

/\*Name -Himanshu  
Branch - E&TC (A-1)  
Roll No. - 1124  
Menu Driven Calculator\*/

```
#include <iostream>
using namespace std;
int main() {
    char op;
    float num1, num2;
    cout << "Enter first number: ";
    cin >> num1;
    cout << "Enter an operator (+, -, *, /): ";
    cin >> op;
    cout << "Enter second number: ";
    cin >> num2;
    switch(op) {
        case '+':
            cout << "Result = " << num1 + num2;
            break;
        case '-':
            cout << "Result = " << num1 - num2;
            break;
        case '*':
            cout << "Result = " << num1 * num2;
            break;
        case '/':
            if(num2 != 0)
                cout << "Result = " << num1 / num2;
            else
                cout << "Division by zero is not allowed";
            break;
        default:
            cout << "Invalid operator";
    }
    return 0;
}
```

```
input
Enter first number: 3+45
Enter an operator (+, -, *, /): Enter second number: Result = 48

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

```
input
Enter first number: 32*4
Enter an operator (+, -, *, /): Enter second number: Result = 128

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

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Mathematical Expressions (Area / Volume of Shapes)\*/

```
#include <iostream>
using namespace std;
int main() {
    int choice;
    float r, l, b, h, area, volume;
    cout << "1. Area of Circle\n";
    cout << "2. Area of Rectangle\n";
    cout << "3. Volume of Cube\n";
    cout << "4. Volume of Cylinder\n";
    cout << "Enter your choice: ";
    cin >> choice;
    switch(choice) {
        case 1:
            cout << "Enter radius: ";
            cin >> r;
            area = 3.14 * r * r;
            cout << "Area of Circle = " << area;
            break;
        case 2:
            cout << "Enter length and breadth: ";
            cin >> l >> b;
            area = l * b;
            cout << "Area of Rectangle = " << area;
            break;
        case 3:
            cout << "Enter side of cube: ";
            cin >> l;
            volume = l * l * l;
            cout << "Volume of Cube = " << volume;
            break;
        case 4:
            cout << "Enter radius and height: ";
            cin >> r >> h;
            volume = 3.14 * r * r * h;
            cout << "Volume of Cylinder = " << volume;
            break;
        default:
            cout << "Invalid Choice";
    }
    return 0;
}
```

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Roll No. - 1124  
\*/

```
input
1. Area of Circle
2. Area of Rectangle
3. Volume of Cube
4. Volume of Cylinder
Enter your choice: 1
Enter radius: 42
Area of Circle = 5538.96

...Program finished with exit code 0
```

```
input
1. Area of Circle
2. Area of Rectangle
3. Volume of Cube
4. Volume of Cylinder
Enter your choice: 2
Enter length and breadth: 43
56
Area of Rectangle = 2408
```

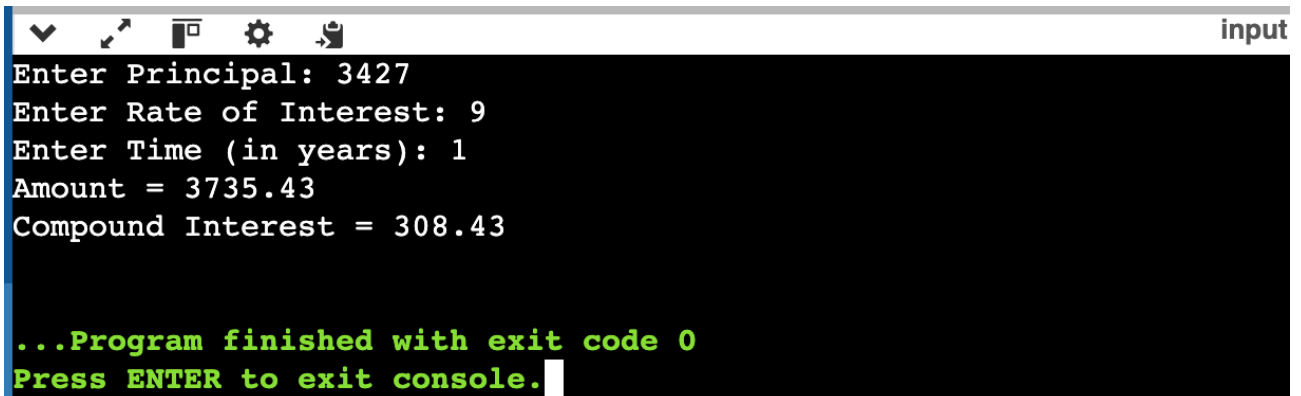
```
input
2. Area of Rectangle
3. Volume of Cube
4. Volume of Cylinder
Enter your choice: 3
Enter side of cube: 7
Volume of Cube = 343

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

```
input
1. Area of Circle
2. Area of Rectangle
3. Volume of Cube
4. Volume of Cylinder
Enter your choice: 4
Enter radius and height: 4
6
Volume of Cylinder = 301.44
```

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Roll No. - 1124  
Compound Interest Calculation\*/

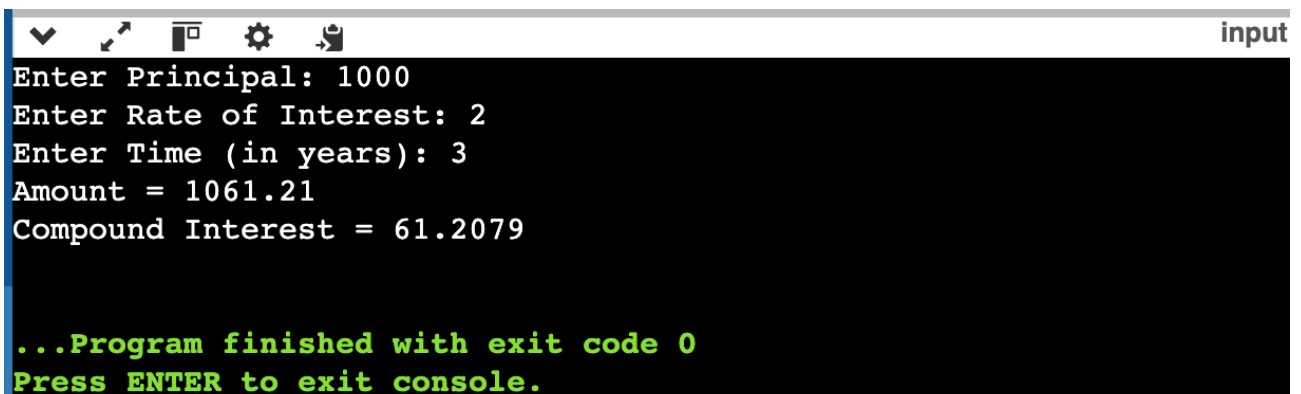
```
#include <iostream>
#include <cmath>
using namespace std;
int main() {
    float p, r, t, ci, amount;
    cout << "Enter Principal: ";
    cin >> p;
    cout << "Enter Rate of Interest: ";
    cin >> r;
    cout << "Enter Time (in years): ";
    cin >> t;
    amount = p * pow((1 + r / 100), t);
    ci = amount - p;
    cout << "Amount = " << amount << endl;
    cout << "Compound Interest = " << ci << endl;
    return 0;
}
```



The screenshot shows a terminal window with a title bar containing standard icons and the word "input" on the right. The terminal output is as follows:

```
Enter Principal: 3427
Enter Rate of Interest: 9
Enter Time (in years): 1
Amount = 3735.43
Compound Interest = 308.43

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



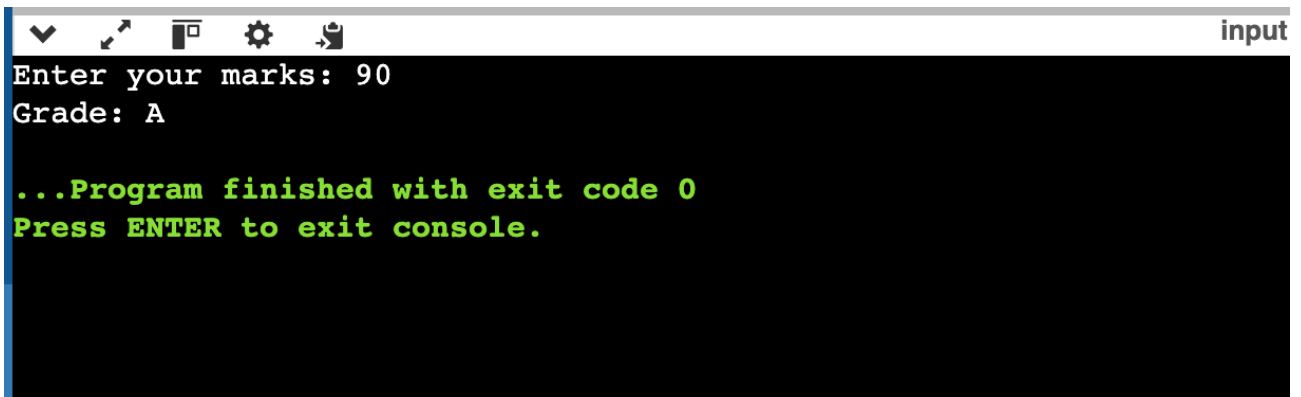
The screenshot shows a terminal window with a title bar containing standard icons and the word "input" on the right. The terminal output is as follows:

```
Enter Principal: 1000
Enter Rate of Interest: 2
Enter Time (in years): 3
Amount = 1061.21
Compound Interest = 61.2079

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

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Grade Letter Based on Marks\*/

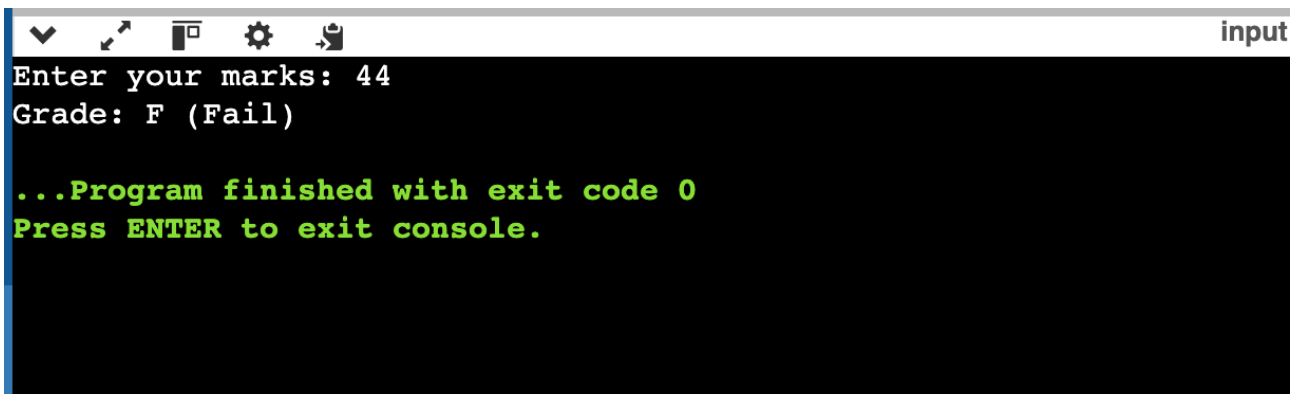
```
#include <iostream>
using namespace std;
int main() {
    int marks;
    cout << "Enter your marks: ";
    cin >> marks;
    if (marks >= 90)
        cout << "Grade: A";
    else if (marks >= 75)
        cout << "Grade: B";
    else if (marks >= 60)
        cout << "Grade: C";
    else if (marks >= 45)
        cout << "Grade: D";
    else
        cout << "Grade: F (Fail)";
    return 0;
}
```

A screenshot of a terminal window titled 'input'. The terminal shows the program's output for an input of 90. The text 'Enter your marks: 90' is followed by 'Grade: A'. At the bottom, it says '...Program finished with exit code 0' and 'Press ENTER to exit console.' in green text. The terminal has a standard Linux-style toolbar at the top with icons for window management and settings.

input

Enter your marks: 90  
Grade: A

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

A screenshot of a terminal window titled 'input'. The terminal shows the program's output for an input of 44. The text 'Enter your marks: 44' is followed by 'Grade: F (Fail)'. At the bottom, it says '...Program finished with exit code 0' and 'Press ENTER to exit console.' in green text. The terminal has a standard Linux-style toolbar at the top with icons for window management and settings.

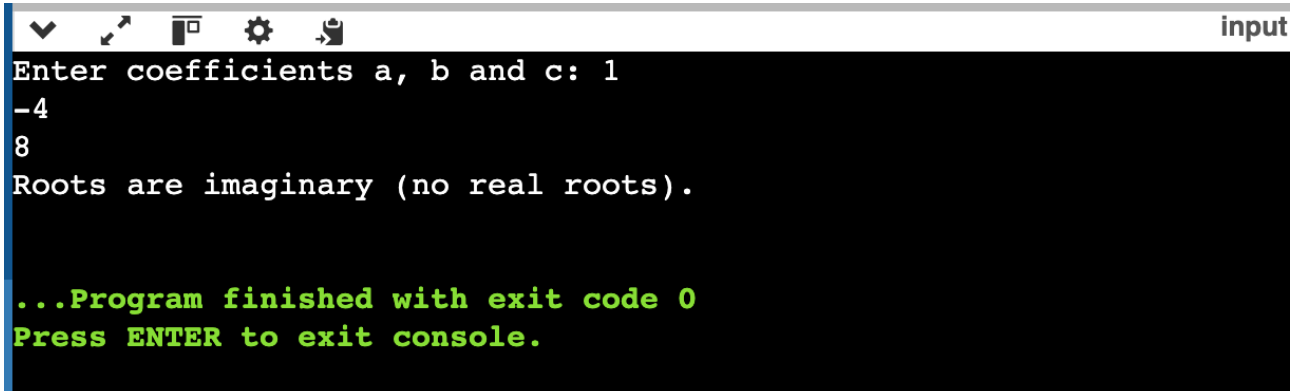
input

Enter your marks: 44  
Grade: F (Fail)

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

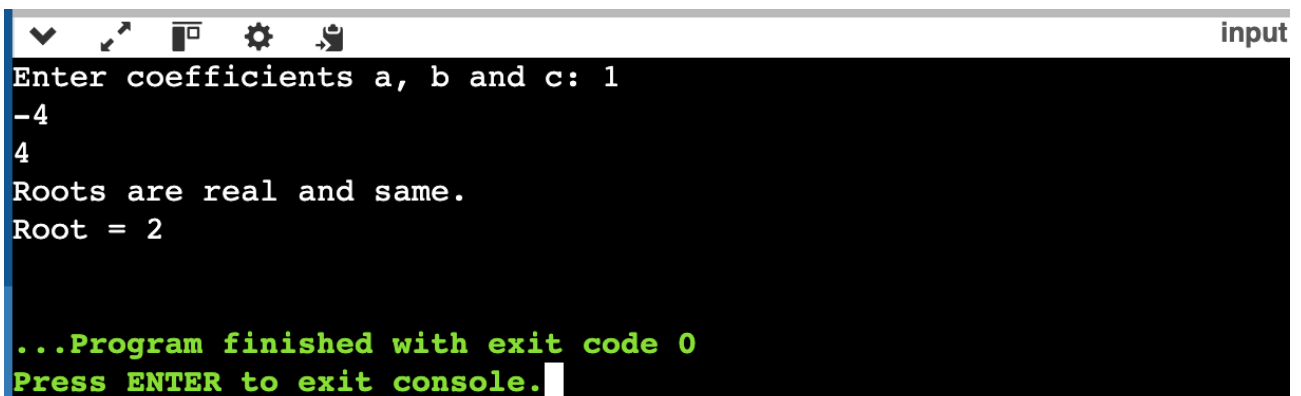
/\*Name -Himanshu  
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Roots of Quadratic Equation\*/

```
#include <iostream>
#include <cmath>
using namespace std;
int main() {
    float a, b, c, d, root1, root2;
    cout << "Enter coefficients a, b and c: ";
    cin >> a >> b >> c;
    d = b*b - 4*a*c;
    if (d > 0) {
        root1 = (-b + sqrt(d)) / (2*a);
        root2 = (-b - sqrt(d)) / (2*a);
        cout << "Roots are real and different." << endl;
        cout << "Root1 = " << root1 << endl;
        cout << "Root2 = " << root2 << endl;
    }
    else if (d == 0) {
        root1 = -b / (2*a);
        cout << "Roots are real and same." << endl;
        cout << "Root = " << root1 << endl;
    }
    else {
        cout << "Roots are imaginary (no real roots)." << endl;
    }
    return 0;
}
```

A screenshot of a terminal window with a dark background. The title bar at the top shows standard window controls and the word "input". The program prompts the user to "Enter coefficients a, b and c: 1", followed by "-4" and "8" on separate lines. The output is "Roots are imaginary (no real roots)." in white text. At the bottom, green text indicates "...Program finished with exit code 0" and "Press ENTER to exit console.".

```
input
Enter coefficients a, b and c: 1
-4
8
Roots are imaginary (no real roots).

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

A screenshot of a terminal window with a dark background. The title bar at the top shows standard window controls and the word "input". The program prompts the user to "Enter coefficients a, b and c: 1", followed by "-4" and "4" on separate lines. The output is "Roots are real and same." and "Root = 2" in white text. At the bottom, green text indicates "...Program finished with exit code 0" and "Press ENTER to exit console.".

```
input
Enter coefficients a, b and c: 1
-4
4
Roots are real and same.
Root = 2

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