SE ASSIGNMENT:

Version 1.0:

Basic program for implementing quadratic equation.

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a=5, b=20, c=10

d= (b\*b)-(4\*a\*c)

r1= (((-b)+sqrt (d))/(2\*a))

r2= (((-b)-sqrt(d))/(2\*a))

print ("the roots are: %f and %f" %(r1,r2))

Version 1.1:

Modified program of Version 1.0 as to know real roots and imaginary roots

a=1, b=4, c=5

d= (b\*b)-(4\*a\*c)

if (d>0):

print ("roots are real")

r1= (((-b)+sqrt(d))/(2\*a))

r2= (((-b)-sqrt(d))/(2\*a))

print ("the roots are: %f and %f" %(r1,r2))

elif(d<0):

print ("roots are imaginary")

r1=r2=(-b/(2\*a))

r=(sqrt(-d))/(2\*a)

print ("r1= %.2f + %.2f i and r2= %.2f - %.2f i"%(r1,r,r2,r))

Version 1.2:

Modified program of Version 1.1 to further know that the real roots are equal or distinct

a=1, b=2, c=1

d= (b\*b)-(4\*a\*c)

if (d>0):

print("roots are real and distinct")

r1=(((-b)+sqrt(d))/(2\*a))

r2=(((-b)-sqrt(d))/(2\*a))

print("the roots are: %f and %f" %(r1,r2))

elif(d<0):

print("roots are imaginary")

r1=r2=(-b/(2\*a))

r= (sqrt(-d))/(2\*a)

print("r1= %.2f + %.2f i and r2= %.2f - %.2f i"%(r1,r,r2,r))

else:

print("roots are equal")

r1=r2=(-b/(2\*a))

print("r1= %.2f and r2= %.2f "%(r1,r2))

Version 1.3:

Modified program of Version 1.2 to specify divide by zero error if the divisor part is equals to zero

a=0, b=2, c=1

d=(b\*b)-(4\*a\*c)

if(a==0):

print("divide by zero error")

else:

if(d>0):

print("roots are real")

r1=(((-b)+sqrt(d))/(2\*a))

r2=(((-b)-sqrt(d))/(2\*a))

print("the roots are: %f and %f" %(r1,r2))

elif(d<0):

print("roots are imaginary")

r1=r2=(-b/(2\*a))

r=(sqrt(-d))/(2\*a)

print("r1= %.2f + %.2f i and r2= %.2f - %.2f i"%(r1,r,r2,r))

else:

print("roots are equal")

r1=r2=(-b/(2\*a))

print("r1= %.2f and r2= %.2f "%(r1,r2))

Version 1.4:

Modified program of Version 1.3 to accept inputs from user either as integer or floating point.

print("enter the values of a,b,c")

a=b=c=float(input())

d=(b\*b)-(4\*a\*c)

if(a==0):

print("divide by zero error")

else:

if(d>0):

print("roots are real")

r1=(((-b)+sqrt(d))/(2\*a))

r2=(((-b)-sqrt(d))/(2\*a))

print("the roots are: %f and %f" %(r1,r2))

elif(d<0):

print("roots are imaginary")

r1=r2=(-b/(2\*a))

x=(sqrt(-d))/(2\*a)

print("r1= %.2f + %.2f i and r2= %.2f - %.2f i"%(r1,x,r2,x))

else:

print("roots are equal")

r1=r2=(-b/(2\*a))

print("r1= %.2f and r2= %.2f "%(r1,r2))