**Practical 2**

**Write a program to find the roots of a quadratic equation and perform boundary value analysis.**

**Code:**

#include <bits/stdc++.h>

using namespace std;

void nature\_of\_roots(int a, int b, int c)

{

if (a == 0) {

cout << "Not a Quadratic Equation" << endl;

return;

}

int D = b \* b - 4 \* a \* c;

if (D > 0) {

cout << "Real Roots" << endl;

}

else if (D == 0) {

cout << "Equal Roots" << endl;

}

else {

cout << "Imaginary Roots" << endl;

}

}

void checkForAllTestCase() {

cout << "Testcase" << "\ta\tb\tc\tActual Output" << endl;

cout << endl;

int a, b, c;

int testcase = 1;

while (testcase <= 13) {

if (testcase == 1) {

a = 0;

b = 50;

c = 50;

}

else if (testcase == 2) {

a = 1;

b = 50;

c = 50;

}

else if (testcase == 3) {

a = 50;

b = 50;

c = 50;

}

else if (testcase == 4) {

a = 99;

b = 50;

c = 50;

}

else if (testcase == 5) {

a = 100;

b = 50;

c = 50;

}

else if (testcase == 6) {

a = 50;

b = 0;

c = 50;

}

else if (testcase == 7) {

a = 50;

b = 1;

c = 50;

}

else if (testcase == 8) {

a = 50;

b = 99;

c = 50;

}

else if (testcase == 9) {

a = 50;

b = 100;

c = 50;

}

else if (testcase == 10) {

a = 50;

b = 50;

c = 0;

}

else if (testcase == 11) {

a = 50;

b = 50;

c = 1;

}

else if (testcase == 12) {

a = 50;

b = 50;

c = 99;

}

else if (testcase == 13) {

a = 50;

b = 50;

c = 100;

}

cout << "\t" << testcase << "\t" << a << "\t" << b << "\t" << c << "\t";

nature\_of\_roots(a, b, c);

cout << endl;

testcase++;

}

}

int main()

{

checkForAllTestCase();

return 0;

}

**OUTPUT:**



