

Programming Design, Spring 2016

Suggested Solution for Homework 1

Solution provider: Parker Chiang
Department of Information Management
National Taiwan University

Problem 1

- (a) 1,-1,1 can be successfully input in the program but b should not be a negative number. And no matter what the input case is, the program will display Wonderful! There are two errors in this program. First, the condition should be $b < 0$ in the second while loop. Second, the condition should be $==$ instead of $=$ in the final if statement.
- (b) The improved program is below.

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

int main()
{
    int num1 = 0, num2 = 0, num3 = 0;
    cin >> num1;
    while( num1 < 0 )
        cin >> num1;
    cin >> num2;
    while( num2 < 0 )
        cin >> num2;
    cin >> num3;
    while( num3 < 0 )
        cin >> num3;
    int sum = num1 + num2 + num3;
    if( sum == 300 )
        cout << "Wonderful!\n";
    return 0;
}
```

- (c) The improved program is below.

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

int main()
{
    int num1 = 0, num2 = 0, num3 = 0; // three input number

    cout << "Please input a positive number.\n";
    cin >> num1;
    while( num1 < 0 ) // if the input number is smaller than 0,
        // ask user to input again.
    {
        cout << "The number you input is smaller than 0, please input another one.\n";
        cin >> num1;
    }

    cout << "Please input a positive number.\n";
    cin >> num2;
    while( num2 < 0 )
    {
        cout << "The number you input is smaller than 0, please input another one.\n";
        cin >> num2;
    }

    cout << "Please input a positive number.\n";
    cin >> num3;
    while( num3 < 0 )
    {
        cout << "The number you input is smaller than 0, please input another one.\n";
        cin >> num3;
    }
}
```

```

    {
        cout << "The number you input is smaller than 0, please input another one.\n"
        cin >> num3;
    }

    int sum = num1 + num2 + num3; //add three number together
    if( sum == 300 )
        cout << "Wonderful!\n";
    return 0;
}

```

Problem 2

```

#include <iostream>
using namespace std;

int main()
{
    cout << "Hi everyone,\n\n";
    cout << "This is Mikasa\'s first program,\n";
    cout << "stored at C:\\Users\\User\\Documents.\n\n";
    cout << "Best,\n";
    cout << "Mikasa";

    return 0;
}

```

Problem 3

Please see the attached CPP file.