1. Write a c++ program to overload the ++ operator to increment a variable

1. ++ operator to increment a variable.cpp

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

class Increment {
    int value;
public:
    Increment(int v) : value(v) {}

    void operator++() {
        ++value;
    }

    void display() {
        cout << "Value: " << value << endl;
    }
};

int main() {
    Increment obj(5);
    ++obj;
    obj.display();
    return 0;
}
```

```
Value: 6

--------------------------------
Process exited after 0.103 seconds with return
 value 0
Press any key to continue . . .
```

2. Write a c++ program to overload the + operator to add two variables

2. + operator to add two variables.cpp

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

class Add {
    int value;
public:
    Add(int v) : value(v) {}

    Add operator+(const Add &obj) {
        return Add(value + obj.value);
    }

    void display() {
        cout << "Sum: " << value << endl;
    }
};

int main() {
    Add obj1(5), obj2(10);
    Add obj3 = obj1 + obj2;
    obj3.display();
    return 0;
}
```

```
Sum: 15

--------------------------------
Process exited after 0.1332 seconds with return value
 0
Press any key to continue . . .
```

3. Write a c++ program to overload the << operator to print contents of a user defined class

3. lesthan lessthan operator to print contents of a user defined class.cpp

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

class Print {
    int value;
public:
    Print(int v) : value(v) {}

    friend ostream& operator<<(ostream &out, const Print &obj);
};

ostream& operator<<(ostream &out, const Print &obj) {
    out << "Value: " << obj.value;
    return out;
}

int main() {
    Print obj(5);
    cout << obj << endl;
    return 0;
}
```

```
Value: 5

--------------------------------
Process exited after 0.1182 seconds with retu
rn value 0
Press any key to continue . . .
```

4. Write a c++ program to overload the == operator to compare two objects of a user defined class

4. == operator to compare two objects of a user defined class.cpp

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

class Compare {
    int value;
public:
    Compare(int v) : value(v) {}

    bool operator==(const Compare &obj) {
        return value == obj.value;
    }
};

int main() {
    Compare obj1(5), obj2(5);
    if (obj1 == obj2)
        cout << "Objects are equal" << endl;
    else
        cout << "Objects are not equal" << endl;
    return 0;
}
```

```
C:\Users\prath\OneDrive\Des
Objects are equal

--------------------------------
Process exited after 0.1133 seconds with return value 0
Press any key to continue . . .
```

5. Write a c++ program to overload the * operator to multiply two matrices

5. operator to multiply two matrices.cpp

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

class Matrix {
    int mat[2][2];
public:
    Matrix(int a, int b, int c, int d) {
        mat[0][0] = a; mat[0][1] = b;
        mat[1][0] = c; mat[1][1] = d;
    }

    Matrix operator*(const Matrix &m) {
        Matrix temp(0, 0, 0, 0);
        for (int i = 0; i < 2; ++i)
            for (int j = 0; j < 2; ++j)
                temp.mat[i][j] = mat[i][0] * m.mat[0][j] + mat[i][1] * m.mat[1][j];
        return temp;
    }

    void display() {
        for (int i = 0; i < 2; ++i) {
            for (int j = 0; j < 2; ++j)
                cout << mat[i][j] << " ";
            cout << endl;
        }
    }
};

int main() {
    Matrix m1(1, 2, 3, 4), m2(2, 0, 1, 2);
    Matrix m3 = m1 * m2;
    m3.display();
    return 0;
}
```

```
C:\Users\prath\OneDrive\Des
4 4
10 8

--------------------------------
Process exited after 0.1686 seconds with return value 0
Press any key to continue . . .
```

6. rite a c++ program to overload the [] operator to access the elements in an array using index values

6. [] operator to access the elements in an array using index values.cpp

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

class Array {
    int arr[5];
public:
    Array() {
        for (int i = 0; i < 5; ++i) arr[i] = i * 10;
    }

    int operator[](int index) {
        return arr[index];
    }
};

int main() {
    Array obj;
    cout << "Element at index 2: " << obj[2] << endl;
    return 0;
}
```

```
C:\Users\prath\OneDri
Element at index 2: 20

--------------------------------
Process exited after 0.1231 seconds with retu
rn value 0
Press any key to continue . . .
```

7. Write a c++ program to overload the () to call a function with arguments

7. () to call a function with arguments.cpp

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

class FunctionCall {
public:
    void operator()(int a, int b) {
        cout << "Sum: " << a + b << endl;
    }
};

int main() {
    FunctionCall obj;
    obj(5, 10);
    return 0;
}
```

```
C:\Users\prath\OneDri
Sum: 15

--------------------------------
Process exited after 0.1091 seconds with retu
rn value 0
Press any key to continue . . .
```

8. rite a c++ program to overload the – operator to subtract two variables

8. – operator to subtract two variables.cpp

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

class Subtract {
    int value;
public:
    Subtract(int v) : value(v) {}

    Subtract operator-(const Subtract &obj) {
        return Subtract(value - obj.value);
    }

    void display() {
        cout << "Difference: " << value << endl;
    }
};

int main() {
    Subtract obj1(10), obj2(5);
    Subtract obj3 = obj1 - obj2;
    obj3.display();
    return 0;
}
```

```
C:\Users\prath\OneDrive\Des
Difference: 5

--------------------------------
Process exited after 0.1589 seconds with return value 0
Press any key to continue . . .
```

9. write a c++ program to overload a function to add two integer numbers and two floating point number separately

9. function to add two integer numbers and two floating point number separately.cpp

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

class Add {
public:
    int add(int a, int b) {
        return a + b;
    }

    float add(float a, float b) {
        return a + b;
    }
};

int main() {
    Add obj;
    cout << "Sum of integers: " << obj.add(5, 10) << endl;
    cout << "Sum of floats: " << obj.add(5.5f, 10.5f) << endl;
    return 0;
}
```

```
C:\Users\prath\OneDrive\Des
Sum of integers: 15
Sum of floats: 16

--------------------------------
Process exited after 0.1512 seconds with return valu
e 0
Press any key to continue . . .
```

10. Write a c++ program to overload the += operator to add two objects of a user defined class

10. += operator to add two objects of a user defined class.cpp

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

class AddAssign {
    int value;
public:
    AddAssign(int v) : value(v) {}

    void operator+=(const AddAssign &obj) {
        value += obj.value;
    }

    void display() {
        cout << "Value: " << value << endl;
    }
};

int main() {
    AddAssign obj1(5), obj2(10);
    obj1 += obj2;
    obj1.display();
    return 0;
}
```

```
C:\Users\prath\OneDrive\Des
Value: 15

--------------------------------
Process exited after 0.1189 seconds with return value 0
Press any key to continue . . .
```

11. write a c++ program to overload a function to find the maximum value from two integer numbers and two floating point number, and two characters separately

11. find the maximum value from two integer numbers and two floating point number, and two characters separately.cpp

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

int max(int a, int b) {
    return (a > b) ? a : b;
}

float max(float a, float b) {
    return (a > b) ? a : b;
}

char max(char a, char b) {
    return (a > b) ? a : b;
}

int main() {
    cout << "Max of 3 and 5: " << max(3, 5) << endl;
    cout << "Max of 2.5 and 3.7: " << max(2.5f, 3.7f) << endl;
    cout << "Max of 'a' and 'z': " << max('a', 'z') << endl;
    return 0;
}
```

```
C:\Users\prath\OneDrive\Des
Max of 3 and 5: 5
Max of 2.5 and 3.7: 3.7
Max of 'a' and 'z': z

--------------------------------
Process exited after 0.1237 seconds with return value 0
Press any key to continue . . .
```

12. write a c++ program to overload a function to concatenate two strings and two characters arrays separately

12. concatenate two strings and two characters arrays separately.cpp

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

string concatenate(string a, string b) {
    return a + b;
}

void concatenate(char a[], char b[], char result[]) {
    strcpy(result, a);
    strcat(result, b);
}

int main() {
    string str1 = "Hello", str2 = "World";
    cout << "Concatenated string: " << concatenate(str1, str2) << endl;

    char arr1[] = "Hello", arr2[] = "World", result[100];
    concatenate(arr1, arr2, result);
    cout << "Concatenated char arrays: " << result << endl;

    return 0;
}
```

```
C:\Users\prath\OneDrive\Des
Concatenated string: HelloWorld
Concatenated char arrays: HelloWorld

--------------------------------
Process exited after 0.1073 seconds with return value 0
Press any key to continue . . .
```

13. write a c++ program to overload a function to calculate the sum of two matrices and two arrays separately

13. calculate the sum of two matrices and two arrays separately.cpp

```cpp
#include <iostream>
using namespace std;
void add(int mat1[2][2], int mat2[2][2], int result[2][2]) {
    for (int i = 0; i < 2; i++) {
        for (int j = 0; j < 2; j++) {
            result[i][j] = mat1[i][j] + mat2[i][j];
        }
    }
}
void add(int arr1[], int arr2[], int result[], int size) {
    for (int i = 0; i < size; i++) {
        result[i] = arr1[i] + arr2[i];
    }
}

int main() {
    int mat1[2][2] = {{1, 2}, {3, 4}};
    int mat2[2][2] = {{5, 6}, {7, 8}};
    int resultMatrix[2][2];

    add(mat1, mat2, resultMatrix);

    cout << "Sum of matrices:\n";
    for (int i = 0; i < 2; i++) {
        for (int j = 0; j < 2; j++) {
            cout << resultMatrix[i][j] << " ";
        }
        cout << endl;
    }
    int arr1[] = {1, 2, 3, 4};
    int arr2[] = {5, 6, 7, 8};
    int resultArray[4];

    add(arr1, arr2, resultArray, 4);

    cout << "Sum of arrays: ";
    for (int i = 0; i < 4; i++) {
        cout << resultArray[i] << " ";
    }
    return 0;
```

```
C:\Users\prath\OneDri
6 8
10 12
Sum of arrays: 6 8 10 12
--------------------------------
Process exited after 0.1213 seconds with retu
rn value 0
Press any key to continue . . .
```

14. write a c++ program to overload a function to print an integer array, a double array and a character array separately

14. print an integer array, a double array and a character array separately.cpp

```cpp
#include <iostream>
using namespace std;
void printArray(int arr[], int size) {
    for (int i = 0; i < size; i++) {
        cout << arr[i] << " ";
    }
    cout << endl;
}
void printArray(double arr[], int size) {
    for (int i = 0; i < size; i++) {
        cout << arr[i] << " ";
    }
    cout << endl;
}

void printArray(char arr[], int size) {
    for (int i = 0; i < size; i++) {
        cout << arr[i] << " ";
    }
    cout << endl;
}

int main() {
    int intArr[] = {1, 2, 3, 4};
    double doubleArr[] = {1.1, 2.2, 3.3, 4.4};
    char charArr[] = {'a', 'b', 'c', 'd'};

    cout << "Integer array: ";
    printArray(intArr, 4);

    cout << "Double array: ";
    printArray(doubleArr, 4);

    cout << "Character array: ";
    printArray(charArr, 4);

    return 0;
}
```

```
C:\Users\prath\OneDri
Integer array: 1 2 3 4
Double array: 1.1 2.2 3.3 4.4
Character array: a b c d

--------------------------------
Process exited after 0.12 seconds with return
 value 0
Press any key to continue . . .
```

15. write a c++ program to overload a function to find a factorial of an integer number and factorial of a floating-point number separately

15. factorial of an integer number and factorial of a floating-point number separately.cpp

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

int factorial(int n) {
    if (n <= 1) return 1;
    return n * factorial(n - 1);
}

float factorial(float n) {
    if (n <= 1) return 1;
    return n * factorial(n - 1);
}

int main() {
    int intNum = 5;
    float floatNum = 4.5f;

    cout << "Factorial of " << intNum << ": " << factorial(intNum) << endl;
    cout << "Factorial of " << floatNum << ": " << factorial(floatNum) << endl;

    return 0;
}
```

```
C:\Users\prath\OneDrive\D
Factorial of 5: 120
Factorial of 4.5: 59.0625

------------------------------
Process exited after 0.1061 seconds with return
value 0
Press any key to continue . . .
```

16. write a c++ program to overload a function to sort an integer array and a double array

16. function to sort an integer array and a double array.cpp

```cpp
#include <iostream>
#include <algorithm>
using namespace std;
void sortArray(int arr[], int size) {
    sort(arr, arr + size);
}
void sortArray(double arr[], int size) {
    sort(arr, arr + size);
}
int main() {
    int intArr[] = {4, 2, 3, 1};
    double doubleArr[] = {4.4, 2.2, 3.3, 1.1};
    sortArray(intArr, 4);
    sortArray(doubleArr, 4);
    cout << "Sorted integer array: ";
    for (int i = 0; i < 4; i++) {
        cout << intArr[i] << " ";
    }
    cout << endl;
    cout << "Sorted double array: ";
    for (int i = 0; i < 4; i++) {
        cout << doubleArr[i] << " ";
    }
    return 0;
}
```

```
C:\Users\prath\OneDrive\Des
Sorted integer array: 1 2 3 4
Sorted double array: 1.1 2.2
--------------------------------
Process exited after 0.1136 seconds with return val
ue 0
Press any key to continue . . .
```

Open a new tab
Alt+Click to split the current window
Shift+Click to open a new window

17. write a c++ program to overload a function to calculate the power of an integer number and power of a floating-point number separately

17. calculate the power of an integer number and power of a floating-point number separately.cpp

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

int power(int base, int exp) {
    return pow(base, exp);
}

float power(float base, float exp) {
    return pow(base, exp);
}

int main() {
    int intBase = 2, intExp = 3;
    float floatBase = 2.5f, floatExp = 3.5f;

    cout << intBase << " raised to " << intExp << " is " << power(intBase, intExp) << endl;
    cout << floatBase << " raised to " << floatExp << " is " << power(floatBase, floatExp) << endl;

    return 0;
}
```

```
C:\Users\prath\OneDrive\Des
2 raised to 3 is 8
2.5 raised to 3.5 is 24.7053

--------------------------------
Process exited after 0.111 seconds with return value 0
Press any key to continue . . .
```

18. write a c++ program to overload a function to find an absolute value of an integer number and absolute value of a floating-point number separately

18. find an absolute value of an integer number and absolute value of a floating-point number separately.cpp

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

int absolute(int n) {
    return (n < 0) ? -n : n;
}

float absolute(float n) {
    return (n < 0) ? -n : n;
}

int main() {
    int intNum = -5;
    float floatNum = -3.5f;

    cout << "Absolute value of " << intNum << " is " << absolute(intNum) << endl;
    cout << "Absolute value of " << floatNum << " is " << absolute(floatNum) << endl;

    return 0;
}
```

```
C:\Users\prath\OneDrive\Des
Absolute value of -5 is 5
Absolute value of -3.5 is 3.5

--------------------------------
Process exited after 0.1144 seconds with return va
lue 0
Press any key to continue . . .
```