LAB RECORD

OOJ LAB

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1BM19CS081

LAB 1-

Develop a Java program that prints all the real solutions to the quadratic equations ax^2+bx+c . Read in a,b,c and use the quadratic formula. If the discriminate b^2-4ac is negative display a message stating that there are no real solutions.

	Date 29-9-2020
()-	Page
	Manika Phosad Sec-B IBM19CSO81
WEEK 3:	
IP#1	Develop a Java program that prints all real solutions to the quadratic
11-41	equations ax2+ bx+c = 0. Read in a,b,c and use the quadratic
	formula. If the discriminate b2- Aac is negative, display a message stating
	that there are no neal solutions.
-1.26.84	mut ware we no had sometime
	0.4.507414
SIEPI	ALGORITHM: Start
Step2	Input the value of a, b, c
Step 3	Calulate D=(h+b-(4+a+c))
Step 64	14 (d>0) (Amount allow the act of a
	Display mots an real, calculate the mots = 81 = (-b+ JD) (2+0)
	and $n = (-b-JD)/(2+a)$
	else if (d=0)
	Display mots are equal, calculate the nots => Y1 = Y2 = -b/(2+a)
	else Display 'there are no High roots'-
Step 45	Print ri and rz
Step 6	Stop (Constitution and Annual
	(10+c)(M) (10+c) (10) (10+c)
	PROGRAM:
	import java Jos Mains
	public dano Maina
	1 S
	public static void main (string [] angs) {
-(1	Stanner in = new Stanner (System in);

Po	ge
Consumat a siz dioposis estant	1
An Javo namen Park in the	Aunt Lund
int a, b, c;	
double r1, r2, d;	Tributal .
charch; midpost at sold - d stronghouth and it are	SECTION 1
System out println ("Solution of Quadratic equation - a	x^2+62+6");
do	
* MHTIRON	N/A
System.out.pmn+ln ("Inentera:");	DA DA
a=in.nextIn+();	and it can
System.out.println ("menturb: ");	11 190
(a) b=in-next/nt(); 6 411111111111111111111111111111111111	1
System.out.printin("entric: ");	
c=in.nextInt();	92.99
d=((b+b)-(4+a+c));	
if (d>0) State with an arm with amount of	214
E TY from 18 - Ini	NO SE PA
n = (1-b + Math. sqrt (d))/(2+a));	42 / 340
$\mathcal{D} = ((-b - Math - sq, \gamma + (d))/(2 + a)),$	
System-out-printin ("nots are - \n"+ "n = "+n+"\n'-	+ " 82 = "
+82);	vii iii
mont your sections Many	m
else if (d == 0)	10
2	3
$y = (-b/(2*a)), \qquad (1)$	
System.out. printin ("houts an equal-\n"+ ">1-12=	+81);

TIME	Classa Date Page	nate
with	3 have noticed that all records to the contract to the contrac	100
10110 b	else mala a same	40
	§	
	System. out. println ("there are no real roots");	
	3 maistrealths come there	
	System. out-println ("In"+"do you want to find another	set of noots?
	y(n?); Constitution box son son side	
	ch=in·next() charat(0);	
	3	
	while (ch == 'y');	
FN	Success out printed " Falle a ")	
	} ()+ play you, play you	3
	as = new inclus;	
	per (int i = 0 - 1 co - 1 + +)	
	3	
	Summer and company ("Enter as ["HITT") -	
	m to I acid a recently of the latest to the	
	1 (+11 ; 1/2) est mil mil	
	Con-Confett	
	CONTRACTOR OF THE PARTY OF THE	
	Citiga - Vino	

```
Solution of Quadratic equation— ax^2+bx+c

enter a:
2
enter b:
13
enter c:
4
roots are—
r1= -0.3238250223200936
r2= -6.176174977679906

do you want to find another set of roots? y/n?
y

enter a:
6
enter b:
12
enter c:
6
roots are equal—
r1=r2= -1.0

do you want to find another set of roots? y/n?
y
enter a:
1
```

```
r2= -6.176174977679906

do you want to find another set of roots? y/n?
y

enter a:
6
enter b:
12
enter c:
6
roots are equal-
r1=r2= -1.0

do you want to find another set of roots? y/n?
y

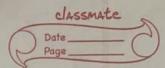
enter a:
1
enter b:
2
enter c:
3
there are no real roots
do you want to find another set of roots? y/n?
n

...Program finished with exit code 0
Press ENTER to exit console.
```

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.

WEEK 4:	6/10/2020
	Develop a Java program to create a class Student with members
	usn, name, an away credits and an array manks Incude
	methods to accept and display details and a method to
	calculate SCAPA of a student.
	Sugarminest grantely C' an attraction ")
	import java util-Scannu;
	clapo Student
	Eleption to the control of the same to the top to the same and
COMPANIES.	private String susn;
A last	private String sname;
	private int swedit [];
	private int Smorks[];



```
void getDetails()
 System. out. printin ("enter student details:");
 Scannes in = new Scannes (System in);
swedit = new int[5];
 smarks = new int [5];
Susn = in next();
Sname = in-next();
 for (int i=0; i<5; i++) {
 System-out printin ("cudit for sub '+ (i+1)+":");
 sundit[i] = in.nexHn+();
 for tint i=0; i<5; i++) {
System out println ("marks for sub "+(i+1)+":");
smares (i) = in.next(n+C);
 void print Details ()
System. out. pmnHn ("USN: "+ SUSN);
System. out println ("Name: "+ sname);
for (int i=0; i<5; i++) {
System out-print (" enedits for sub "+ (i+1)+":");
System.out.printin ( scredit[i]); }
```

	for lint i=0; i<5; i++) {
	System out print ("marks for sub"+ (i+1) +":");
	System out printin (smarks [1]); }
	Yoid Sgpa() {
	int sum = 0, sum 2 = 0;
	double g =0; leading ?
	double sapa;
	for (int i=0; i<5; i++) {
	1 (smarks [i] >=90) {
	g=10; }
	else if (smarks (i) > = 80 & smarks (i) < 90)
	Eg=9;}
	else if (smarks[i] >=70 & smarks[i] (80) {
3.	9=8: }
	else if (smarks (i) > = 60 & smarks (i) < 70) } 9 = 7; 3
	else if (smarks li]>=50 & smarks [i] < 60) { g-6:3
	pleo is Commission 2=40 10
	else if (smouks (i) >=40 18 smouks (i) <50) {
	else 14 (smars [i] < 10) {
	g=0;
	30
	The state of the s

```
8um + = g + swedit [i];
 sum 2+ = susedit [i];
Sgpa = sum/sum 2;
System out print ("SUPA of student: ");
System. out. pinth (sgpa);
     DEP MODERN DESCRIPTION OF THE
     the it symmet 230 st empile 650 mag.
 public class Main
   2-0 03 STEMP 2500 COURTER (60 0-6
Public Static void main (string SS [])
         ctse 16 smaxx 4 10, a=0
 Student si = new Studentl);
S1. getDetails();
                                Step 5 "
 S1- print Details ();
 SI. Sgpa ();
```

- Q=	Page C
	Algorithm:
Step1:	Start
Step 2:	Input student details i.e. usn, name, usedits and marks(g
	each of 5 subjects in 2 different arrays) in anymous
Step3:	Display the student details in mois messed
Step 4:	4 Smarks > 20, g = 10
	eyeif smany = 80 se smarts < 90, 9=9
	else if smarks 570 && smarks < 80, g = 8
	else if smarks \$0 se smarks < 70, 9=7
	erse if smarrs >= 50 22 smarrs < 60, 9=6
	else if smarts >= to be smalls < 50, g= 4
	else if smarks < 10, g=0
	Out value of g and calculate sum of (g + credits) (sum)
Step 5:	Calculate sypox Cret to sum of credits (sum 2)
Step 6:	Calulate sgpa = & sum sum 2
Step 7:	Print sgpa of student in miles wellings.
Step 8:	Stop
	MANUFACTURE PARTY OF THE PARTY
	with the same of t

```
onter student details:
ibm19cs001
nal.
credit for sub 1:
credit for sub 2:
credit for sub 3:
credit for sub 4:
credit for sub 5:
marks for sub 1:
marks for sub 2:
marks for sub 3:
30
marks for sub 4:
40
marks for sub 5:
USN: ibm19cs081
Name: mal
credits for sub 1:1
credits for sub 2:2
 redits for sub 3:3
```

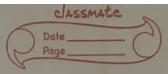
```
arks for sub 1:
marks for sub 2:
marks for sub 3:
marks for sub 4:
 arks for sub 5:
ISN: 1hm19cs081
Name: mal
credits for sub 1:1
credits for sub 2:2
oredits for sub 3:3
credits for sub 4:4
credits for sub 5:5
marks for sub 1:10
marks for sub 2:20
marks for sub 3:30
marks for sub 4:40
marks for sub 5:50
GPA of student: 3.0
...Program finished with exit code U
Press ENTER to exit consols.
```

```
v / 3
enter student details:
1bm19ca790
son.
credit for sub 1:
credit for sub 2:
credit for sub 3:
credit for sub 4:
credit for sub 5:
marks for sub 1:
marks for sub 2:
sarks for sub 3:
marks for sub 4:
marks for sub 5:
USN: 1bm19cs790
Name: sam
credits for sub 1:4
credits for sub 2:5
credits for sub 3:4
```

LAB 3-

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.

	() sweet	1929
LP#3	import jour a-util. Scanner;	
	Uasa Book !	
	Smig name;	
	String author;	
-	Hout price;	
	int num_pages;	
	A STATE OF THE STA	
	Book () }	
	this name > "";	
	this cuthor = "";	
	this price = 0+;	
	this-num-pages = 0;	
	}	
		1
	BOOK (string name, string author, bleat price, int num-po	iges)
	tnis nume = name;	
	this couthor = outhor,	
	this price = price;	
	this num-pages - num-pages;	
	}	
	void get-details(){	
	Sunner 5 - new Scanner (system in);	



```
name = s. nextline ();
System-out-println ("Enter the author:");
author - s. nextline ();
System-out-printin ("Enter price of the book: ");
price - s.nex+Float();
System out printin ("Enter number of pages of the book :");
num_pages = 8. nex+In+();
void set-details (string n, string a, float p, int np) {
 this name = n
 this author = a;
  this price = p;
 this.num : pages = np;
 public String to String () {
 neturn ("Name = "+ name +" \n Author = "+ author + "\n Price = "+
 price + " In Number of pages = " + num-pages + " In");
class Main {
public static void main (string angs[]) {
```

```
int n;
Scanner 5 = new Scanner (System. in);
System. out printin ("Enter number of books:");
n = S. nextInt();
 BOOK []b = new Book [n];
 for (int-i=0; ixn; i++) {
 b[i]=new Book ();
  b[i]:get_details();
for (int-i=0; i<n; i++) {
  System. out. pinntin ("Details of the book" + (i+1) + ":").
 System-out-printly (b[i]);
 BOOK bool - new BOOKL);
  bool-set-details ("The sorry world", "Kenny", 300, 400),
 System.out. println (" Details of the book :");
 System.out. printin (bool)
```

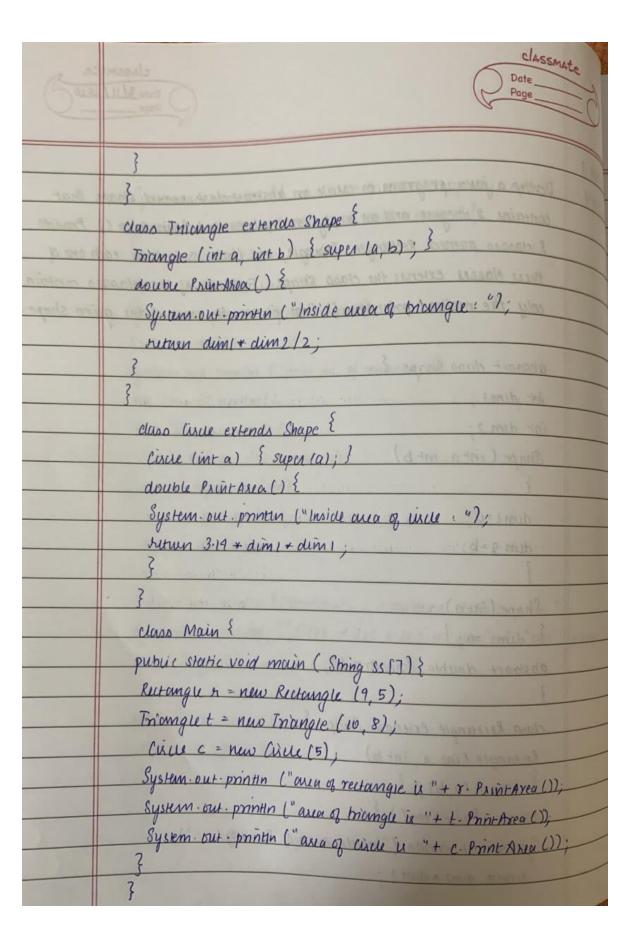
```
input
Enter the name of the book:
harrypotter
Enter the author :
jkr
Enter the price of the book: 333
Enter the number of pages of the book:
234
Enter the name of the book:
divergent
Enter the author :
vr
Enter the price of the book:
444
Enter the number of pages of the book:
Details of the book1:
Name=harrypotter
Author=jkr
Price=333.0
Number of pages=234
Details of the book2:
Name=divergent
Author=vr
Price=444.0
Number of pages=312
```

```
Enter the author :
Enter the price of the book:
444
Enter the number of pages of the book:
312
Details of the book1:
Name=harrypotter
Author=jkr
Price=333.0
Number of pages=234
Details of the book2:
Name=divergent
Author=vr
Price=444.0
Number of pages=312
Details of the book:
Name=The wrld
Author=Kenny
Price=300.0
Number of pages=400
...Program finished with exit code 0
Press ENTER to exit console.
                                                     Document1 - Microsoft Word
```

LAB 4-

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.

5	Classmate Date 3/11/2010 Page
WEEK 8 LP#4:	Develop a java program to chak an abstract class named shape that
	3 classes named Rectangle, Triangle, and Circle Such that each one of
	only the method print Area () that prints the area of the given shape.
	abstract class shape {
	int dim 1;
	int dim 2;
	Shape (inta, intb)
	A L Van A va
	dim 1 = a; dim 2 = b; }
	Shape (inta)
	{ dim = a; }
	abstract double Print-Arrea(); }
	class Rectangle extends Shape &
	Rectangle (int a int b)
	{ super (a, b); }
	double PrintAreal) {
	System out printer ("Inside area of Rectangle: ");
	return dim1 * dim 2;



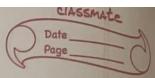
```
Inside area of rectangle:
area of rectangle is 45.0
Inside area of triangle:
area of triangle is 40.0
Inside area of circle:
area of circlr is 78.5

...Program finished with exit code 0
Press ENTER to exit console.
```

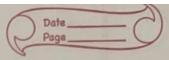
LAB 5-

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

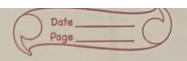
0=	Classmate Date 11/3/2020 Page
LP#5:	Develop a program to wate a class Bank that maintains 2 kinds of account for its customers, one called savings account and the other
	and with an awal facilities but no eneque book facilities. The current
	holders should also maintain a minimum of balance and if the
	Create a class Account that stores untominame, account number 1 type of account. From this derive the classes Cum-acct and
	San-acet to make-them more specific to their requirements. Indude the newscary methods in order to achieve the following
	• Display the balance • Compute and deposit interest • Permit
	balance, impose penalty if necessary and update the balance
	elass Account {
	int aceno;
	Scanner ss = new Scanner (Systemin);



020	Date Page
inds	System. out. printin ("Enter name, account type number and type
Bac	,
LENE	name = ss. nex+();
e (115	accno = ss.nextln+C);
000	type = ss-nex+();
17.	holder should also maintain a soundmen at bolo Ere ar
	but and farm helper thin level a service change is impresed
MUN.	class cun acut extends Account {
0112	float dep, wit;
2453.9	Sau-act to make them was society to their require
allal	void deposi+() {
188	Scanner ss = new Scanner (System-in);
	System.out.pnntln ("Enter amount to be deposited: ");
	dip = ss. nex+in+();
	and subul = bal + alp; when it were a sound sunded
	System out printin ("updated balance after deposit : "+bal);
	PARTITION TO COMPANY THE PARTITION OF TH
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	Void withdraw () {
	Scanner ss = new Scanner (system.in);
	System.out-printer ("enter amount to be withdrawn");
	wit = ss.nexHn+(); bal = bal - wit;
	System. out printin ("Updated balance after withdrawal "+bal):



	(Frage)
? "((exal (((n = na)))) s	Month Care - Clineal Mon
void penalty () {	to a torquited
if (bal < 500)	Marie has married
{	
bal = bal-pen;	
Susum - out - println (" Updated bal	cance after imposing pencuty: "+ bo
}	N Suran X August 1
else same at a some of the	Latterior ma constant
System out printin L" No penalty	imposed balance: "+bal);
}	tro-tro ind
no delica interes examined traducally a	HINDO-109 MAYOUR
class san acit extends Account	
float dep, wit, r, t, n, ii'	Alana Romes
100 100 100 100 100 100 100 100 100 100	and some chara word on
void deposite {) {	
Scanner SS = new Scanner (System	
System out printin ("enter am	ount to be deposited : ");
dep = ss. next(n+c);	
	ke 1. time in years and number
of times interest is compounded	
n = ss. nex+n+();	Laurence by research
t = ss. nexHu+L);	I whose an exami
n = SS. nextin+();	



```
System. out-printin ("1. deposit with compound interest in 2-with-
 draw In 3. exit (n");
 System-out-printer ("enter choice");
 ch = ss. nextent ():
 switch (cn)
 case 1 : 8 · deposite(); break
 case 2: S. withdrawc (); break;
 case 3: break;
 3 while (ch! = 3);
 ît lopt == 2) {
 System-out-printle ("**** CURRENT ACCOUNT *** ");
System. out. println (" chequebook services available _ ");
 cum_acct c = new cum_acct();
System. out. printer ("1. deposit In 2. withdraw In 3. check minim-
um balance / penalty \n4. exit \n"),
 System out . printle ("enter choice ");
 ch = ss. nextint();
```

2-	
	A Company of all birth the combine
100 . 0	switch (cn)
	{
	case 1: c- diposit (); break;
	and 2: (Initiadiano (): break;
	case 3: c-penalty (); break;
	PARTICIAN DE ANT
	3 (while ch! = 4);
	}
	3 mond (Definingshiel of a gare
	3 Spride () Simple desired & C asses
	Afterd & spread or
	AMILIA DE ADIANTE
	f minite tent = 3)
	5
	1 (apr == 2) f
-	Curtano auto ininta l' +++ tresser Avour ++++ "];
("	Suspens and mainted C manufacts arregue markedon
	TANKS AND THE STATE OF THE STAT
Civillian A	Comments of Assess ("I suppose the sufficience by a rise
	Can the particularly many and
	Caninana Yanka mara
	(White Plans

Savings:

```
choose type of account:
1.savings account
2.current account
****SAVINGS ACCOUNT****
 no chequebook services available
Enter name, account no. and type of account:
mal 123 savings
1.deposit with compound interest
2.withdraw
3.exit
enter choice
enter amount to be deposited:
5000
enter rate%, time in years and number of times interest is compunded per year:
Updated balance after computing CI: 8235.103
enter choice
enter amount to be withdrawn:
7000
Updated balance after withdrawal: 1235.1025
enter choice
enter amount to be deposited:
enter rate%, time in years and number of times interest is compunded per year:
4 8 11
```

```
Enter name, account no. and type of account:
mal 123 savings
1.deposit with compound interest
2.withdraw
3.exit
enter choice
enter amount to be deposited:
5000
enter rate%, time in years and number of times interest is compunded per year:
Updated balance after computing CI: 8235.103
enter choice
enter amount to be withdrawn:
Updated balance after withdrawal: 1235.1025
enter choice
enter amount to be deposited:
100
enter rate%, time in years and number of times interest is compunded per year:
4 8 11
Updated balance after computing CI: 1372.7354
enter choice
 ..Program finished with exit code 0
Press ENTER to exit console.
```

Current:

```
choose type of account:
1.savings account
current account
****CURRENT ACCOUNT****
    _chequebook services available_
Enter name, account no. and type of account:
mal 1234 current
1.deposit
2.withdraw
3.check minimum balance/penalty
4.exit
enter choice
Enter amount to be deposited:
updated balance after deposit: 2000.0
enter choice
enter amount to be withdrawn:
1400
Updated balance after withdrawal: 600.0
enter choice
No penalty imposed, balance:600.0
enter choice
enter amount to be withdrawn:
```

```
Updated balance after withdrawal: 600.0
enter choice
No penalty imposed, balance:600.0
enter choice
enter amount to be withdrawn:
200
Updated balance after withdrawal: 400.0
enter choice
Updated balace after imposing penalty: 300.0
enter choice
Enter amount to be deposited:
500
updated balance after deposit: 800.0
enter choice
enter amount to be withdrawn:
100
Updated balance after withdrawal: 700.0
enter choice
No penalty imposed, balance:700.0
enter choice
 ..Program finished with exit code 0
Press ENTER to exit console.
```