```cpp
//Program 01 with function
#include<iostream>
using namespace std;
void AllinOne(int x, int y){
    cout << "Sum of Numbers is: " << x + y;
    cout << "\nSub of Numbers is: " << x - y;
    cout << "\nMulti of Numbers is: " << x * y;
    cout << "\nDiv of Numbers is: " << x / y;
}
int main(){
    //Two Numbers sum, sub, mul, div
    // with one function
    int a,b;
    cin >> a >> b;
    AllinOne(a,b);
}
```

```
PROBLEMS  OUTPUT  TERMINAL  COMMENTS  DEBUG CONSOLE
PS C:\Users\coder\Desktop\Class work c++> .\main.exe
20 10
Sum of Numbers is: 30
Sub of Numbers is: 10
Multi of Numbers is: 200
Div of Numbers is: 2
```

```cpp
//////////////////Two//////////////////////
//Two Fractional Numbers sum, sub, mul, div
//with one function
#include<iostream>
using namespace std;
void AllinOne(double x, double y){
    cout << "Sum of Numbers is: " << x + y;
    cout << "\nSub of Numbers is: " << x - y;
    cout << "\nMulti of Numbers is: " << x * y;
    cout << "\nDiv of Numbers is: " << x / y;
}
int main(){
    double a,b;
    cin >> a >> b;
    AllinOne(a,b);
}
```

```
PS C:\Users\coder\Desktop\Class work c++> .\main.exe
10.8 5.2
Sum of Numbers is: 16
Sub of Numbers is: 5.6
Multi of Numbers is: 56.16
Div of Numbers is: 2.07692
```

```cpp
//////////////////Three//////////////////////
//Return type Boolean function
#include<iostream>
using namespace std;
bool TrueFlase(int x){
        if(x == 0){
            return false;
        }else if(x == 1){
            return true;
        }else{
              return false;
        }
}
int main(){
  int x;
  cout << "Please Enter 0 or 1\n";
  cin >> x;
  bool output = TrueFlase(x);
  cout << boolalpha << "You always tell " << output;
}
```

```
PS C:\Users\coder\Desktop\Class work c++> .\main.exe
Please Enter 0 or 1
1
You always tell true
```

```cpp
////////////////// Four //////////////////////
//Two Fractional BooleanAdd, subtract, multiply,
//and divide by determine symbols
#include<iostream>
using namespace std;
double calFrac(int x, double y, double z){
  if(x == 1){
    return y+z;
  }else if(x == 2){
    return y-z;
```

```
  }else if (x == 3){
    return y*z;
  }else{
    return y/z;
  }
}
int main() {
  int x;
  double y,z;
  string ch = "a";
  cout << "Press (+) for 1: ";
  cout << "\nPress (-) for 2: ";
  cout << "\nPress (x) for 3: ";
  cout << "\nPress (/) for 4: \n";
  cout << "\nPlease Select an Option: ";
  cin >> x;
  while (x < 1 || 4 < x)
  {
    cout << "Wrong! Please select Correct Option: ";
    cin >> x;
  }

  if (x == 1)
  {
    ch = "+ ";
  }else if (x == 2){
    ch = "- ";
  }else if (x == 3){
    ch = "x ";
  }else{
    ch = "/ ";
  }
  cout << "   ";
  cin >> y;
  cout << ch ;
  cin >> z;
  cout << "----------------\n";
  cout << "   ";
  double result = calFrac(x,y,z);
  cout << result;
}
```

```
Press (+) for 1:
Press (-) for 2:
Press (x) for 3:
Press (/) for 4:

Please Select an Option: 10
Wrong! Please select Correct Option: 0
Wrong! Please select Correct Option: 3
  10
x 30
----------------
  300
```

```cpp
//////////////////Six//////////////////
//Calculate number with recursive function
#include<iostream>
using namespace std;
int calculte(int x, int y, int z){
    if(x == 1){
        return y + z;
    }else if(x == 2){
        return y - z;
    }else if(x == 3){
        return y * z;
    }else if(x == 4){
        return y / z;
    }else{
        cout << "Please Select Correct Option" << endl;
        cout << "Enter 1 for(+): ";
        cout << "\nEnter 2 for(-): ";
        cout << "\nEnter 3 for(x): ";
        cout << "\nEnter 4 for(/): ";
        cin >>  x >> y >> z;
        return calculte(x,y,z);
    }
}

int main(){
    int x,y,z;
```

```
    cout << "Enter 1 for(+): ";
    cout << "\nEnter 2 for(-): ";
    cout << "\nEnter 3 for(x): ";
    cout << "\nEnter 4 for(/): ";

    cin >>  x >> y >> z;


    int result = calculte(x, y, z);
    cout << "Result is: " << result << "\n";

}
```

```
Enter 1 for(+):
Enter 2 for(-):
Enter 3 for(x):
Enter 4 for(/): 10
10 20
Please Select Correct Option
Enter 1 for(+):
Enter 2 for(-):
Enter 3 for(x):
Enter 4 for(/): 4
10 2
Result is: 5
```

```
//////////////////Six//////////////////
//Multiply and Increment

#include<iostream>
using namespace std;

int multiply(int x, int y){
    cout << "Before Increment in Function x is:" << x << ", y is:" << y << endl;
    int result = ++x * ++y;
    cout << "After Increment in Function x is:" << x << ", y is:" << y << endl;
    return result;
}

int main(){
    int x = 10;
    int y = 5;
```

```
    cout << "Before Increment in function Outside of Funtion x is:" << x << ", y
is:" << y << endl;
    int result = multiply(x, y);
    cout << "After Increment in function Outside of Funtion x is:" << x << ", y
is:" << y << endl;

}
```

```
PS C:\Users\coder\Desktop\Class work c++> .\main.exe
Beffore Increment in function Outside of Funtion x is:10, y is:5
Beffore Increment in Funtion x is:10, y is:5
After Increment in Funtion x is:11, y is:6
After Increment in function Outside of Funtion x is:10, y is:5
```

```
////////////SEVEN////////////
#include<iostream>
using namespace std;
// Function declaration
int max(int x, int y);
int min(int x, int y);
//You can do this here also
int add(int , int );

int main(){
    int x, y;
    cout << "Please Enter Two Number: ";
    cin >> x >> y;

    cout << "Maximum Number: " << max(x, y) << endl;
    cout << "Minimum Number: " << min(x, y) << endl;
    cout << "Summation of Number: " << add(x, y);
}
//Function Definition
//Find Maximum
int max(int x, int y){
    if(x < y){
        return y;
    }else{
        return x;
        }
};

//Find Minimum
int min(int x, int y){
     if(x > y){
        return y;
```

```
    }else{
        return x;
        }
};

//Add Number:
int add(int x, int y){
    return x + y;
};
```

```
PS C:\Users\coder\Desktop\Class work c++> .\main.exe
Pelase Enter Two Number: 10 20
Maximum Number: 20
Minimum Number: 10
Summation of Number: 30
```

```
//////////////EIGHT////////////
//Return String Method
#include<iostream>
using namespace std;
string wishMe(){
    return "Good Luck";
}


int main(){
    cout << wishMe() << endl;
}
```

```
PS C:\Users\coder\Desktop\Class work c++> .\main.exe
Good Luck
```

```
//////////////NINE////////////
//Receive to String and add them
#include<iostream>
using namespace std;
string AddtwoString(string x, string y){
    return x + y;
```

```
}

int main(){
    string x = "Hello, ";
    string y = "what's up?";

    cout << AddtwoString(x, y) << endl;
}
```

```
PS C:\Users\coder\Desktop\Class work c++> .\main.exe
Hello, what's up?
```

```
//////////////TEN/////////////
//First Letter and Last of Your Name
#include<iostream>
#include <cctype>
using namespace std;

string findFirstLastLetter(string x){
    int len = x.length();
    string s(1, x[0]);
    string s2(1, x[len - 1]);
    string res = "First Letter of your name is: " + s + "\nLast Letter of your
name is: " + s2;
    return res;
}

int main(){
    string fullName;
    cout << "Please enter your name: ";
    cin >> fullName;
    cout << endl;

    cout << findFirstLastLetter(fullName) << endl;
}
```

```
PS H:\Aktaruzzaman Intake(41)\Class work c++> .\main.exe
Please enter your name: Aktaruzzaman

First Letter of your name is: A
Last Letter of your name is: n
```

```cpp
//////////////////ELEVEN//////////////////////
//REceive an Array and Sum all element

#include<iostream>
using namespace std;
int addArray(int arr[], size_t len){
    int sum = 0;

    for (size_t i = 0; i < len; i++)
    {
        sum += arr[i];
    }

    return sum;

}
int main(){
    int arr[8] = {1,2,3,4,5,5,4,32};
    int res =
addArray(arr,sizeof(arr)/sizeof(arr[0]));
    cout << "Sum of ALl Array Elments is: " <<
res << endl;
}
```

```
PS C:\Users\User\Desktop\Class work c++> .\main.exe
Sum of ALl Array Elments is: 56
PS C:\Users\User\Desktop\Class work c++>
```

```
//////////////////////TWELEVE/////////////////////
/
//////////////////REVERSE AN
ARRAY////////////////////
#include<iostream>
using namespace std;
void addArray(int arr[], size_t len){
    int sum = 0;
    int *p = &arr[len-1];
    for (size_t i = 0; i < len; i++)
    {
       cout << *p-- << " ";
    }
}
int main(){
    int arr[8] = {1,2,3,4,5,5,4,32};
    addArray(arr,sizeof(arr)/sizeof(arr[0]));
}
```

```
PS H:\Class work c++> .\main.exe
32 4 5 5 4 3 2 1
PS H:\Class work c++>
```

```
//////////////////////THIRTEEN/////////////////////
/
//////////////////REVERSE AN
STRING//////////////////
#include<iostream>
using namespace std;
string reverse_String(string str, int len){
    string rev;
    for(int i = len; i >= 0; i--){
        rev += str[i];
    }

    return rev;
}

int main(){
    string str;
    cout << "Enter a string: ";
    getline(cin,str);
    int len = str.length()-1;
    string rev_string = reverse_String(str, len);
    cout << rev_string << endl;
}
```

```
PS H:\Class work c++> .\main.exe
Enter a string: Hi, Reverse Me.
.eM esreveR ,iH
```

```cpp
//Fifteen/////
//lottery with random function
#include <cstdlib>
#include <ctime>
#include <iostream>

using namespace std;

string lotteryWinnner(int x){
  srand((unsigned) time(0) + 2);
  int randomNumber;
  randomNumber = (rand() % 5) + 1;
  if(x == randomNumber){
    return "Winnner!";
  }else{
    return "Soory, Try for next time.";
  }
}

int main() {

    int x;
    cout << "Please Input a postive 1 to 5: ";
    cin >> x;

    while (x < 0 || x > 5)
    {
        cout << "\nRead carefully description Instructions!" << endl;
        cout << "Please Enter a valid number: " ;
        cin >> x;
    }

    string winner = lotteryWinnner(x);
    cout << endl <<  winner << endl  << endl;

}
```

```
Please Input a postive 1 to 5: 5

Soory, Try for next time.

PS H:\Class work c++> .\main.exe
Please Input a postive 1 to 5: 1

Soory, Try for next time.

PS H:\Class work c++> .\main.exe
Please Input a postive 1 to 5: 2

Soory, Try for next time.

PS H:\Class work c++> .\main.exe
Please Input a postive 1 to 5: 3

Soory, Try for next time.

PS H:\Class work c++> .\main.exe
Please Input a postive 1 to 5: 4

Winnner!
```