**Software Development Process**

Assignment\_1

**Problem statement:**

1）The program will provide an interface that allows users to enter several real numbers through the interface.

2) If illegal input is detected, the program will allow users to re-enter it again until the input is correct or the execution of the program terminates.

For example:

* Input is beyond legal limits.
* No specified characters are entered as required.

**Analysis:**

On Input**:**

First, a message needs to be printed on the screen to let the users know what data/action this program expects. Because the execution is terminated upon the detection of an illegal input, programmers can specify the desired data type in the c code used to read the input off the keyboard.

On Outputs:

Given a legal input. The user can get four consequences along with an explanatory message.

1] The sum of the character values of the input name. (Character values include spaces)

2] A value of the top six telephone numbers divided by the latter five telephone number.

3] A binary code.

4] A degrees Fahrenheit and Kevin.

Data structure:

Only single data is involved. So there are no complex data structure issues here.

Algorithm:

These calculations are direct. There is no algorithm here.

**Design:**

There are four parts respectively. First, prompt for a full name, add the character values of the name you entered with a loop, and print the total number on the screen. The premise is to use “char” to change the name to character. Second, users can only input 11-digit numbers by cycle restriction. This part needs to convert back and forth between strings and numbers. Third, we can divide a decimal integers by two integers yields a quotient and a remainder; removing quotients by two yields a quotient and a remainder, and so on, until the quotient is zero, and then arranging the remainder in reverse order. Finally, this past can use formula to change temperature from degree Celsius to Fahrenheit and Euclidean Kevin degree.  Attention, declare three variables of type “double” and name them appropriately e.g. Celsius, Fahrenheit and Kelvin, respectively. Only in this way can interface have a decimal.

**Implementation：**

see the C code “1719177\_1.c” (at the end of this document) with comments.

**Testing：**

Test 1

Please enter your full name: Tome

Tome=84+111+109+101= 405

Please enter an 11-digit non-real telephone number:12524689201

The top six telephone numbers are divided by the latter telephone number = 1.40

Please enter the decimal number: k

The binary number:-1-100-1-100-1-100-1-100-1-100-1-100-1-10-100

Please enter the Celsius temperature: 请按任意键继续. . .

Test 2

Please enter your full name: 007

007=48+48+55= 151

Please enter an 11-digit non-real telephone number:sdka

Please enter an 11-digit non-real telephone number:56489546231

The top six telephone numbers are divided by the latter telephone number = 12.22

Please enter the decimal number: 21

The binary number:10101

Please enter the Celsius temperature: KFC

请按任意键继续. . .

Test 3

Please enter your full name: Yu Cheng.Lin

Yu Cheng.Lin=89+117+32+67+104+101+110+103+46+76+105+110= 1060

Please enter an 11-digit non-real telephone number:12

Please enter an 11-digit non-real telephone number:12345678900

The top six telephone numbers are divided by the latter telephone number = 1.56

Please enter the decimal number: 21

The binary number:10101

Please enter the Celsius temperature: 20

Fahrenheit temperature at Celsius 20 is 68.

Kelvin temperature at Celsius 20 is 293