## LAB 1

Develop a Java program that prints all real solutions to the quadratic equation ax2 + bx + c = 0. Read in a, b, c and use the quadratic formula. If the discriminate b2-4ac is negative, display a message stating that there are no real solutions.

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class	quad
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Arvinds-MacBook-Pro:ooj Arvind$ java quad
Enter the values of a,b,c for quad eqn in the form of ax^2+bx+c
where 'a' should be non zero
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-3
-10
roots are real and unequal
The solutions of quad eqns are 5,0000 and -2,0000
[Arvinds-MacBook-Pro:ooj Arvind$ java quad
Enter the values of a,b,c for quad eqn in the form of ax^2+bx+c
where 'a' should be non zero
1
There are no real roots
[Arvinds-MacBook-Pro:ooj Arvind$ java quad
Enter the values of a,b,c for quad eqn in the form of ax^2+bx+c where 'a' should be non zero
-4
1
roots are real and equal
The solutions of quad eqns are 0,5000 and 0,5000 Arvinds-MacBook-Pro:ooj Arvind$ ■
```

## **LAB 2:**

Develop a Java program to create a class Student with members usn, name, an array credits and an array marks. Include methods to accept and display details and a method to calculate SGPA of a student.

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MB 2 Cweek 4)
import jana util *;
class student
probe Aring uen name;
doubte credity (];
double maake [], Sgpa;
int size;
Scarner Sc = new Scanner CSystem. in);
Student()
System out printle ("Enter no of Subjecti");
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 marke = new marke [size]:
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                         Credit of Sub " + (i+1));
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    creditaj: sc. nent Doutie ():
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Sgpa = total/sum;

Class student!

public static used main C String args[]

Strout 8 = new student();

s accept();

s. cale();

s. display();

y
```

```
[Arvinds-MacBook-Pro:ooj Arvind$ javac Student.java
[Arvinds-MacBook-Pro:ooj Arvind$ java student1
Enter number of subjects
4
Enter the name of the student
aaa
enter usn of students
1bm19cs021
enter marks obtained and credits sub1
90
enter marks obtained and credits sub2
enter marks obtained and credits sub3
enter marks obtained and credits sub4
99
6
name:aaa
usn:1bm19cs021
----marks obtained--
sub 1: marks=90.0 ; credits=4; grade_points=40.0;
sub 2: marks=95.0 ; credits=4; grade_points=40.0;
sub 3: marks=97.0 ; credits=4; grade_points=40.0;
sub 4: marks=99.0 ; credits=6; grade_points=60.0;
sgpa:10,00
```

Create a class Book which contains four members: name, author, price, num\_pages. Include a constructor to set the values for the members. Include methods to set and get the details of the objects. Include a toString() method that could display the complete details of the book. Develop a Java program to create n book objects.

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	louble price;
ù	it numpages;
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	um page = sc.nextlntc).
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	thun ( "name of book: "f name + " \n author: " + and "In price: " + price + " In no of page: " + 1
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```
[Arvinds-MacBook-Pro:ooj Arvind$ java
enter the no of book details to be en
enter the name of the book 1
revolution2020
enter the author of book 1
chethan
enter the price of book 1
300
enter the num_pages of book 1
enter the name of the book 2
kiterunner
enter the author of book 2
khaled
enter the price of book 2
enter the num_pages of book 2
enter the name of the book 3
divergent
enter the author of book 3
veronica
enter the price of book 3
150
enter the num_pages of book 3
100
details of book 1
name of book: revolution2020
author: chethan
price: 300.0
no of pages: 300
details of book 2
name of book: kiterunner
author: khaled
price: 400.0
no of pages: 300
details of book 3
name of book: divergent
author: veronica
price: 150.0
no of pages: 100
Arvinds-MacBook-Pro:ooj Arvind$
```

Develop a Java program to create an abstract class named Shape that contains two integers and

an empty method named printArea(). Provide three classes named Rectangle, Triangle and Circle such that each one of the classes extends the class Shape. Each one of the classes contain

only the method printArea() that prints the area of the given shape.

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 rl = sc nextDouble ();
 Circle c = new Circle (21).
c printArea ();
56
```

```
Arvinds-MacBook-Pro:ooj Arvind$ java ShapeMain enter the base and height of triangle

2
5
area of triangle:5.0
enter the lenght and breadth of rectangle

3
6
area of Rectangle:18.0
enter the radius of circle

4
area of circle:50.24
Arvinds-MacBook-Pro:ooj Arvind$
```

Develop a Java program to create a class Bank that maintains two kinds of account for its customers, one called savings account and the other current account. The savings account provides compound interest and withdrawal facilities but no cheque book facility. The current account provides cheque book facility but no interest. Current account holders should also maintain a minimum balance and if the balance falls below this level, a service charge is imposed. Create a class Account that stores customer name, account number and type of account. From this derive the classes Curr-acct and Sav-acct to make them more specific to their requirements. Include the necessary methods in order to achieve the following tasks: • Accept deposit from customer and update the balance. • Display the balance. • Compute and deposit interest • Permit withdrawal and update the balance • Check for the minimum balance, impose penalty if necessary and update the balance

проз	e penalty if necessary and update the balance
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	Week 8 lab S
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	System. Out. printer (" Cheque book facility does not paint)
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_	public Static word main C. String arge (3)
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	Scannin Sc= New Scanner Csyleth dos;  System out Printle Cal. Curr Acet h2. Sawacet").  System out pointle C Enter your Choice");
	6 = sc. nextant();
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```
Arvinds-MacBook-Pro:ooj Arvind$ java Bank
1.curr_Acct
2.sav acct
enter the type
1
enter name
aaa
enter accno
1234
enter the balance
1000
1.deposit 2.withdrawal 3.exit
enter your choice
1
enter the deposit
100
balance got updated to:1100.0
1.deposit 2.withdrawal 3.exit
enter your choice
enter amt to be withdrawn
balance got updated to:400.0
a penalty of 100 is imposed
balance got updated to:300.0
1.deposit 2.withdrawal 3.exit
enter your choice
3
  -----DETAILS-----
name:aaa
accno:1234
type:curr_Acct
balance:300.0
cheque book facility exist
Arvinds-MacBook-Pro:ooj Arvind$
```

```
[Arvinds-MacBook-Pro:ooj Arvind$ java Bank
1.curr_Acct
2.sav acct
enter the type
enter name
aaa
enter accno
1234
enter the balance
1000
1.deposit 2.withdrawal 3.exit
enter your choice
1
enter the deposit
300
balance got updated to:1300.0
1.deposit 2.withdrawal 3.exit
enter your choice
enter amt to be withdrawn
balance got updated to:1200.0
1.deposit 2.withdrawal 3.exit
enter your choice
3
           --DETAILS---
name:aaa
accno:1234
type:sav_Acct
a rate of 4.5% is given for deposits in savings bank acc
enter the time duration for which interest to be calc
balance: 1254,000
cheque book does not facility exist
Arvinds-MacBook-Pro:ooj Arvind$
```