

LAB-1

Develop a Java program that prints all real solutions to the quadratic equation $ax^2 + bx + c = 0$.

Read in a, b, c and use the quadratic formula. If the discriminant $b^2 - 4ac$ is negative, display a message stating that there are no real solutions.

```
import java.util.*;

class Student
{
    String USN;
    String name;
    int credits[];
    int marks[];
    int i,n,tot=0;
    double SGPA;

    Student()
    {
        SGPA=0;
    }

    void input()
    {
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter the USN and name of student");
        USN=sc.nextLine();
        name=sc.nextLine();
        System.out.println("Enter the number of subjects");
        n=sc.nextInt();
        credits=new int[n];
        marks=new int[n];
        for(i=0;i<n;i++)
```

```
{  
    System.out.println("Enter the credits of subject "+(i+1));  
    credits[i]=sc.nextInt();  
    tot=tot+credits[i];  
}  
for(i=0;i<n;i++)  
{  
    System.out.println("Enter the marks of subject "+(i+1));  
    marks[i]=sc.nextInt();  
}  
}
```

```
void grade_point()  
{  
    for(i=0;i<n;i++)  
    {  
        if(marks[i]>=90 && marks[i]<=100)  
            marks[i]=10;  
        else if(marks[i]>=80 && marks[i]<90)  
            marks[i]=9;  
        else if(marks[i]>=70 && marks[i]<80)  
            marks[i]=8;  
        else if(marks[i]>=60 && marks[i]<70)  
            marks[i]=7;  
        else if(marks[i]>=50 && marks[i]<60)  
            marks[i]=5;  
        else if(marks[i]>=40 && marks[i]<50)  
            marks[i]=4;  
        else if(marks[i]<40)  
            marks[i]=0;
```

```
}  
}
```

```
void cal_SGPA()  
{  
    for(i=0;i<n;i++)  
    {  
        SGPA=SGPA+(credits[i]*marks[i]);  
    }  
    SGPA=SGPA/tot;  
}
```

```
void display()  
{  
    System.out.println("-----");  
    System.out.println("Student details are:");  
    System.out.println("USN:"+USN);  
    System.out.println("Name:"+name);  
    System.out.println("SGPA:"+SGPA);  
    System.out.println("-----");  
}  
}
```

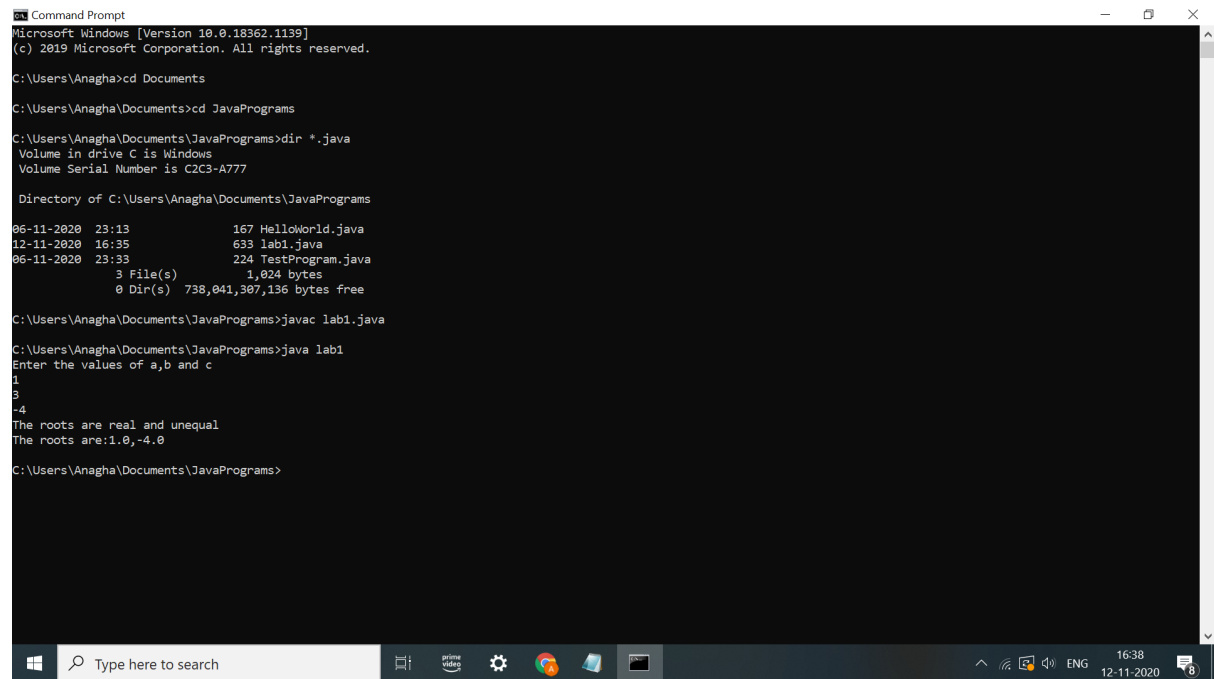
```
class lab2  
{  
    public static void main(String args[])  
    {  
        Student stu=new Student();  
        stu.input();  
        stu.grade_point();  
        stu.cal_SGPA();  
    }  
}
```

```
stu.display();
```

```
}
```

```
}
```

OUTPUT



```
Command Prompt
Microsoft Windows [Version 10.0.18362.1139]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\Anagha>cd Documents
C:\Users\Anagha\Documents>cd JavaPrograms
C:\Users\Anagha\Documents\JavaPrograms>dir *.java
Volume in drive C is Windows
Volume Serial Number is C2C3-A777

Directory of C:\Users\Anagha\Documents\JavaPrograms

06-11-2020  23:13                167 HelloWorld.java
12-11-2020  16:35                633 lab1.java
06-11-2020  23:33                224 TestProgram.java
               3 File(s)              1,024 bytes
               0 Dir(s)  738,041,307,136 bytes free

C:\Users\Anagha\Documents\JavaPrograms>javac lab1.java
C:\Users\Anagha\Documents\JavaPrograms>java lab1
Enter the values of a,b and c
1
3
-4
The roots are real and unequal
The roots are:1.0,-4.0

C:\Users\Anagha\Documents\JavaPrograms>
```