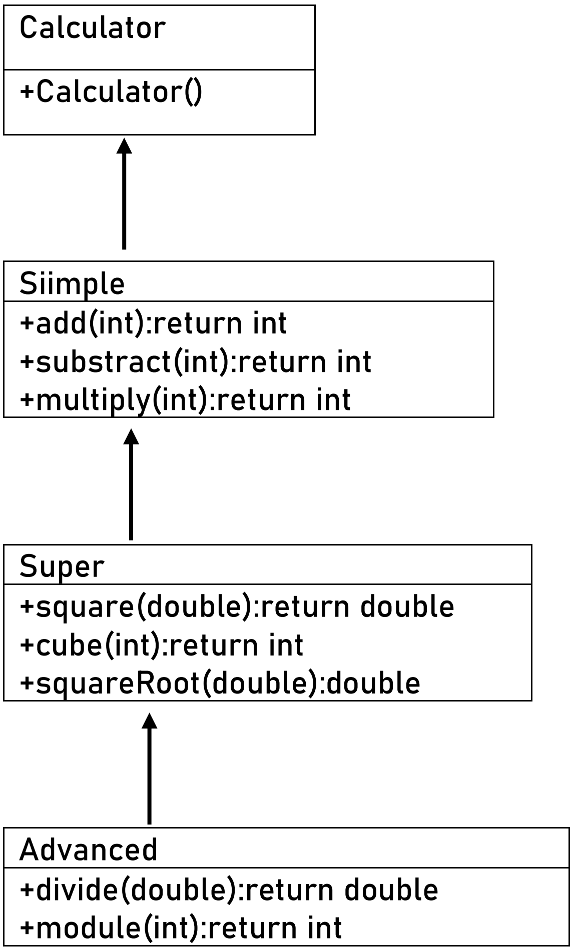
AIM: create a calculator using the operations including add,sub,multi and div using multilevel inheritanceand display the desipred output

Step 1:open notepad<<save the note pad in the path[desktop<<oops<<week 1<<inheritance.java

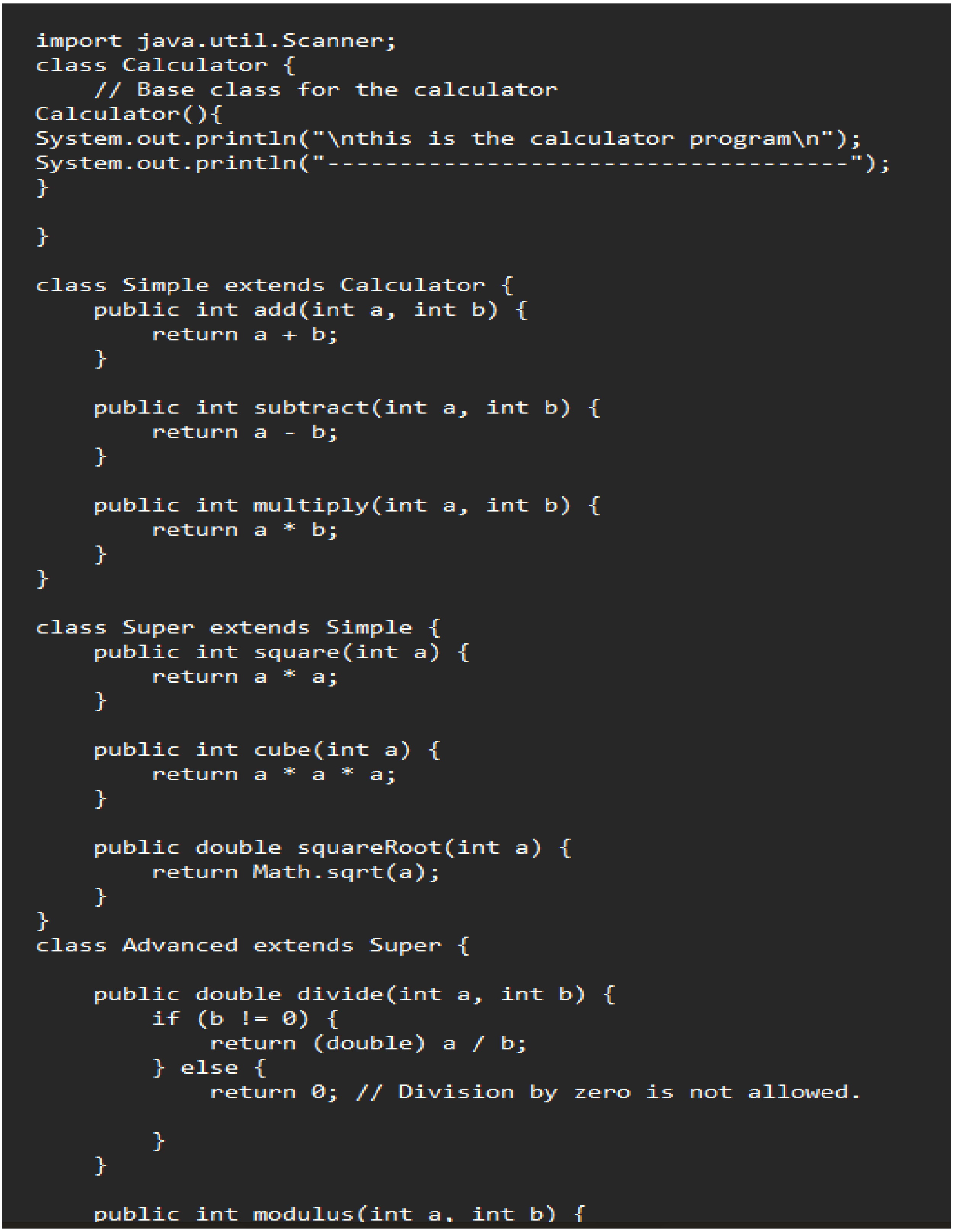
CODE:

```
import java.util.Scanner;

class Calculator {

  // Base class for the calculator
```

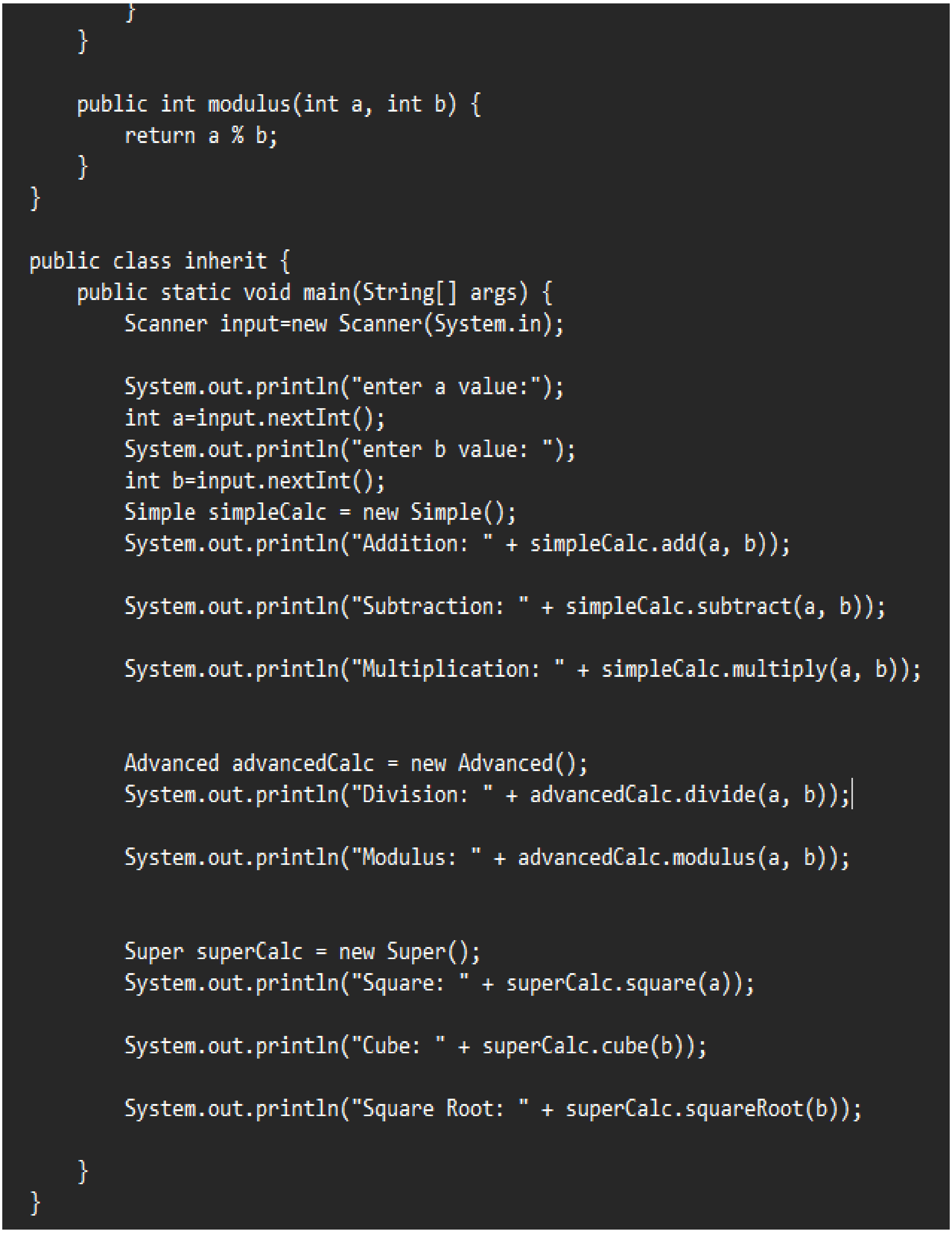
```
Calculator(){
System.out.println("\nthis is the calculator program\n");
System.out.println("----------------------------------------");
}  }
class Simple extends Calculator {
    public int add(int a, int b) {
        return a + b;
    }
    public int subtract(int a, int b) {
        return a - b;
    }
    public int multiply(int a, int b) {
        return a * b;
    }  }
class Super extends Simple {
    public int square(int a) {
        return a * a;
    }
    public int cube(int a) {
        return a * a * a;
    }
    public double squareRoot(int a) {
        return Math.sqrt(a);
    }
}
class Advanced extends Super {
    public double divide(int a, int b) {
        if (b != 0) {
            return (double) a / b;
        } else {
            return 0; // Division by zero is not allowed.
        }
    }
    public int modulus(int a, int b) {
        return a % b;
    }
}
public class inherit {
    public static void main(String[] args) {
            Scanner input=new Scanner(System.in);
            System.out.println("enter a value:");
            int a=input.nextInt();
            System.out.println("enter b value: ");
            int b=input.nextInt();
        Simple simpleCalc = new Simple();
        System.out.println("Addition: " + simpleCalc.add(a, b));
        System.out.println("Subtraction: " + simpleCalc.subtract(a, b));
        System.out.println("Multiplication: " + simpleCalc.multiply(a, b));
        Advanced advancedCalc = new Advanced();
        System.out.println("Division: " + advancedCalc.divide(a, b));
        System.out.println("Modulus: " + advancedCalc.modulus(a, b));
        Super superCalc = new Super();
        System.out.println("Square: " + superCalc.square(a));
        System.out.println("Cube: " + superCalc.cube(b))
        System.out.println("Square Root: " + superCalc.squareRoot(b));
    } }
```



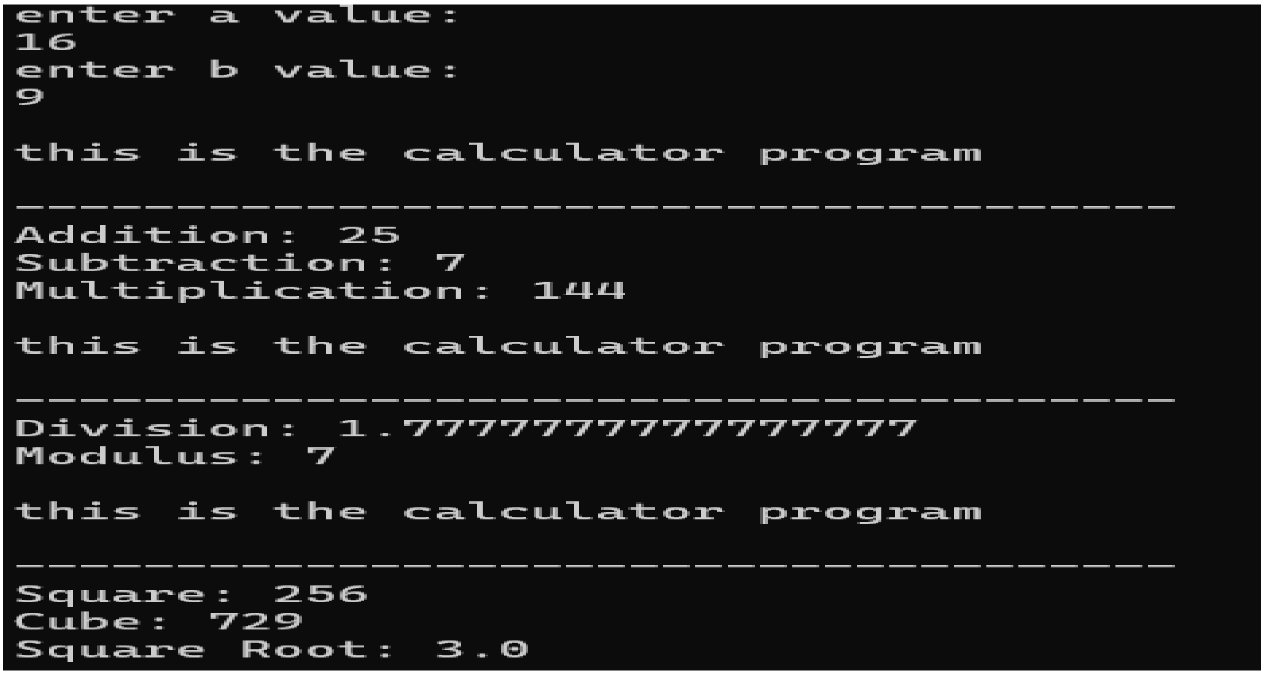
Calculator
+Calculator()
Siimple
+add(int):return int
+substract(int):return int
+multiply(int):return int
Super
+square(double):return double
+cube(int):return int
+squareRoot(double):double
Advanced
+divide(double):return double
+module(int):return int



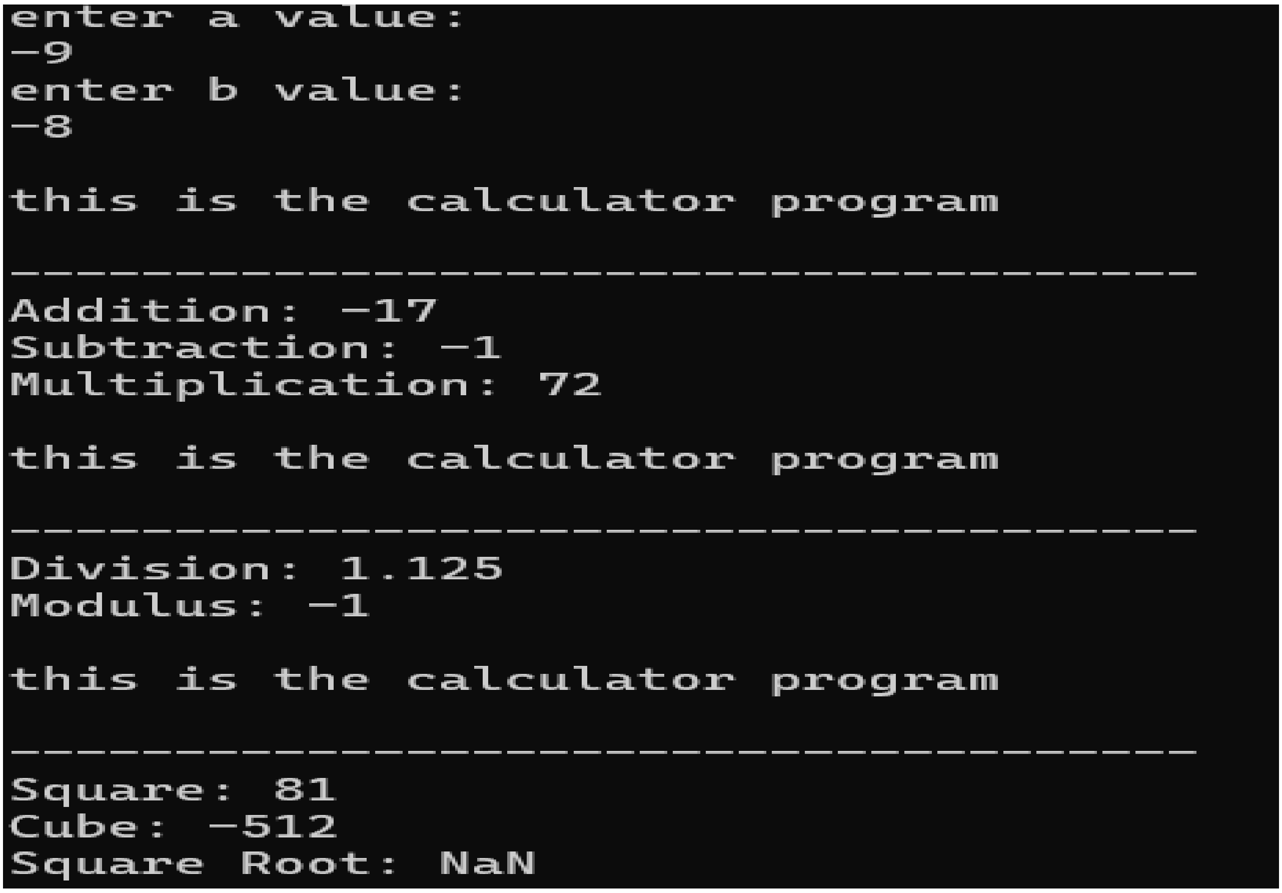
```java
import java.util.Scanner;
class Calculator {
    // Base class for the calculator
Calculator(){
System.out.println("\nthis is the calculator program\n");
System.out.println("------------------------------------");
}

}

class Simple extends Calculator {
    public int add(int a, int b) {
        return a + b;
    }

    public int subtract(int a, int b) {
        return a - b;
    }

    public int multiply(int a, int b) {
        return a * b;
    }
}

class Super extends Simple {
    public int square(int a) {
        return a * a;
    }

    public int cube(int a) {
        return a * a * a;
    }

    public double squareRoot(int a) {
        return Math.sqrt(a);
    }
}
class Advanced extends Super {

    public double divide(int a, int b) {
        if (b != 0) {
            return (double) a / b;
        } else {
            return 0; // Division by zero is not allowed.

        }
    }

    public int modulus(int a, int b) {
```



```
        }
    }

    public int modulus(int a, int b) {
        return a % b;
    }
}

public class inherit {
    public static void main(String[] args) {
        Scanner input=new Scanner(System.in);

        System.out.println("enter a value:");
        int a=input.nextInt();
        System.out.println("enter b value: ");
        int b=input.nextInt();
        Simple simpleCalc = new Simple();
        System.out.println("Addition: " + simpleCalc.add(a, b));

        System.out.println("Subtraction: " + simpleCalc.subtract(a, b));

        System.out.println("Multiplication: " + simpleCalc.multiply(a, b));


        Advanced advancedCalc = new Advanced();
        System.out.println("Division: " + advancedCalc.divide(a, b));

        System.out.println("Modulus: " + advancedCalc.modulus(a, b));


        Super superCalc = new Super();
        System.out.println("Square: " + superCalc.square(a));

        System.out.println("Cube: " + superCalc.cube(b));

        System.out.println("Square Root: " + superCalc.squareRoot(b));

    }
}
```



```
enter a value:
16
enter b value:
9

this is the calculator program

------------------------------------
Addition: 25
Subtraction: 7
Multiplication: 144

this is the calculator program

------------------------------------
Division: 1.7777777777777777
Modulus: 7

this is the calculator program

------------------------------------
Square: 256
Cube: 729
Square Root: 3.0
```



```
enter a value:
-9
enter b value:
-8

this is the calculator program

------------------------------------
Addition: -17
Subtraction: -1
Multiplication: 72

this is the calculator program

------------------------------------
Division: 1.125
Modulus: -1

this is the calculator program

------------------------------------
Square: 81
Cube: -512
Square Root: NaN
```

ERRORS:

S.NO	ERROR MESSAGE	ERROR RECTIFICATION
1.	Error: mutipile inheritance in the Advanved class	Implemented Advanced class from Super class.
2.	Error : Scanner;	Scanner(System.in);

IMPORTANT POINTS:

1. Multiple inheritance lets a class inherit from multiple parents, combining their features, but can cause issues like the diamond problem, resolved by MRO.
2. Math.sqrt() in Java calculates the square root of a non-negative double value and returns a double result, or NaN if the input is negative.
3. The import java.util.Scanner; statement in Java allows you to use the Scanner class from the java.util package, which is commonly used to read user input from the console.

PROGRAME-2

AIM: create a java program of a vehicle entry company hireachical wants to develop his system that maintains information about different types of cars and bikes and they need a program to store details about each vehicle auch as brand and speed

Step 1:open notepad<<save the note pad in the path[desktop<<oops<<week 1<<inheritance.java

CODE:

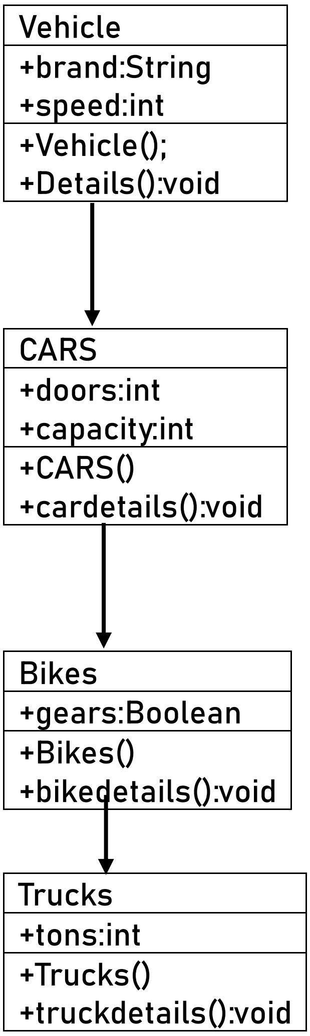
```
class Vehicle{
    String brand;
    int speed;
    Vehicle(String brand,int speed){
        this.brand=brand;
        this.speed=speed;
    }
    void Details(){
        System.out.println("Brand:"+brand);
        System.out.println("\nSpeed:"+speed);
```

```
           System.out.println("-------------------------------");
    }
}//End of super class
class CARS extends Vehicle{
    int doors;
    int capacity;
    public CARS(String brand,int speed,int doors,int capacity){
        super(brand, speed);
        this.doors=doors;
        this.capacity=capacity;
    }
    void cardetails(){
        System.out.println("\nNumber of doors:"+doors);
        System.out.println("\nCapacity:"+capacity);
           System.out.println("----------------");
}
}//End of car sub-class
class Bikes extends Vehicle{
    Boolean gears;
    Bikes(String brand,int speed,Boolean gears){
        super(brand, speed);
        this.gears=gears;
    }
    void bikedetails(){
        if (gears==true) {
        System.out.println("This bike has gears.");
           }
        else{
```

```
        System.out.println("This bike does not have gear system.");
}
}
}//End of bike sub-class
class Trucks extends Vehicle{
    int tons;
    Trucks(String brand,int speed,int tons){
        super(brand, speed);
        this.tons=tons;
    }
    void truckdetails(){
        System.out.println("The capacity of truck is: "+tons);
    }
}//End of truck sub-class
class inherit{
    public static void main(String[] args){
        CARS c=new CARS("Tayota",120,5,2);
        c.cardetails();
        c.Details();
        Bikes b=new Bikes("KTM",80,true);
        b.bikedetails();
        b.Details();
        Trucks t=new Trucks("TATA",150,1);
        t.truckdetails();
        t.Details();
           System.out.println("THANK YOU FOR COMING TO OUR COMPANY :) ~ ^ !");
    }
```

```
}
```

CLASS DIAGRAMS :



Vehicle

+brand:String
+speed:int

+Vehicle();
+Details():void

CARS

+doors:int
+capacity:int

+CARS()
+cardetails():void

Bikes

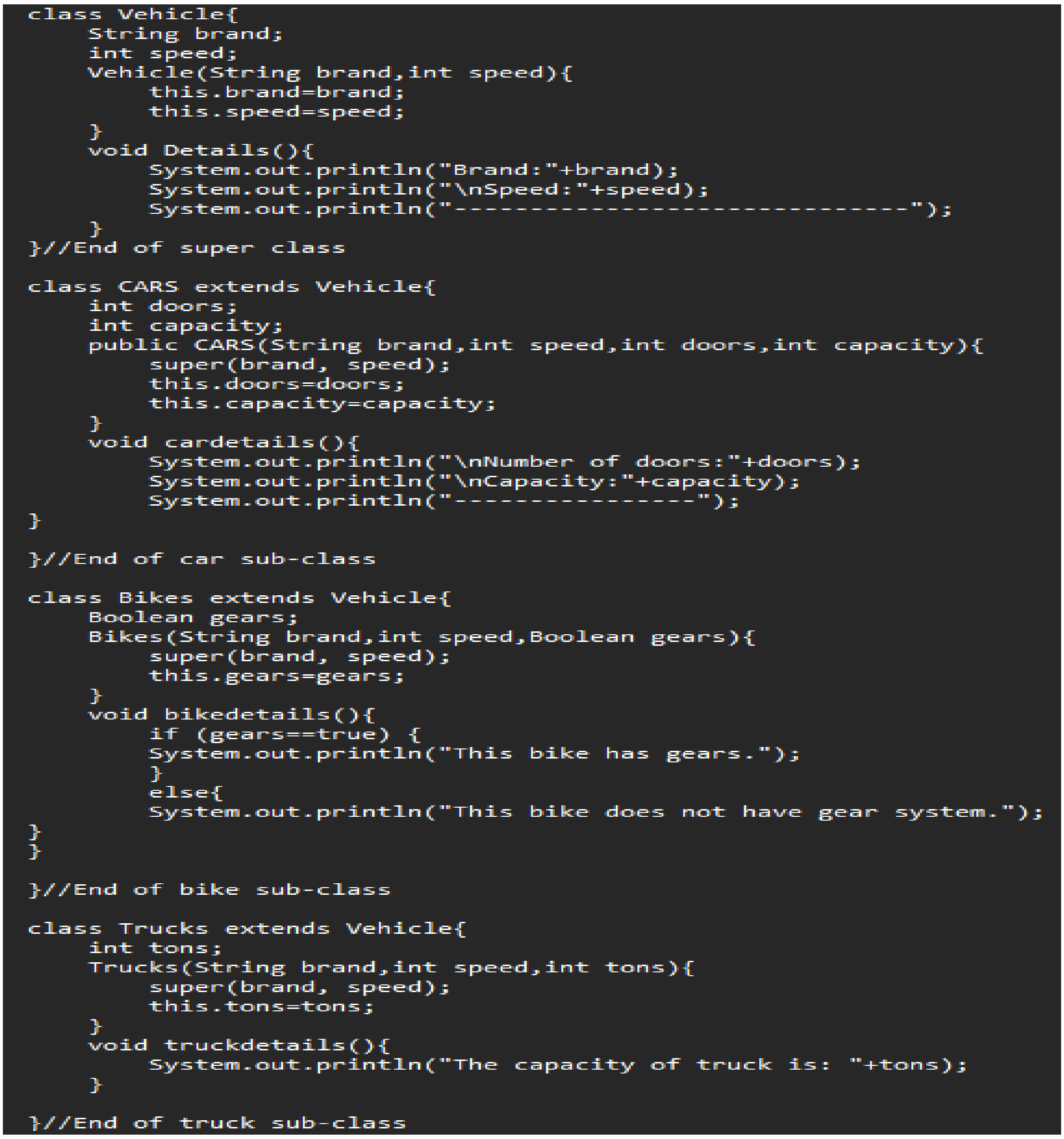
+gears:Boolean

+Bikes()
+bikedetails():void

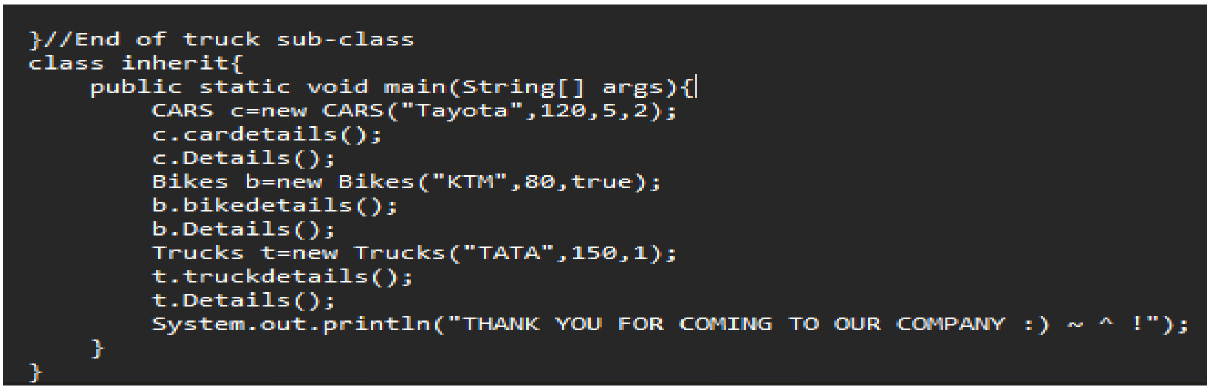
Trucks

+tons:int

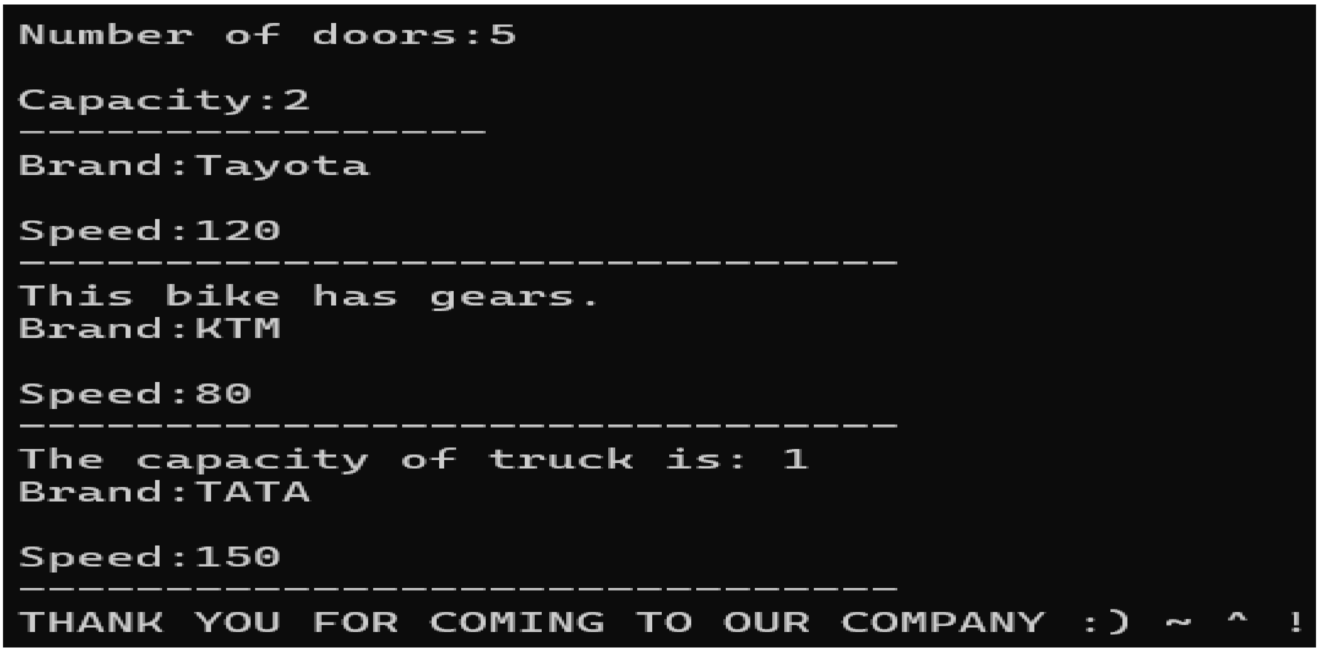
+Trucks()
+truckdetails():void



```
class Vehicle{
    String brand;
    int speed;
    Vehicle(String brand,int speed){
        this.brand=brand;
        this.speed=speed;
    }
    void Details(){
        System.out.println("Brand:"+brand);
        System.out.println("\nSpeed:"+speed);
        System.out.println("------------------------------");
    }
}//End of super class

class CARS extends Vehicle{
    int doors;
    int capacity;
    public CARS(String brand,int speed,int doors,int capacity){
        super(brand, speed);
        this.doors=doors;
        this.capacity=capacity;
    }
    void cardetails(){
        System.out.println("\nNumber of doors:"+doors);
        System.out.println("\nCapacity:"+capacity);
        System.out.println("----------------");
}

}//End of car sub-class

class Bikes extends Vehicle{
    Boolean gears;
    Bikes(String brand,int speed,Boolean gears){
        super(brand, speed);
        this.gears=gears;
    }
    void bikedetails(){
        if (gears==true) {
        System.out.println("This bike has gears.");
        }
        else{
        System.out.println("This bike does not have gear system.");
}
}

}//End of bike sub-class

class Trucks extends Vehicle{
    int tons;
    Trucks(String brand,int speed,int tons){
        super(brand, speed);
        this.tons=tons;
    }
    void truckdetails(){
        System.out.println("The capacity of truck is: "+tons);
    }

}//End of truck sub-class
```



```
}//End of truck sub-class
class inherit{
    public static void main(String[] args){
        CARS c=new CARS("Tayota",120,5,2);
        c.cardetails();
        c.Details();
        Bikes b=new Bikes("KTM",80,true);
        b.bikedetails();
        b.Details();
        Trucks t=new Trucks("TATA",150,1);
        t.truckdetails();
        t.Details();
        System.out.println("THANK YOU FOR COMING TO OUR COMPANY :) ~ ^ !");
    }
}
```



```
Number of doors:5

Capacity:2
----------------
Brand:Tayota

Speed:120
------------------------------
This bike has gears.
Brand:KTM

Speed:80
------------------------------
The capacity of truck is: 1
Brand:TATA

Speed:150
------------------------------
THANK YOU FOR COMING TO OUR COMPANY :) ~ ^ !
```

ERRORS:

S.NO	ERROR MESSAGE	ERROR RECTIFICATION
1.	Error: Incorrect Constructor Arguments.	the arguments passed when creating an object match the constructor's parameter list in both **number** and **type**.
2.	Error : Scanner;	Scanner(System.in);

IMPORTANT POINTS:

1. Hierarchical inheritance is a type of inheritance where multiple subclasses inherit from a single parent class, allowing code reuse and reducing redundancy.

2. A **constructor** is a special method in a class used to initialize new objects with default or provided values. It is automatically called when an object is created and sets up the object's initial state.

WEEK-6

PROGRAME-1

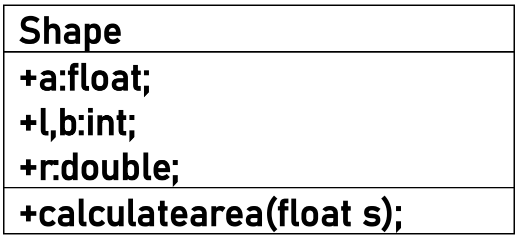
AIM: To write a program for creating a shape with method calculatearea, that is overloaded for different shapes ,create a subclass circle that over riding the calculatearea method for a circle.

Step 1:open notepad<<save the note pad in the path[desktop<<oops<<week 1<<week.java

CODE:

```
import java.util.Scanner;
class Shape{
   float s=3;
   int l=5,b=6;
   double r=2.3;
   public void calculatarea(float s){
      System.out.print("area of a square is:");
      double area=s*s;
      System.out.println(area);


   }
   public void calculatarea(int l,int b){
      System.out.print("area of a rectangle is:");
      double area=l*b;
      System.out.println(area);
   }
   public void calculatarea(double r){
        System.out.println("over riding method");
        System.out.println("radius is:"+r);
}
}
class Circle extends Shape{
    public void calculatarea(double r){
        System.out.println("---------------------------------------");
        System.out.print("area of a circle is:");
        double area=3.14*r*r;
        System.out.println(area);
}
}
class week{
    public static void main(String[] args) {
        Shape s1=new Shape();
        s1.calculatarea(3);
        s1.calculatarea(5,6);
        s1.calculatarea(2.3);
        Circle c1=new Circle();
        c1.calculatarea(3.4);

    }
}
```

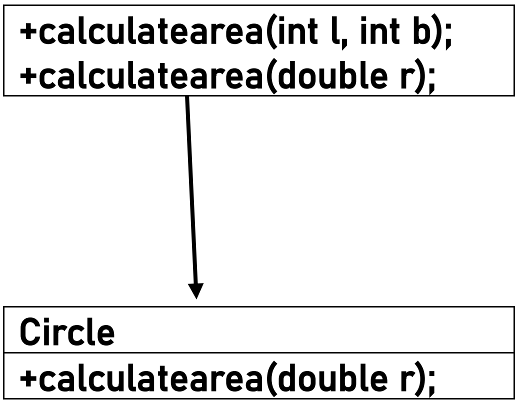
CLASS DIAGRAMS :



Shape

+a:float;
+l,b:int;
+r:double;

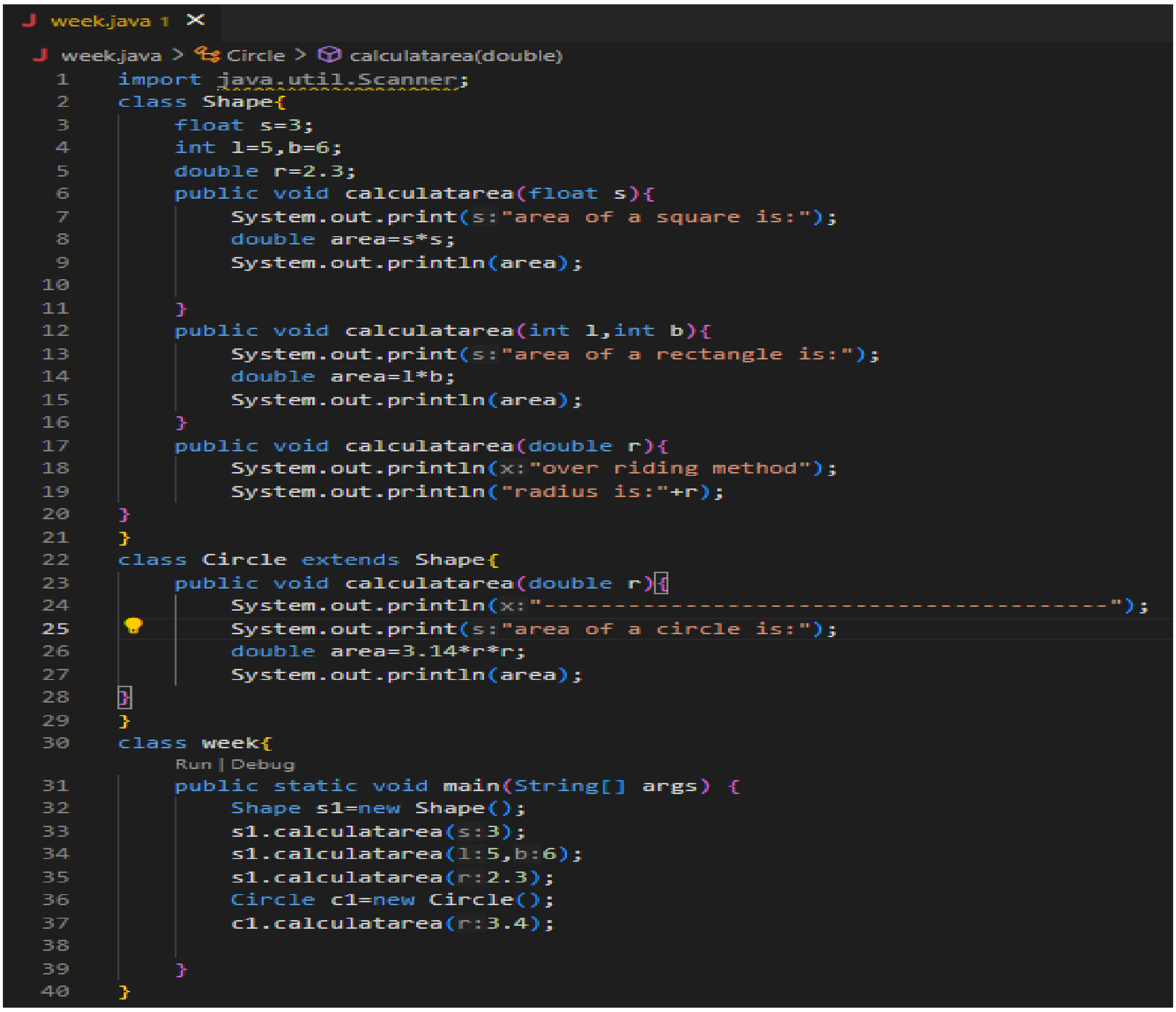
+calculatearea(float s);



+calculatearea(int l, int b);
+calculatearea(double r);

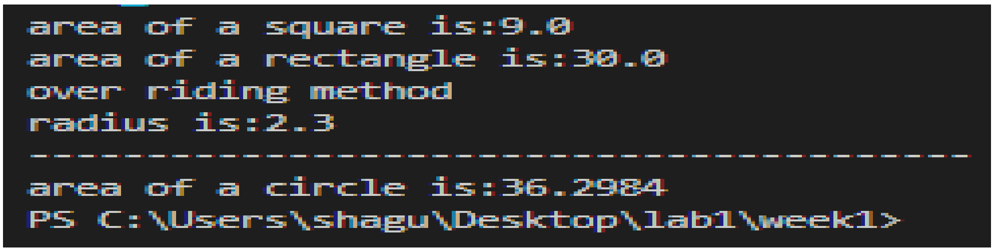
Circle

+calculatearea(double r);



```
import java.util.Scanner;
class Shape{
    float s=3;
    int l=5,b=6;
    double r=2.3;
    public void calculatarea(float s){
        System.out.print(s:"area of a square is:");
        double area=s*s;
        System.out.println(area);

    }
    public void calculatarea(int l,int b){
        System.out.print(s:"area of a rectangle is:");
        double area=l*b;
        System.out.println(area);
    }
    public void calculatarea(double r){
        System.out.println(x:"over riding method");
        System.out.println("radius is:"+r);
}
}
class Circle extends Shape{
    public void calculatarea(double r){
        System.out.println(x:"----------------------------------------");
        System.out.print(s:"area of a circle is:");
        double area=3.14*r*r;
        System.out.println(area);
}
}
class week{
    Run | Debug
    public static void main(String[] args) {
        Shape s1=new Shape();
        s1.calculatarea(s:3);
        s1.calculatarea(l:5,b:6);
        s1.calculatarea(r:2.3);
        Circle c1=new Circle();
        c1.calculatarea(r:3.4);

    }
}
```

OUTPUT:



```
area of a square is:9.0
area of a rectangle is:30.0
over riding method
radius is:2.3
---------------------------------------
area of a circle is:36.2984
PS C:\Users\shagu\Desktop\lab1\week1>
```

ERROR:

S.NO	ERROR	RECTIFICATION
1.	Error:';' is missing in print statemnt	Rectification:inserted the';' in print statement

IMPORTANT POINTS:

- Method overriding allows a subclass to provide a new version of a method already defined in its parent class.
- The method name, parameters, and return type must be the same.
- It is used to change or extend the behavior of inherited methods.
- Overriding supports runtime polymorphism (decides which method to run at runtime).
- It helps in writing flexible, reusable, and organized code

PROGRAME-2

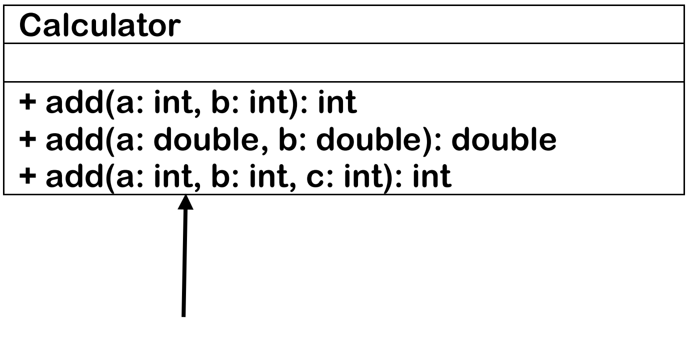
AIM: To create calculator with over load method to perform overload i)add two integers ii)add two double iii)add three int

Step 1:open notepad<<save the note pad in the path[desktop<<oops<<week 1<<week.java

CODE:

```
class Calculator {
  // Method 1: Add two integers
  int add(int a, int b) {
    return a + b;
  }

  // Method 2: Add two doubles
  double add(double a, double b) {
        return a + b;
    }
    // Method 3: Add three integers
    int add(int a, int b, int c) {
        return a + b + c;
    }
}
public class q3 {
    public static void main(String[] args) {
        Calculator calc = new Calculator();

        // Test the overloaded methods
        int sum1 = calc.add(10, 20);
        double sum2 = calc.add(5.5, 6.7);
        int sum3 = calc.add(1, 2, 3);

        // Display results
        System.out.println("Sum of two integers: " + sum1);
        System.out.println("Sum of two doubles: " + sum2);
        System.out.println("Sum of three integers: " + sum3);
    }
}
```

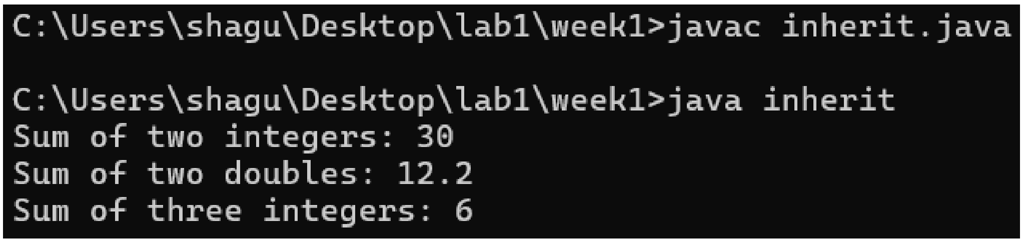
CLASS DIAGRAMS:



Calculator
+ add(a: int, b: int): int + add(a: double, b: double): double + add(a: int, b: int, c: int): int

Inherit
+main:void

OUTPUT:;



```
C:\Users\shagu\Desktop\lab1\week1>javac inherit.java

C:\Users\shagu\Desktop\lab1\week1>java inherit
Sum of two integers: 30
Sum of two doubles: 12.2
Sum of three integers: 6
```

ERROR:

S.NO	ERROR	RECTIFICATION
1.	Initially file name stored in another name	Rectified by changing name to the stored one.

IMPOERTANT POINTS:

1. Method overloading means defining **multiple methods with the same name** but **different parameters**.
2. It happens **within the same class**.
3. The methods must differ in **number or type of parameters**.
4. It increases **code readability** and **flexibility**.
5. Overloading is decided at **compile-time** (compile-time polymorphism).

PROGRAME-3

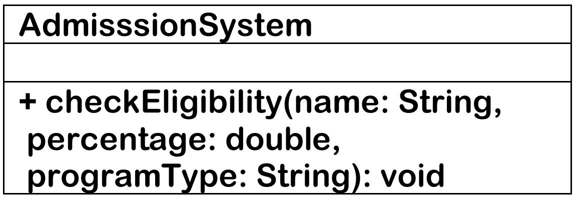
AIM: To create a collage program for developing automated admission that verifies students eligibility for UG,PG programs.each program has different eligibility criteria based on the students percentage[%] in their perious qualification.

Step 1:open notepad<<save the note pad in the path[desktop<<oops<<week 1<<week.java

```
      CODE: class AdmissionSystem {

  void checkEligibility(String name, double percentage, String programType)
{

    if (programType.equals("UG")) {

      if (percentage >= 60) {

        System.out.println(name + " is eligible for Undergraduate
program.");
```

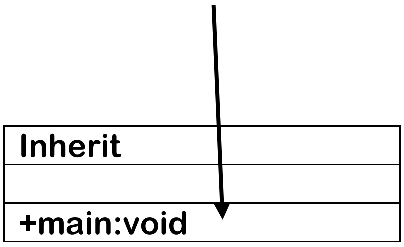
```
            } else {
                System.out.println(name + " is NOT eligible for Undergraduate
program.");
            }
        } else if (programType.equals("PG")) {
            if (percentage >= 70) {
                System.out.println(name + " is eligible for Postgraduate program.");
            } else {
                System.out.println(name + " is NOT eligible for Postgraduate
program.");
            }
        } else {
            System.out.println("Invalid program type: " + programType);
        }
    }
}
public class inherit {
    public static void main(String[] args) {
        AdmissionSystem admission = new AdmissionSystem();
        // Test cases with hardcoded values
        admission.checkEligibility("Ram", 68.5, "UG");
        admission.checkEligibility("raj", 68.5, "PG");
System.out.println("thank you for coming to our collage");
    }
}
```

CLASS DIAGRAMS :

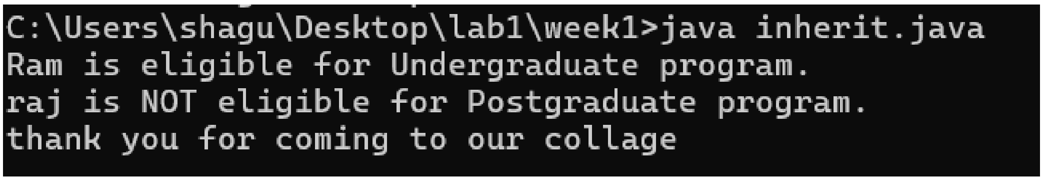


AdmisssionSystem

+ checkEligibility(name: String,
 percentage: double,
 programType: String): void



OUTPUT:



```
C:\Users\shagu\Desktop\lab1\week1>java inherit.java
Ram is eligible for Undergraduate program.
raj is NOT eligible for Postgraduate program.
thank you for coming to our collage
```

ERROR:

S.NO	ERROR	RECTIFICATION
1.	Error in constructor declaration	Rectified by giving correct data type name for the taken variables

IMPORTANT POINTS:

1. **`if` statement** is used to check a condition. If it's true, the code inside runs.
2. **`else if`** checks another condition if the first `if` is false.
3. You can have **multiple `else if`** blocks to check different conditions.
4. **`else`** runs when **none** of the above conditions are true.
5. Used to perform **different actions** based on **different conditions**.

PROGRAME-4

AIM: To write a program for creating vehicle class with amethod displayInfo().Overide this method in the car subclass to provide specific information about cars[car company,car model, car prize,seating capacity, petrol or not{Boolean}]

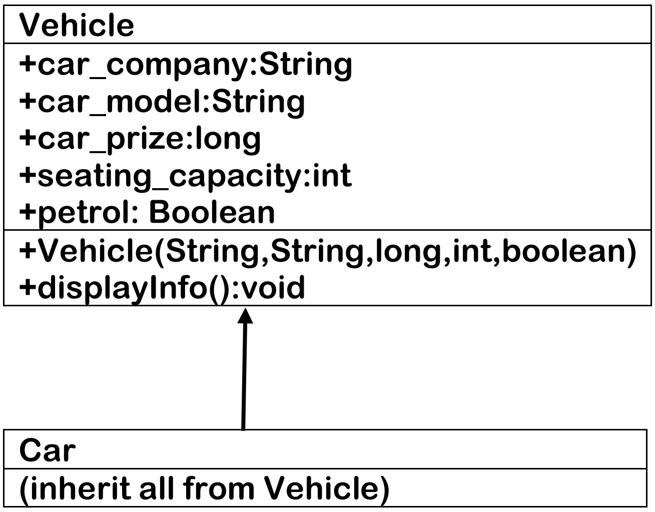
Step 1:open notepad<<save the note pad in the path[desktop<<oops<<week 1<<week.java

CODE:

```
class Vehicle {
   String car_company;
   String car_model;
```

```
    long car_prize;
    int seating_capacity;
    boolean petrol;

    Vehicle(String car_company, String car_model, long car_prize, int
seating_capacity, boolean petrol) {
        this.car_company = car_company;
        this.car_model = car_model;
        this.car_prize = car_prize;
        this.seating_capacity = seating_capacity;
        this.petrol = petrol;
    }

    void displayInfo() {
        System.out.println("Car company is: " + car_company);
        System.out.println("Model of the car is: " + car_model);
        System.out.println("Prize of the car is: " + car_prize);
        System.out.println("Seating capacity of the car: " + seating_capacity);
        System.out.println("Fuel type (petrol?): " + petrol);
    }
}

class Car extends Vehicle {

    Car(String car_company, String car_model, long car_prize, int
seating_capacity, boolean petrol) {
        super(car_company, car_model, car_prize, seating_capacity, petrol);
    }
    @Override
    void displayInfo() {
        System.out.println("----- Car Details (Overridden Method) -----");
        System.out.println("Car company is: " + car_company);
        System.out.println("Model of the car is: " + car_model);
        System.out.println("Prize of the car is: " + car_prize);
        System.out.println("Seating capacity of the car: " + seating_capacity);
        System.out.println("Fuel type (petrol?): " + petrol);
        System.out.println("------------------------------------------");
    }
}
public class inherit {
    public static void main(String[] args) {
        Car car1 = new Car("Ford", "X-Series", 2000000, 4, true);
        car1.displayInfo();
            Car car2=new Car("mersidies","BMW",23009900,6,true);
            car2.displayInfo();
    }
}
```

CLASS DIAGRAMS :



Vehicle

+car_company:String
+car_model:String
+car_prize:long
+seating_capacity:int
+petrol: Boolean

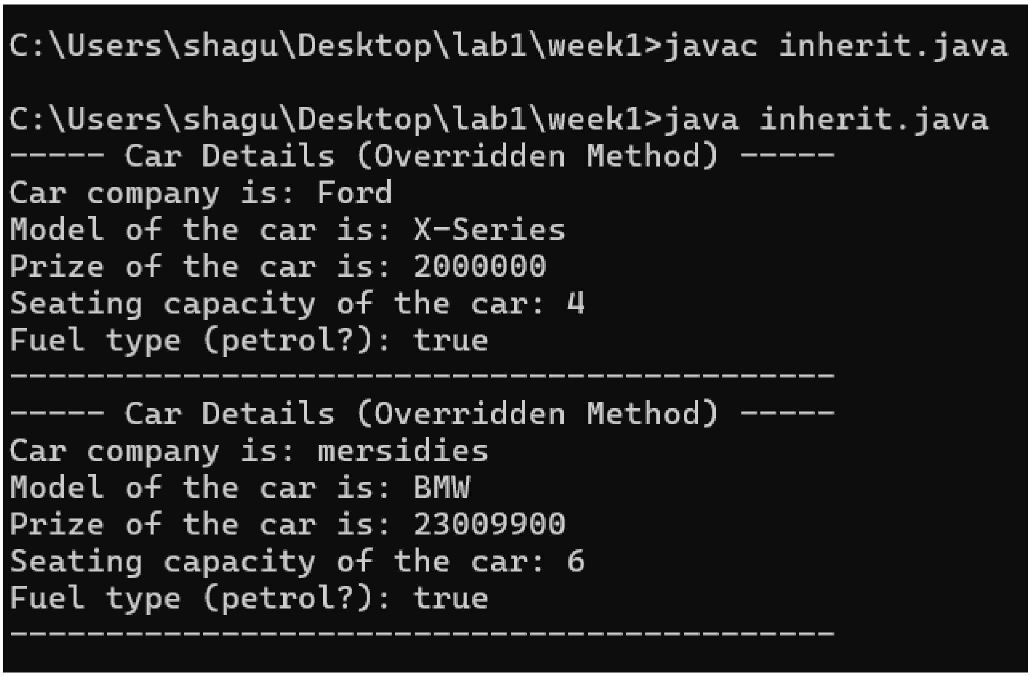
+Vehicle(String,String,long,int,boolean)
+displayInfo():void

Car

(inherit all from Vehicle)

+car(String,String,long,int,boolean)
+displayInfo():void() @Overiden

OUTPUT:



```
C:\Users\shagu\Desktop\lab1\week1>javac inherit.java

C:\Users\shagu\Desktop\lab1\week1>java inherit.java
----- Car Details (Overridden Method) -----
Car company is: Ford
Model of the car is: X-Series
Prize of the car is: 2000000
Seating capacity of the car: 4
Fuel type (petrol?): true
-------------------------------------------
----- Car Details (Overridden Method) -----
Car company is: mersidies
Model of the car is: BMW
Prize of the car is: 23009900
Seating capacity of the car: 6
Fuel type (petrol?): true
-------------------------------------------
```

ERROR:

S.NO	ERROR	RECTIFICATION
1.	Error :’;’ missing in printing statement	Rectified by inserting the ‘;’ in the printing statement.

IMPORTANT POINTS:

1. **Method overriding allows a subclass to provide a new version of a method already defined in its parent class.**
2. **It enables runtime polymorphism, where the method call is decided at runtime based on the object type.**
3. Methods are defined **inside a class** to perform specific tasks or actions.
4. They usually have a **name**, **return type**, and **optional parameters**, and can be called using an object of the class