

```

1. import java.util.*;
class quadratic {
    public static void main (String args[])
    {
        Scanner in = new Scanner (System.in);
        System.out.println ("Enter the coefficients a, b, c : ");
        int a = in.nextInt();
        int b = in.nextInt();
        int c = in.nextInt();
        double dis = (b*b) - 4*a*c;
        if (dis < 0)
            System.out.println ("No real root present");
        else if (dis == 0)
            root1 = Math.pow (-b + dis) / 2*a, 0.5);
            root2 = Math.pow (-b - dis) / 2*a, 0.5);
            System.out.println ("The roots are real and equal
                                : "+root1);
        else {
            root1 = (-b + dis) / 2*a ;
            root2 = (-b - dis) / 2*a ;
            System.out.println ("The roots are : "+root1+" and"
                                +root2);
        }
    }
}

```

```
import java.util.*;  
class Player {  
    int id;  
    String name;  
    int n;  
    double avgScore;  
    double sum = 0.0;  
  
    Player() {  
        Scanner in = new Scanner (System.in);  
        System.out.println ("Enter no. of matches played by  
                           player: ");  
    }
```

```
n = in.nextInt();  
System.out.println ("Score scored in each match");  
double[] scores = new double[n];  
for (int i=0; i<n; i++) {  
    scores[i] = in.nextDouble();  
}  
}  
}  
double avgScore () {  
    double sum = 0.0;  
    for (int i=0; i<n; i++) {  
        sum += scores[i];  
    }  
    return sum/n;  
}
```

```
void display() {
    System.out.println("Details of the best player
among two");
    System.out.println("Name: " + name);
    System.out.println("id: " + id);
    System.out.println("No. of matches played: " + n);
    System.out.println("Score scored in every match");
    for (int i = 0; i < n; i++) {
        System.out.println(scores[i]);
    }
}
```

Class player {

```
    Public static void main (String args[]) {
        Player p1 = new Player();
        Player p2 = new Player();
        double avg1 = 0.0, avg2 = 0.0;
        avg1 = p1.avgScore();
        System.out.println("avg score of player 1: " + avg1);
        avg2 = p2.avgScore();
        System.out.println("avg score of player 2: " + avg2);
    }
}
```

if (avg1 > avg2) {

System.out.println ("average of player 1 is
greater: ");

p1.display();

}

else

{

System.out.println ("Avg of player 2 is greater

p2.display();

}

}

}

```
PS C:\Windows\system32> cd D:\java_programs
PS D:\java_programs> javac quadratic.java
PS D:\java_programs> java quadratic
Enter three numbers:
2
6
3
The roots are: 6.0 and -18.0
PS D:\java_programs>
```

```
PS D:\java_programs> java avgScore
Enter name and id of player 1:
Prateek
1
Enter the number of matches played by player1:
} 3
Enter score of match 0:
do 52
or(Enter score of match 1:
45
Enter score of match 2:
64
Enter the name and id of player 2:
Pranav
2
Enter the number of matches played by player2:
3
Enter score of match 0:
45
Sy Enter score of match 1:
if 60
Enter score of match 2:
30
Sy Average of player 1 is: 53.666666666666664
average of player 2 is: 45.0
id: 1
} name: Prateek
} player 1 average is more
el PS D:\java_programs>
```

```
import java.util.*;  
class book {  
    string name;  
    string author;  
    double price;  
    int num_pages;  
  
    book(string name, string author, double price, int  
          num_pages)  
{
```

```
    this.name = name;  
    this.author = author;  
    this.price = price;  
    this.num_pages = num_pages;  
}
```

```
void display() {
```

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

```
    System.out.println("Enter name of book: ");
```

```
    name = in.nextLine();
```

```
    System.out.println("Enter author of book: ");
```

```
    author = author in.nextLine();
```

```
    System.out.println("Enter price: ");
```

```
    price = in.nextDouble();
```

```
    System.out.println("Enter pages: ");
```

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

```
}
```

String Public String toString()

return ("Name: " + name + "Author: " + author + "Price: "
+ price + "No. of pages: " + num_pages);

class books {

public static void main(String args[]){

Scanner a = new Scanner (System.in)

System.out.println("Enter no. of books: ");

int n = a.nextInt();

book arr[] = new book[n];
for(int i=0; i<n; i++){

~~Note~~ arr[i] = new book();

System.out.println("Enter the details of " + (i+1) + " book");

arr[i].display();

}
for(int i=0; i<n; i++) .

{
System.out.println(arr[i]);

}

}

}

```
PS D:\java_programs> javac books.java
PS D:\java_programs> java books
Enter the number of books:
2
Enter the details of 1 book
Enter name of book:
theultimatelife
Enter author of book:
karnigie
Enter price of book:
450
Enter number of pages of book:
500
Enter the details of 2 book
Enter name of book:
thinkandgrowrich
Enter author of book:
nlpaleonthill
```

Enter author of book:

napoleonhill

Enter price of book:

500

Enter number of pages of book:

500

Details of book 1

Name: theultimatelife

Author: karnigie

Price: 450.0

Number of pages: 500

Details of book 2

Name: thinkandgrowrich

Author: napoleonhill

Price: 500.0

Number of pages: 600

PS D:\java_programs> 

class that
class ^{Shape} figure {.

int i, j;

shape figure (int i, int j) {.

this.i = i;

this.j = j;

shape (int x) {.

this.x = x;

shape.

Class Rectangle extends figure {.

rectangle (int a, int b) {

super(~~a~~, ~~b~~);

}

void printarea () { .

double area = i * j;

System.out.println (" Area of rectangle : " + area);

}

.

Class triangle extends shape () {.

triangle (int a, int b) {

super(a, b);

}

```
void printarea () {  
    double area = i * j / 2;  
    System.out.println ("Area of triangle : " + area);  
}
```

3.

3.

```
class circle extends shape {
```

```
    circle (int a) {
```

```
        super (a);
```

3.

```
void printarea () {
```

```
    double area = 3.14 * a * a;
```

```
    System.out.println ("Area of circle: " + area);
```

}

3.

```
class Main {
```

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

```
        shape s = new shape();
```

```
        rectangle rec = new rectangle (5, 7);
```

```
        triangle tri = new triangle (3, 2);
```

```
        circle cir = new circle (2);
```

```
        shape g;
```

```
        g = rec;
```

```
        g.printarea ();
```

```
        g = tri;
```

```
        g.printarea ();
```

```
        g = cir; g.printarea ();
```

3.

```
-----  
prateekghanti@Prateeks-MBP practice_programs % cd /Volumes/A/java_programs/  
[prateekghanti@Prateeks-MBP java_programs % javac lab4_abstract.java  
prateekghanti@Prateeks-MBP java_programs % java lab4_abstract  
Area of rectangle is: 35.0  
Area of triabgle is: 15.0  
Area of circle is: 12.56  
prateekghanti@Prateeks-MBP java_programs %
```

LAB 4.

Q develop a java program to create a class bank that maintains two kinds of accounts for its customers, one savings account and current account. The savings account provides compound interest and withdrawal facilities but no check book facility. The current account provides checkbook 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 no. and type of account from this derive the classes cur-account and sav-account 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 comp. and deposit interest. Permit withdrawal and update bal. Fine imposition.

```
class account {  
    string cus-name;  
    int acc-num;  
    string acc-type;  
    account(string cus-name, int acc-num, string acc-type);
```

this. cus-name = cus-name;

this. acc-num = acc-num;

this. acc-type = acc-type;

};

void display () {

System.out.println ("Details of the customer are:
" + cus-name + acc-num + acc-type);

}

class curr-account extends account {

int amt;

int balance;

curr-account (string cus-name, int acc-num,
string acc-type)

super (cus-name, acc-num, acc-type);

};

```
void display() {
    Scanner in = new Scanner (System.in);
    System.out.println("Checkbook facility available");
    System.out.print("Enter initial amt: ");
    balance = in.nextInt();
    System.out.print("Press 1 for withdrawal\n"
                    "2 for deposit ");
    int choice = in.nextInt();
    if (choice == 1) {
        System.out.print("Enter amount to be withdrawn ");
        amt = in.nextInt();
        System.out.print("Withdrawal of " + amt + " was successful");
        balance = balance - amt;
        System.out.print("Remaining balance: " + balance);
    } else if (choice == 2) {
        System.out.print("Enter the amount to be added: ");
        amt = in.nextInt();
        balance = balance + amt;
    }
}
```

```
System.out.println("Amount added "+amt+" added successfully");  
balance = balance + amt;
```

```
System.out.println("Remaining balance : "+balance);
```

2.

```
if (balance < 1000) {
```

```
balance = balance - 100;
```

```
System.out.println("Service charge of Rs 100
```

```
is imposed in remaining balance : "+balance);
```

3.

```
double interest = (balance * 1 * 5) / 100;
```

```
System.out.println("Interest for 1 year is : "+interest);
```

4.

```
class Main {
```

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

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

```
for (;;) {
```

```
System.out.println("Enter customer name : ");
```

```
String name = in.nextLine();
```

```
System.out.println("Enter account type : ");
```

```
String type = in.nextLine();
```

```
System.out.println ("Enter account number");
int num = in.nextInt();
account acc = new account (name, num, type);
curr_account = new curr_account (name, num, type);
sav_account sav = new sav_account (name, num, type);

account ac;
ac.display();
if (type.equals ("current")) {
    ac = curr;
    ac.display();
}
else if (type.equals ("savings")) {
    ac = sav;
    ac.display();
}
}
```

x | Workshop/ Training on Internet x | Installation of required IDE for x | S lab exercise 5 output.png

prateekghanti@Prateeks-MBP java_programs % javac lab4_bank.java
prateekghanti@Prateeks-MBP java_programs % java lab4_bank
Enter customer name:
prateek
Enter the account type:
savings
Enter account number:
12324
Details of the customer are:
prateek12324savings
Checkbook facility not available
Enter initial amount:
1000
press 1 for withdrawal
press 2 for deposit
1
Enter the amount to be withdrawn:
500
withdrawal of amount 500 was successful
Remaining balance: 500
Service charge of Rs. 100 is imposed
remaining balance: 400
The interest for 1 year is: 20.0
Enter customer name:
Enter the account type:
current
Enter account number:
12344
Details of the customer are:
12344current
Checkbook facility available
Enter initial amount:
2000
press 1 for withdrawal
press 2 for deposit
2
Enter the amount to be added:
30000
Amount 30000 added successfully
Remaning balance: 32000