CS205 C/ C++ Program Design

Assignment 1

Name: 王康

SID: 11510815

Part 1. Source Code

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

int main(){
    long long a;
    long long b;
    long long result;
    cout << "Please input the first multiplier:" << endl;
    cin >> a;
    while(cin.fail()){
      cin.clear();
      cout << "Wrong data type, Please input an integer!" << endl;
      cin.ignore(9999,'\n');
      cin >> a;
    }

    cout << "Please input the second multiplier:" << endl;
    cin >> b;
    while(cin.fail()){
      cin.clear();
      cout << "Wrong data type, Please input an integer!" << endl;
      cin.ignore(9999,'\n');
      cin >> b;
    }

    result = a*b;

    if(result/a == b){
        cout << "The result is:\n" << result;
    }
    else{
        cout << "Two multipliers are too large, result overflows" << endl;
    }
```

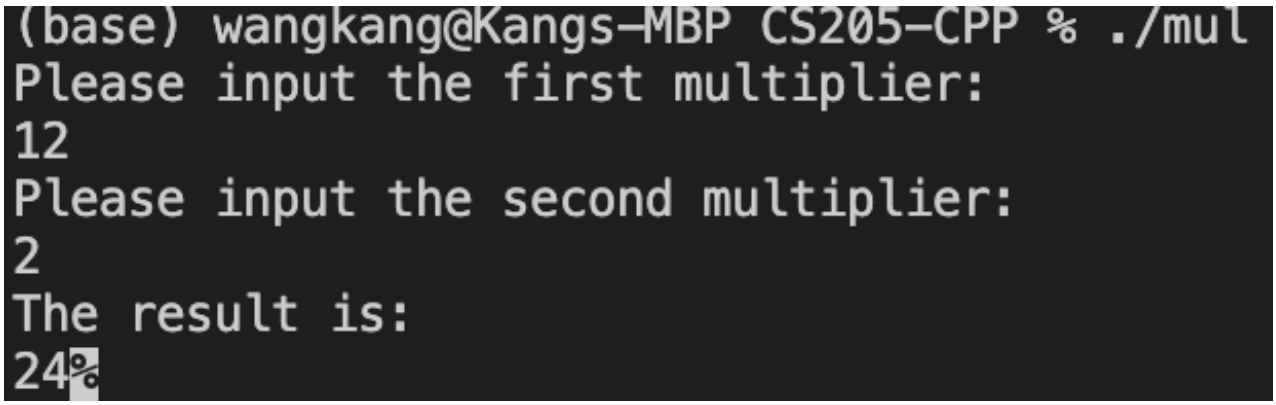
```
    return 0;
}
```

Part 2. Result & Verification

Test case #1:

Input: 12 2

Output: 24

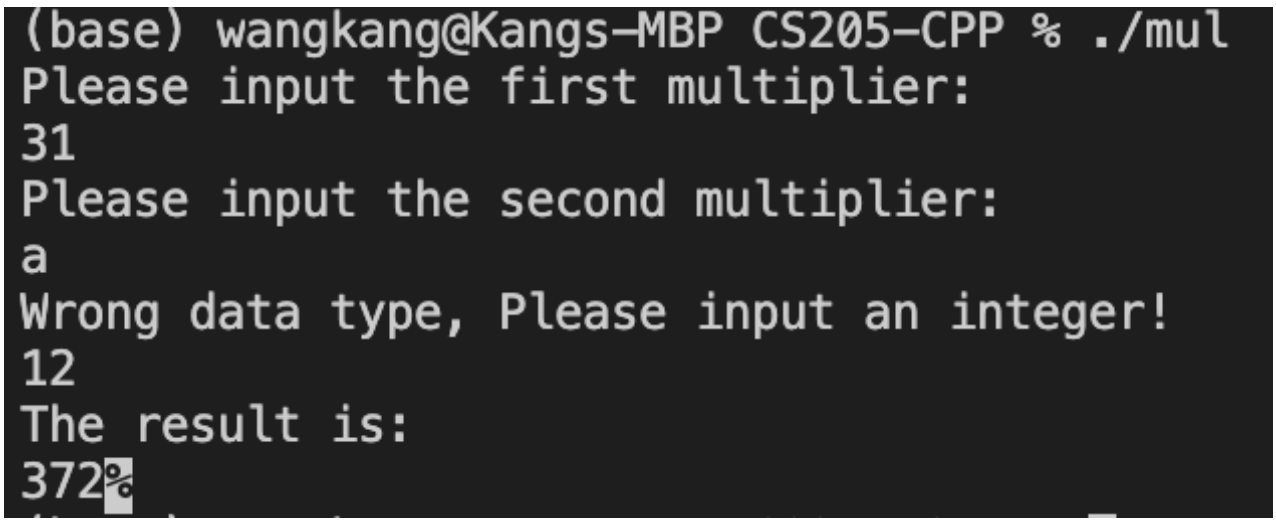


Test case #2:

Input: 31 a

Then the program shows that the second input is not legal input, user should input again a integer : 12,

Then the program output the right answer: 372.



Test case #3:

Input: 1234567890 1234567890

```
(base) wangkang@Kangs-MBP CS205-CPP % ./mul
Please input the first multiplier:
1234567890
Please input the second multiplier:
1234567890
The result is:
1524157875019052100%
```

Right answer

Test case #4:

```
(base) wangkang@Kangs-MBP CS205-CPP % ./mul
Please input the first multiplier:
2423543565676 58
Please input the second multiplier:
421543678798987
Two multipliers are too large, result overflows
(base) wangkang@Kangs-MBP CS205-CPP %
```

Overflow detected

Part 3. Difficulties & Solutions, or others

At first I don't know how to judge if the input type is Integer or not, then I search the internet and know there is one function called con.fail().

```
while(cin.fail()){
  cin.clear();
  cout << "Wrong data type, Please input an integer!" << endl;
  cin.ignore(9999,'\n');
  cin >> b;
}
```