```java
import java.util.*;
class Quadratic
{
public static void main(String [] arg)
{
Scanner s =new Scanner(System.in);
System.out.println("Enter a,b,c of the equation ax^2+bx+c=0:");
double a=s.nextDouble();
double b=s.nextDouble();
double c=s.nextDouble();
double d=b*b-4.0*a*c;
double roots1,roots2;
System.out.println(d);
if(d>0)
{
System.out.println("roots are real and unequal");
roots1=(-b-Math.sqrt(d))/(2.0*a);
roots2=(-b+Math.sqrt(d))/(2.0*a);
System.out.println("root1 :"+roots1+" root2:"+roots2);
}
else if(d==0)
{
System.out.println("Roots are real and equal ");
roots1=(-1*b)/(2*a);
roots2=roots1;
System.out.println("root1: "+roots1+"root2:"+roots2);
}
else
{
System.out.println("roots are imaginary ");
}
}
}
```

```
Select Command Prompt

C:\Users\Vidhu>cd desktop

C:\Users\Vidhu\Desktop>cd java

C:\Users\Vidhu\Desktop\java>set path="C:\Program Files\Java\jdk1.8.0_261\bin"

C:\Users\Vidhu\Desktop\java>javac Quadratic.java

C:\Users\Vidhu\Desktop\java>java Quadratic
Enter a,b,c of the equation ax^2+bx+c=0:
1 2 4
-12.0
roots are imaginary

C:\Users\Vidhu\Desktop\java>java Quadratic
Enter a,b,c of the equation ax^2+bx+c=0:
1 -4 -2
24.0
roots are real and unequal
root1 :-0.4494897427831779 root2:4.449489742783178

C:\Users\Vidhu\Desktop\java>java Quadratic
Enter a,b,c of the equation ax^2+bx+c=0:
4 6 -2
68.0
roots are real and unequal
root1 :-1.7807764064044151 root2:0.28077640640441515

C:\Users\Vidhu\Desktop\java>
```

```java
import java.util.*;
class Student
{
String usn;
String name;
private int n,credits[],marks[],gp[];
double sum,sgpa;

Student()
{
name="xyz";
usn="0";
}

void accept()
{
Scanner s1=new Scanner(System.in);
System.out.println("Enter the usn and name");
usn=s1.next();
name=s1.next();
System.out.println("Enter number of subjects");
 n=s1.nextInt();
credits=new int[n+1];
marks=new int[n+1];
System.out.println("Enter the credits and marks in each subject");
for(int i=1;i<=n;i++)
{
System.out.println("Enter the credits and marks in subject "+i);
credits[i]=s1.nextInt();
marks[i]=s1.nextInt();
}
}
void calculate()
{
gp=new int[n+1];
int a=0;
for(int i=1;i<=n;i++)
{
if(marks[i]>=90)
gp[i]=10;
if(marks[i]>=80&&marks[i]<90)
gp[i]=9;
if(marks[i]>=70&&marks[i]<80)
gp[i]=8;
if(marks[i]>=60&&marks[i]<70)
gp[i]=7;
```

```java
System.out.println("Enter the credits and marks in subject "+i);
credits[i]=s1.nextInt();
marks[i]=s1.nextInt();
}
}
void calculate()
{
gp=new int[n+1];
int a=0;
for(int i=1;i<=n;i++)
{
if(marks[i]>=90)
gp[i]=10;
if(marks[i]>=80&&marks[i]<90)
gp[i]=9;
if(marks[i]>=70&&marks[i]<80)
gp[i]=8;
if(marks[i]>=60&&marks[i]<70)
gp[i]=7;
if(marks[i]>=50&&marks[i]<60)
gp[i]=5;
if(marks[i]<40)
gp[i]=0;
sum=(double)(credits[i]*gp[i])+sum;
a=a+credits[i];
}
sgpa=sum/a;
}
void display()
{
System.out.println("usn:"+usn+"  name:"+name);
for (int i=1;i<=n;i++)
System.out.println("marks:"+marks[i]+"  grade points:"+gp[i]);
System.out.println("sgpa:"+sgpa);
}
}
class Studentmain
{
public static void main(String[] args)
{
Student sc=new Student();
sc.accept();
sc.calculate();
sc.display();
}
}
```

```
Command Prompt                                                          —  □  ✕

C:\Users\Vidhu\Desktop\java>set path="C:\Program Files\Java\jdk1.8.0_261\bin"

C:\Users\Vidhu\Desktop\java>javac Studentmain.java

C:\Users\Vidhu\Desktop\java>java Studentmain
Enter the usn and name
1BM19CS196 Dyuthi
Enter number of subjects
5
Enter the credits and marks in each subject
Enter the credits and marks in subject 1
3 68
Enter the credits and marks in subject 2
4 88
Enter the credits and marks in subject 3
3 90
Enter the credits and marks in subject 4
3 79
Enter the credits and marks in subject 5
4 95
usn:1BM19CS196  name:Dyuthi
marks:68  grade points:7
marks:88  grade points:9
marks:90  grade points:10
marks:79  grade points:8
marks:95  grade points:10
sgpa:8.882352941176471

C:\Users\Vidhu\Desktop\java>
```