**LAB 4 Evaluation Programs:**

1. Develop a C program to find all possible roots of a quadratic equation.

#include <math.h>

#include <stdio.h>

int main() {

double a, b, c, discriminant, root1, root2, realPart, imagPart;

printf("Enter coefficients a, b and c: ");

scanf("%lf %lf %lf", &a, &b, &c);

discriminant = b \* b - 4 \* a \* c;

if (discriminant > 0) {

root1 = (-b + sqrt(discriminant)) / (2 \* a);

root2 = (-b - sqrt(discriminant)) / (2 \* a);

printf("root1 = %.2lf and root2 = %.2lf", root1, root2);

}

else if (discriminant == 0) {

root1 = root2 = -b / (2 \* a);

printf("root1 = root2 = %.2lf;", root1);

}

else {

realPart = -b / (2 \* a);

imagPart = sqrt(-discriminant) / (2 \* a);

printf("root1 = %.2lf+%.2lfi and root2 = %.2f-%.2fi", realPart, imagPart, realPart, imagPart);

}

return 0;

}

Case 1: Output for **real and equal**



Case 2: Output for **real and unequal**



Case 3: Output for **real and imaginary**



1. Illustrate conditional branching statements to find the smallest of three numbers.

#include<stdio.h>

int main()

{

int num1,num2,num3;

printf("Enter three numbers:");

scanf("%d %d %d",&num1,&num2,&num3);

if(num1 < num2 && num1 < num3)

{

printf("%d is smallest",num1);

}

else if(num2 < num3)

{

printf("%d is smallest",num2);

}

else

{

printf("%d is smallest",num3);

}

return 0;

}

Case 1: **First number** is smallest



Case 2: **Middle number** is smallest



Case 3: **Last number** is smallest

