

OOP

Lab

Assignment

-I

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B-37

CSE

Q.1 Write a program to find the roots of quadratic equation.

Ans. #include <iostream>
<cmath>
using namespace std;

int main() {

float a, b, c, r1, r2, d, r, i;

cout << "Enter a, b, c: ";

cin >> a >> b >> c;

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

if (d > 0) {

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

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

cout << "Roots are real and different" << endl;

cout << "They are: " << r1 << " " << r2 << endl;

}

else if (d < 0) {

r = -b / (2*a);

i = sqrt(-d) / (2*a);

cout << "Roots are complex and different, they are: " << endl;

cout << r << "+" << i << "i" << " @ " << r << "-" << i << "i" << endl;

}

else {

cout << "Roots are real and same, they are " << endl;

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

cout << r1 << " " << r2 << endl;

}

return 0;

}

Output:

Enter a, b, c: 1 3 2

Roots are real and different

They are: -1 and -2

Q.2 Write a program to find the biggest element from an array (2)

Ans. #include <iostream>
using namespace std;

```
int main()
{
    int l, biggest = 0;
    cout << "Enter no. of elements: " << endl;
    cin >> l;
    int arr[l] = {0};
    cout << "Enter the numbers in array: " << endl;
    for (int i = 0; i < l; i++) {
        cin >> arr[i];
    }
    for (int i = 0; i < l; i++) {
        if (arr[i] > biggest)
            biggest = arr[i];
    }
    cout << "Biggest element: " << biggest;
    return 0;
}
```

Output:

Enter no. of elements:
4

Enter the numbers in array:
3 5 2 200

Biggest element: 200

Q.3 Define a structure student with proper data members. Input and display details of a student.

```
#include <iostream>
using namespace std;
```

```
int n;
```

```
struct student {
    char name[50];
    int age;
    int roll;
};
```

```
int main() {
```

```
    struct student s[n];
```

```
    cout << "Enter number of students " << endl;
    cin >> n;
```

```
    for (int i=1; i<=n; i++) {
```

```
        cout << "Enter name for student: " << i << endl;
```

```
        cin >> s[i].name;
```

```
        cout << "Enter age of student: " << i << endl;
```

```
        cin >> s[i].age;
```

```
        cout << "Enter roll number of student " << i << endl;
```

```
        cin >> s[i].roll;
```

```
    }
```

```
    for (int i=1; i<=n; i++) {
```

```
        cout << "Name of student " << i << ": " << s[i].name << endl;
```

```
        cout << "Age of student " << i << ": " << s[i].age << endl;
```

```
        cout << "Roll Number of student " << i << s[i].roll << endl;
```

```
    }
```

```
    return 0;
```

```
}
```

Output:

Enter number of students
2

Enter name of student 1
Tanisha

Enter age of student 1
19

Enter roll number of student 1
1950

Enter name of student 2
Aditya

Enter age of student 2
20

Enter roll number of student 2
1965

Name of Student 1: Tanisha

Age of Student 1: 19

~~Roll~~ of Student 1: 1950

name of Student 2: Aditya

Age of Student 2: 20

Roll of Student 2: 1965