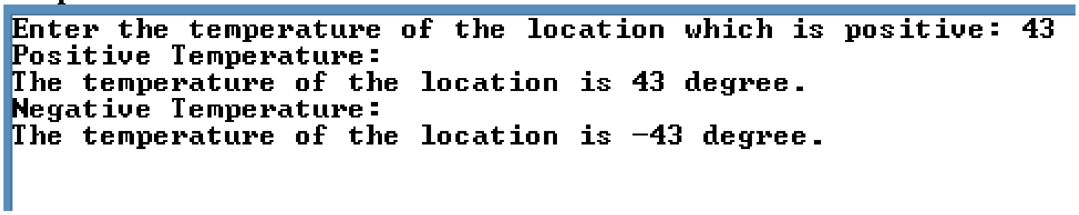
Programs:

1. Overload the unary minus operator(-) to negate members of a class.

```
#include<iostream>
#include<conio.h>
using namespace std;

class temperatureLoc {
      int tempDegree;

public:

      //constructor
      temperatureLoc() {
            cout << "Enter the temperature of the location which is positive: ";
            cin >> tempDegree;
      }

      //operator minus overloading
      void operator -() {
            tempDegree = -tempDegree;
      }

      void display() {
            cout << "The temperature of the location is " << tempDegree << "
degree." << endl;
            return;
      }

};

int main() {
      temperatureLoc loc;
      cout << "Positive Temperature: " << endl;
      loc.display();
      -loc;
      cout << "Negative Temperature: " << endl;
      loc.display();
      _getch();
      return 0;
}
```

Output:

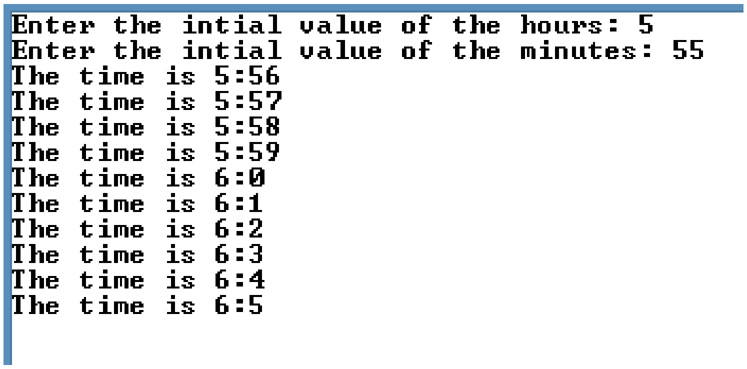


```
Enter the temperature of the location which is positive: 43
Positive Temperature:
The temperature of the location is 43 degree.
Negative Temperature:
The temperature of the location is -43 degree.
```

2. Write a class Time having members hours and minutes. Overload unary increment operator to add a minute to minutes and check if minutes>=60 then increment hours by 1.

```
#include<iostream>
#include<conio.h>
using namespace std;

class Time {
      int hours;
      int minutes;

public:

      //constructor
      Time() {
            cout << "Enter the intial value of the hours: ";
            cin >> hours;
            cout << "Enter the intial value of the minutes: ";
            cin >> minutes;
      }

      //operator minus overloading
      void operator ++() {
            minutes = minutes + 1;
            if (minutes >= 60) {
                  hours += 1;
                  minutes = 0;
            }
      }

      //diplay current value of the members.
      void display() {
            cout <<"The time is " << hours<< ":"<< minutes<< endl;
            return;
      }

};

int main() {
      Time obj;
      for(int i = 0; i < 10; i++) {
            ++obj;
            obj.display();
      }
      _getch();
      return 0;
}
```

Output:

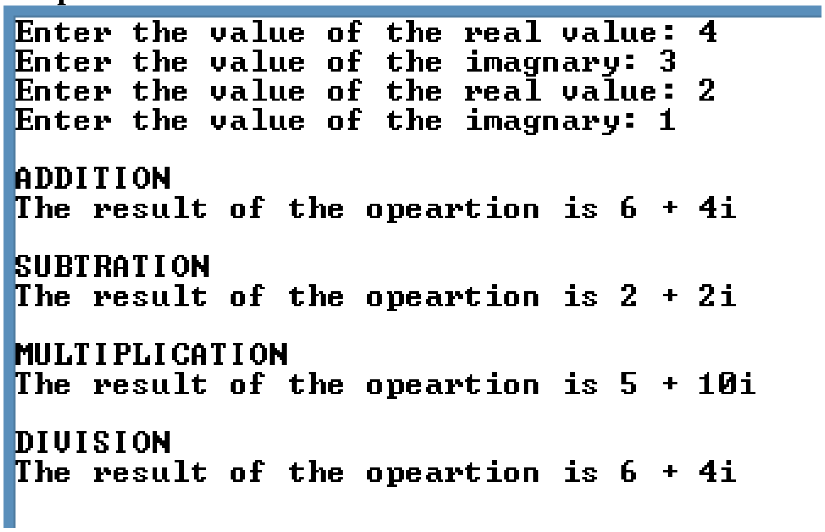


```
Enter the intial value of the hours: 5
Enter the intial value of the minutes: 55
The time is 5:56
The time is 5:57
The time is 5:58
The time is 5:59
The time is 6:0
The time is 6:1
The time is 6:2
The time is 6:3
The time is 6:4
The time is 6:5
```

3. Overload binary operators +, - , * and / to add, subtract, multiply and divide two complex numbers. Let + and – be overloaded as a member functions and * and / be overloaded as a friend function.

```
#include<iostream>
#include<conio.h>
using namespace std;

class complexNum {

      int real, imag;

public:

      complexNum(){
            cout << "Enter the value of the real value: ";
            cin >> real;
            cout << "Enter the value of the imagnary: ";
            cin >> imag;
      }
      complexNum(int a, int b) {
            real = a;
            imag = b;
      }

      void display() {
            cout << "The result of the opeartion is " << real << " + " << imag
<< "i" << endl;
      }

      complexNum operator +(complexNum& obj) {
            complexNum result(0,0);
            result.real = real + obj.real;
            result.imag = imag + obj.imag;
            return result;
      }

      complexNum operator -(complexNum& obj) {
            complexNum result(0, 0);
            result.real = real - obj.real;
            result.imag = imag - obj.imag;
            return result;
      }

      friend complexNum operator *(complexNum& obj1, complexNum& obj2);
      friend complexNum operator /(complexNum& obj1, complexNum& obj2);

};

complexNum operator *(complexNum& obj1, complexNum& obj2) {
      complexNum result(0, 0);
      result.real = (obj1.real * obj2.real) - (obj1.imag * obj2.imag);
      result.imag = (obj1.real * obj2.imag) + (obj1.imag * obj2.real);
      return result;
}

complexNum operator /(complexNum& obj1, complexNum& obj2) {
      complexNum result(0, 0);
      result.real = obj1.real + obj2.real;
      result.imag = obj1.imag + obj2.imag;
      return result;
}

int main() {
      //object declarations
      complexNum num1, num2, resultA(0,0), resultS(0,0), resultM(0,0),
resultD(0,0);

      resultA = num1 + num2;
      cout << "\nADDITION" << endl;
      resultA.display();

      resultS = num1 - num2;
      cout << "\nSUBTRATION" << endl;
      resultS.display();

      resultM = num1 * num2;
      cout << "\nMULTIPLICATION" << endl;
      resultM.display();

      resultD = num1 + num2;
      cout << "\nDIVISION" << endl;
      resultD.display();

      _getch();
      return 0;
}
```

Output:

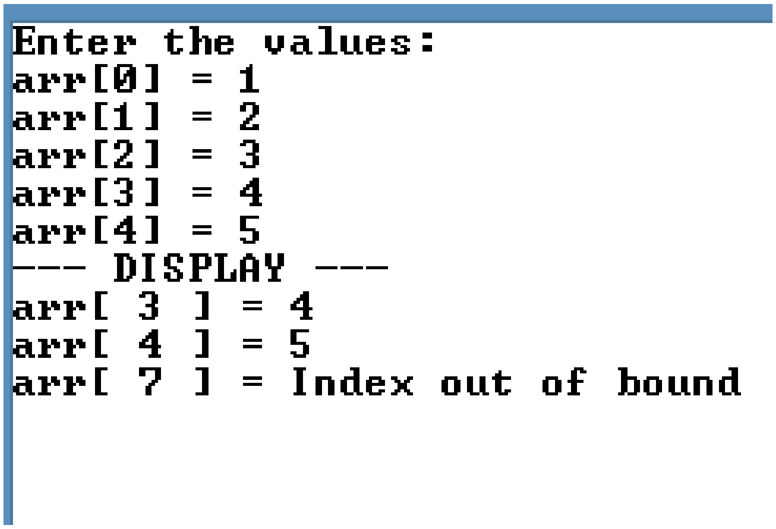


```
Enter the value of the real value: 4
Enter the value of the imagnary: 3
Enter the value of the real value: 2
Enter the value of the imagnary: 1

ADDITION
The result of the opeartion is 6 + 4i

SUBTRATION
The result of the opeartion is 2 + 2i

MULTIPLICATION
The result of the opeartion is 5 + 10i

DIVISION
The result of the opeartion is 6 + 4i
```

4. Write a program to overload the subscript operator [].

```
#include<iostream>
#include<conio.h>
using namespace std;

const int SIZE = 5;

class Subscript {
      int arr[SIZE];
public:
      Subscript() {
            int i = 0;
            cout << "Enter the values: " << endl;
            while (i < SIZE) {
                  cout << "arr[" << i << "] = ";
                  cin >> arr[i];
                  i++;
            }
      }

      int &operator [](int i) {
            if (i > SIZE) {
                  cout << "Index out of bound" << endl;
                  return arr[0];
            }
            else {
                  return arr[i];
            }
      }
};

int main() {
      Subscript obj;
      cout << "--- DISPLAY ---" << endl;
      cout << "arr[ 3 ] = ";
      cout<<obj[3]<<endl;
      cout << "arr[ 4 ] = ";
      cout << obj[4] << endl;
      cout << "arr[ 7 ] = ";
      obj[7];
      _getch();
      return 0;
}
```

Output:



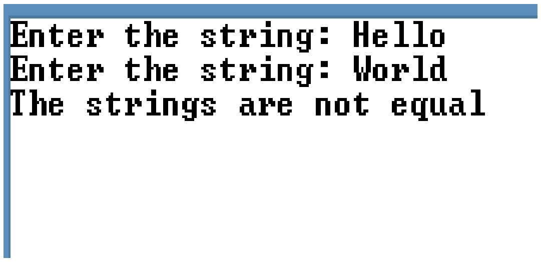
```
Enter the values:
arr[0] = 1
arr[1] = 2
arr[2] = 3
arr[3] = 4
arr[4] = 5
--- DISPLAY ---
arr[ 3 ] = 4
arr[ 4 ] = 5
arr[ 7 ] = Index out of bound
```

5. Write a C++ Program to Compare Two Strings by Overloading == operator

```
#include<iostream>
#include<conio.h>
#include<string>
using namespace std;

class StringCom {
      string str;
public:

      //constructor
      StringCom() {
            cout << "Enter the string: ";
            cin >> str;
      }

      //operator equal overloading
      int operator ==(StringCom& obj) {
            if (str == obj.str) {
                  return 1;
            }
            else {
                  return 0;
            }
      }
};

int main() {
      StringCom str1, str2;

      if (str1 == str2) {
            cout << "The strings are equal" << endl;
      }
      else {
            cout << "The strings are not equal" << endl;
      }

      _getch();
      return 0;
}
```

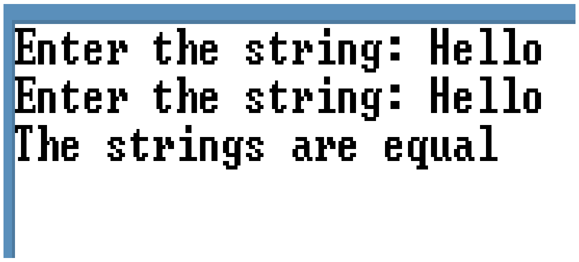
Output:

Not equal :



```
Enter the string: Hello
Enter the string: World
The strings are not equal
```

Equal:



```
Enter the string: Hello
Enter the string: Hello
The strings are equal
```