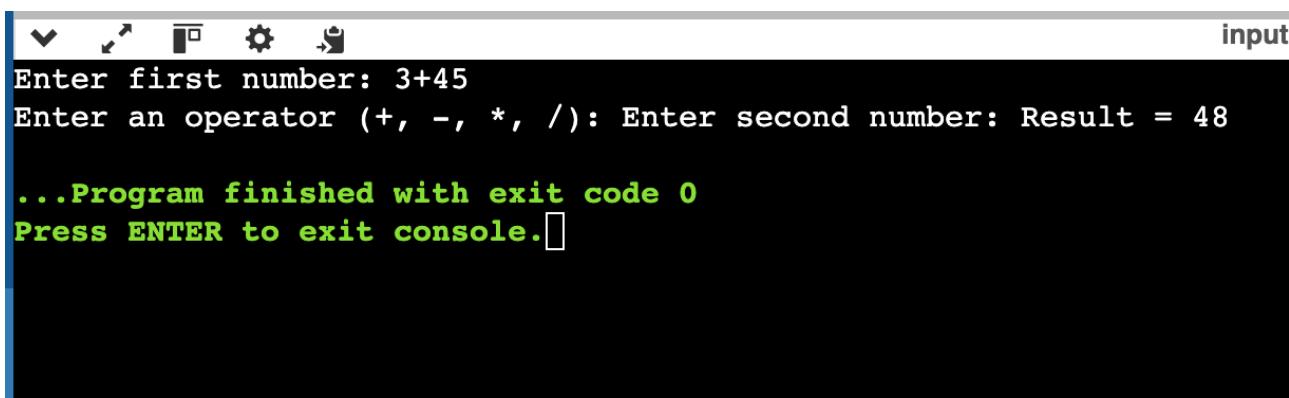
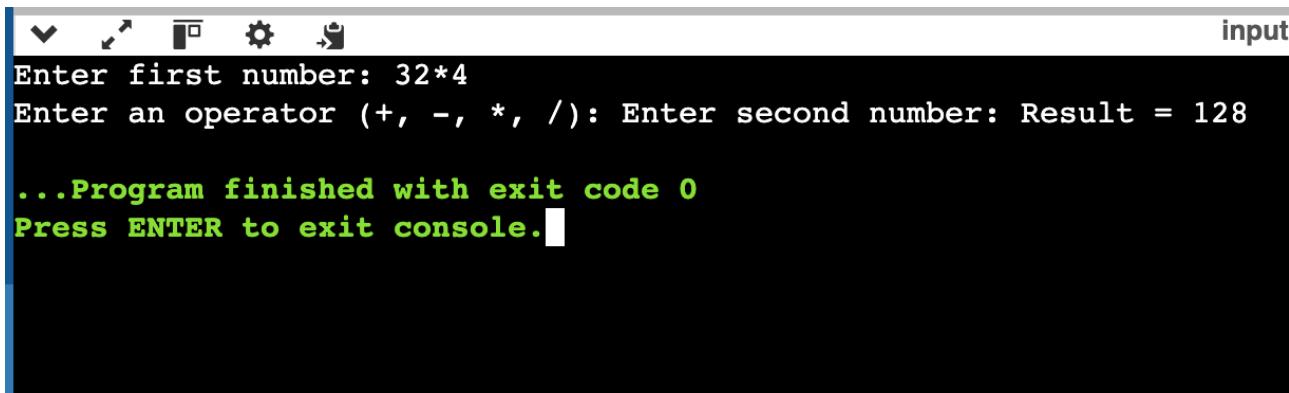


```
/*Name -Himanshu  
Branch - E&TC (A-1)  
Roll No. - 1124  
Menu Driven Calculator*/
```

```
#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.█
```

/*Name -Himanshu
Branch - E&TC (A-1)
Roll No. - 1124
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;
}
```

```
/*Name -Himanshu  
Branch - E&TC (A-1)  
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
```

```
/*Name -Himanshu  
Branch - E&TC (A-1)  
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 black background and white text. At the top right, it says "input". The window contains the following text:

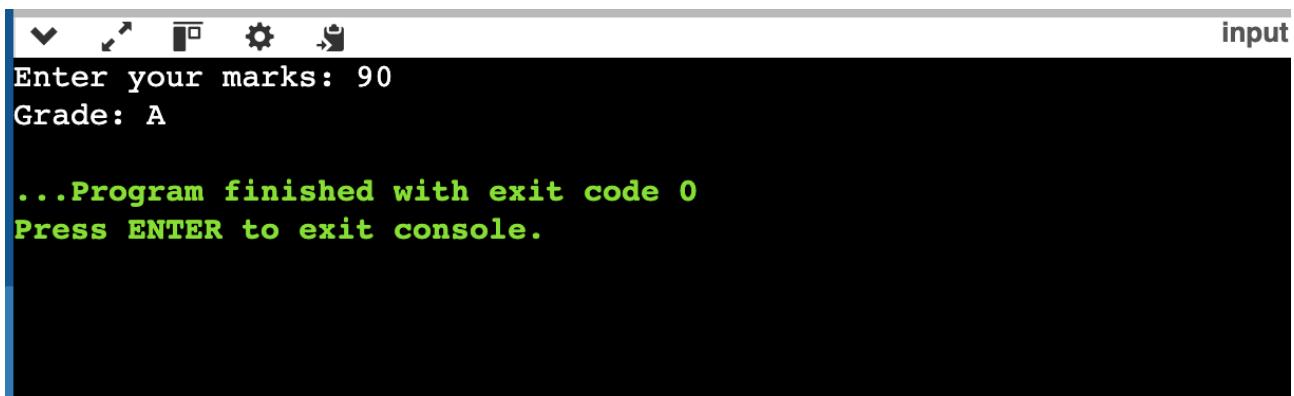
```
Enter Principal: 3427  
Enter Rate of Interest: 9  
Enter Time (in years): 1  
Amount = 3735.43  
Compound Interest = 308.43  
  
...Program finished with exit code 0  
Press ENTER to exit console.
```

The screenshot shows a terminal window with a black background and white text. At the top right, it says "input". The window contains the following text:

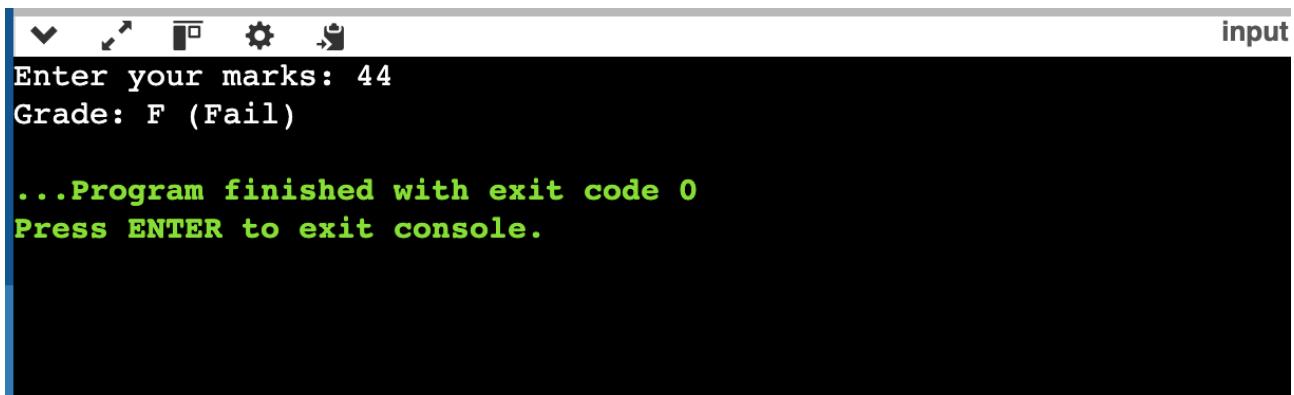
```
Enter Principal: 1000  
Enter Rate of Interest: 2  
Enter Time (in years): 3  
Amount = 1061.21  
Compound Interest = 61.2079  
  
...Program finished with exit code 0  
Press ENTER to exit console.
```

```
/*Name -Himanshu  
Branch - E&TC (A-1)  
Roll No. - 1124  
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;  
}
```



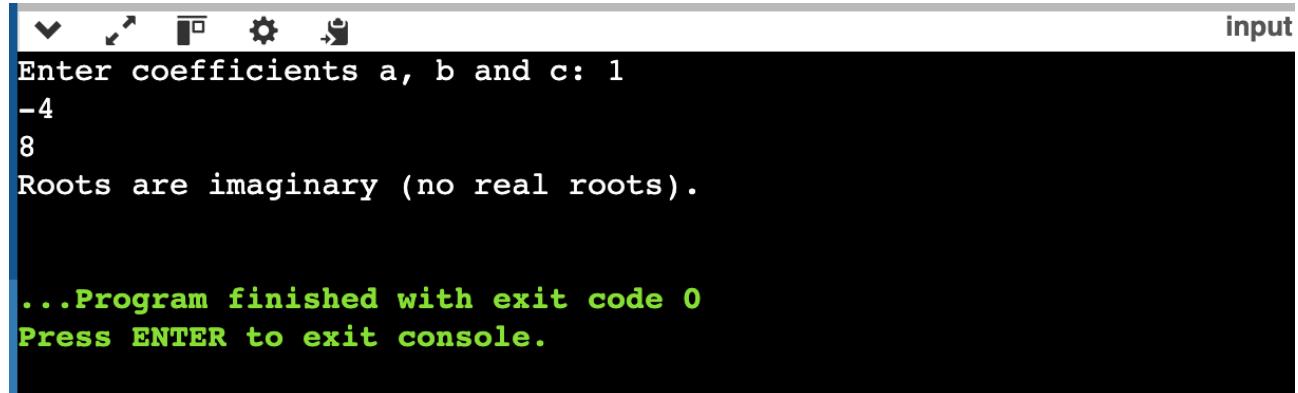
```
input  
Enter your marks: 90  
Grade: A  
  
...Program finished with exit code 0  
Press ENTER to exit console.
```



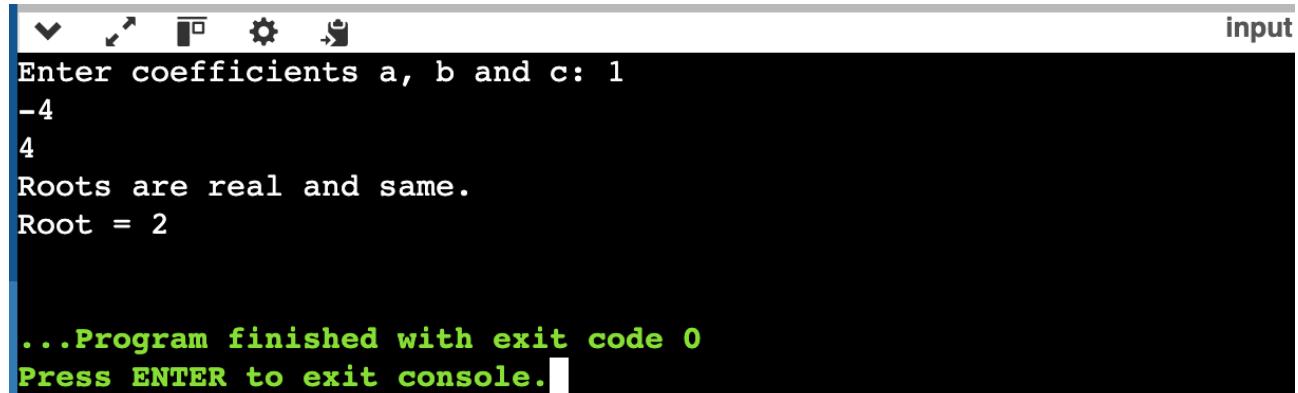
```
input  
Enter your marks: 44  
Grade: F (Fail)  
  
...Program finished with exit code 0  
Press ENTER to exit console.
```

```
/*Name -Himanshu  
Branch - E&TC (A-1)  
Roll No. - 1124  
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;  
}
```



```
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.
```



```
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.
```