

## Algorithm

Step 1:

Start

Step 2: Declare the required variables

Step 3: Indicate the user to enter the coefficients of the quadratic equation by displaying suitable sentences using print() function.

+ Taking input from user

Step 4: Input a, b, c.

Step 5: if ( $D > 0$ )  $d = b^2 - 4 * a * c$ .Step 6: if ( $D > 0$ ) roots are real & distinct.  
roots are  $(-b + \sqrt{D}) / (2 * a)$  and  
 $(-b - \sqrt{D}) / (2 * a)$ .else ( $D = 0$ )print equal roots & Real.  
root is  $-b / (2 * a)$ 

else imaginary roots

roots are  $(-b + \sqrt{-D}) / (2 * a)$  and  
 $(-b - \sqrt{-D}) / (2 * a)$ .

Step 7: Stop

Code :-

```

import java.util.*;
import java.lang.*;
class Quadraticequation{
    public static void main(String args[]){
        Scanner in = new Scanner(System.in);
        double a, b, c, d, root1, root2;
        System.out.println("Enter A, B and C");
        a = in.nextDouble();
        b = in.nextDouble();
        c = in.nextDouble();
        d = b * b - 4 * a * c;
        if (d == 0)
            System.out.println("Roots Are Real & similar\nRoot is " + (-b) / (2 * a));
        if (d > 0)
            root1 = (-b + Math.sqrt(d)) / (2 * a);
            root2 = (-b - Math.sqrt(d)) / (2 * a);
            System.out.println("Roots are Real and distinct" + root1
                + " and " + root2);
        else
            root1 = -b / (2 * a);
            root2 = Math.sqrt(-d) / (2 * a);
            System.out.println("Root's are Imaginary" + root1 + " + "
                + root2 + "i and " + root1 + " - " + root2 + "i");
    }
}

```

Step 1 := start

Step 2 := Read number of subjects, user, Name, credit array  
marks of array from the user

Step 3 := If  $i=0$  if mark  $\leq 100$  & mark  $\geq 90$  return 10  
else if mark[i]  $\geq 80$  & mark[i]  $< 90$  return 9  
else if mark[i]  $\geq 70$  & mark[i]  $< 60$   
return 8

else if mark[i]  $\geq 60$  & mark[i]  $< 50$  return 7

else if mark[i]  $\geq 50$  & mark[i]  $< 40$  return 6

return "fail"

Step 4 := For  $i=0$  to  $n-1$   
if mark[i]  $\geq 0$   $c = \text{grade}(\text{mark}[i])$   
sum = credit[0] + credit[1] + ...  
sum =  $c * \text{credit}[i]$   
sgpa = sum / sum - credit[i]

Step 5 := print sgpa

```

import java.util.*;
public class lab 2
{
    int n;
    String usn;
    String name;
    int credit[];
    double mark[];
    public static void read()
    {
    }

```

```

Scanner sc = new Scanner (System.in)
System.out.println ("Enter the Number of subjects");
n = sc.nextInt();
credit = new Int [n];
mark = new Double [n];
System.out.println ("Enter the number of subjects");
name = sc.nextLine();
System.out.println ("Enter USN of the student");
usn = sc.nextLine();
System.out.println ("Enter the credits of the subject");
for (int i=0; i<n; i++)
{
    credit[i] = sc.nextInt();
}
System.out.println ("Enter the marks of corresponding
subject");
for (int i=0; i<n; i++)
{
    marks[i] = sc.nextDouble();
}
    }
```

public static int grade(double marks)

{ if (marks >= 90 && marks <= 100)

{

return 10;

{

if (marks >= 80 && marks <= 90)

{ return 9; }

if (marks >= 70 && marks <= 80)

{ return 8; }

if (marks >= 60 && marks <= 70)

{ return 7; }

if (marks >= 50 && marks <= 60)

{ return 6; }

if (marks >= 40 && marks <= 50)

{ return 5; }

else

{

System.out.println (" You have failed ");

return 0;

{

public static double calculate()

{

read();

double gpa;

double sum\_credits = 0;

double sum = 0;

int c;

```
for (int i=0; i<n; i++) {
```

```
    c = grade(mark[i]);  
    sum = credits += credit[i];  
    sum = sum + c * credit[i];
```

```
}  
sgpa = (double)(sum / sum - credits);  
return sgpa;
```

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

```
{  
    Scanner sc = new scanner (System.in);  
    double sgpa = calculate();  
    System.out.println ("Name of the student is " + name);  
    System.out.println ("SGPA of student is " + sgpa);  
}
```

~~expected output~~

## Algorithm

Step 1 : start , class book

Step 2 : take input from user for name, author, price and no of pages . using constructor

Step 3 : fasting

return " Name is : " + name + " Author " + author + " Price " + price +  
" no of pages " + no of pages

end class book

class fast

Step 4 : Book : ob [ ] = new book [ n ]

for i = 0

+ at input from user each object and its instance variable

Step 5 : for i = 0 to n

display ob [ i ]

Step 6 : end

## Code .

SONA ROOPA Page No.

Date

```
import java.util.*;  
public class lab 3 {  
    public static string name;  
    public static string author;  
    public static double price;  
    public static int no.of.page;  
    public static void (string args[]) {  
        Scanner sc = new Scanner (System.in);  
        int n;  
        System.out.println ("Enter the number of books");  
        n = sc.nextInt();  
        lab program3[] ob = new lab-program3[n];  
        for (int i=0; i<n; i++) {  
            System.out.println ("Enter the name of the book " + (i+1));  
            name = sc.next();  
            System.out.println ("Enter the name of author of book " + (i+1));  
            author = sc.next();  
            System.out.println ("Enter the number of pages in book " + (i+1));  
            no.of.page = sc.nextInt();  
            System.out.println ("Enter the price of the book " + (i+1));  
            price = sc.nextInt();  
            ob[i] = new lab-program3 (name, author, price, no.of.pages);  
        }  
        for (int i=0; i<n; i++) {  
            System.out.println ("Displaying the details of the book " + (i+1));  
        }  
    }  
}
```

```
system.out.println();
system.out.println[ab[i]);
```

{}

```
public class lab-program3
```

```
{ public String name;
```

```
public String author;
```

```
public double price;
```

```
public int no_of_pages;
```

```
public lab-program3(string n, string a, double pr, int pages)
```

```
{ name = n;
```

```
author = a;
```

```
price = pr;
```

```
no_of_pages = pages;
```

@override

```
public String toString()
```

```
{ return "Name of the book is: " + name + ", Author  
of the book is: " + author + "\n Cost of the book is: " +  
price + "\n number of pages in the book is: " + no_of_pages;
```

{}

{}

{}

```
abstract class shape {  
    double x;  
    double y;  
    shape (double x, double y) {  
        this.x = x;  
        this.y = y;  
    }  
}
```

```
abstract double printArea();  
}
```

```
class circle extends shape {  
    circle (double x, double y) {  
        super(x,y);  
    }  
}
```

```
double printArea () {  
    System.out.print ("Area of circle : ");  
    return (3.14 * x * x);  
}
```

```
class triangle extends shape {  
    triangle (double x, double y) {  
        super(x,y);  
    }  
}
```

```
double printArea () {  
    System.out.print ("Area of triangle : ");  
    return (x * y) / 2;  
}
```

```
class rectangle extends shape {
    rectangle(double x, double y) {
        super(x, y)
    }
}
```

```
    double printArea() {
        System.out.println("Area of rectangle: " + 3.14 * x * x);
    }
}
```

```
class shapeDemo {
    public static void main(String args[]) {
        circle c = new circle(10, 16);
        rectangle r = new rectangle(10, 20);
        triangle t = new triangle(12, 14);
        shape s;
        s = c;
        System.out.println("Area = " + c.printArea());
        s = r;
        System.out.println("Area = " + r.printArea());
        s = t;
        System.out.println("Area = " + t.printArea());
    }
}
```

```
import java.util.*;
class Bank {
    Scanner sc = new Scanner(System.in)
}
```

```
class account extends bank {
    int A_no;
    String A_name = new String();
    int A_acctype;
}

void getAccData() {
    System.out.println ("Enter the Account Name : ");
    A_name = sc.nextLine();
    System.out.println ("Enter the account type : "
        "(1. For saving account 2. current account) ");
}
```

```
A_acctype = sc.nextInt();
System.out.println ("Enter the Account Number : ");
A_no = sc.nextInt();
}
```

```
class sav_account extends account
```

```
{
    double a, ciinterest;
    int r, t;
```

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

```
void withdraw()
```

```
{
```

```
System.out.println ("Enter amount to be withdrawn");
```

```
double amtus = in.nextDouble();
```

```
if (amtus <= amount)
```

```
amount = amount - amtus;
```

```
else
```

```
System.out.println("You don't have enough money to withdraw");
```

```
void cmp_interest()
```

```
{ System.out.println("Enter the rate and time: "); }
```

```
r = in.nextInt();
```

```
t = in.nextInt();
```

```
a = amount * Math.pow(1 + (r * 0.01), t);
```

```
interest = a - amount;
```

```
}
```

```
void display()
```

```
super.display();
```

```
System.out.println("Compound interest after " + t + " year: " + interest);
```

```
System.out.println("Amount after " + t + " years: " + a);
```

```
}
```

```
import java.util.*;
```

```
class Current_acct extends account
```

```
{
```

```
double min = 5000;
```

```
void input()
```

```
{
```

```
super.input();
```

```
}
```

```
void service_charge()
```

```
{
```

```
if (amount < min)
```

```
amount = amount - 200;
```



b. cmp\_interest();

b. display();

{

else if(choice == 2)

{

current\_acc b = new Current\_acc();

b.type();

b.input();

b.deposit();

b.service\_charge();

b.display();

{

else

System.out.println("Invalid choice");

{

}

~~Output~~