

“Number Conversion Tool”

Course Title : Structured Programming Lab

Course Code : CSE 104

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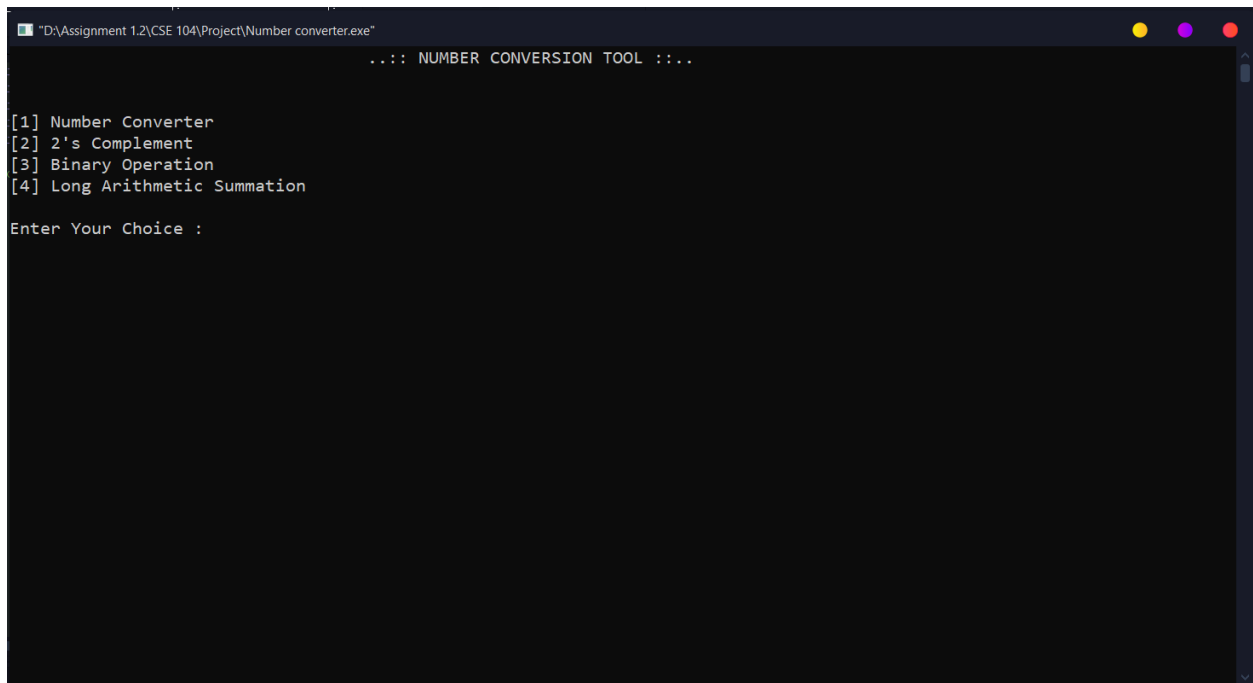
University of Asia Pacific

“Motivation”

The motivation behind this project was to make a base to base number convertor tool with some other extra features. All this has been done in C programming language.

“Features”

In this tool we added any to base to any base convertor which include base-2 to base-16. And also we have 2's Complement, binary operation & long arithmetic summation.



```
"D:\Assignment 1.2\CSE 104\Project\Number converter.exe"
...:: NUMBER CONVERSION TOOL ...:

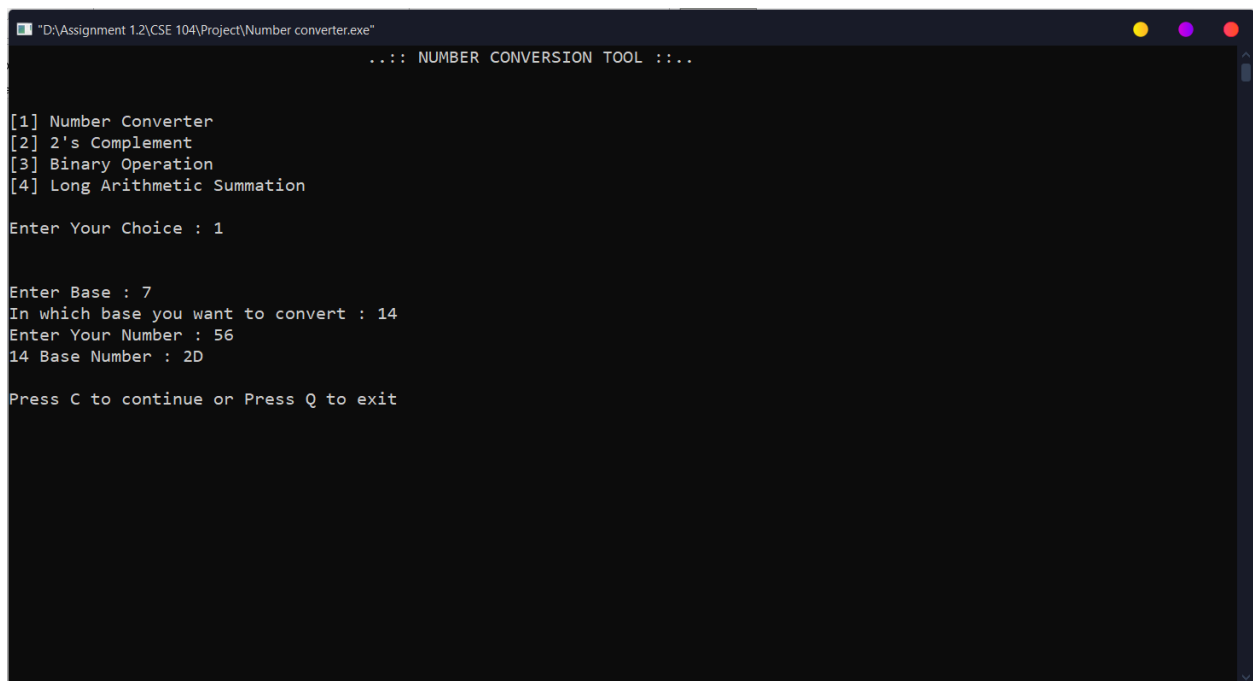
[1] Number Converter
[2] 2's Complement
[3] Binary Operation
[4] Long Arithmetic Summation

Enter Your Choice :
```

Number Converter: Here we can do any base to any base number conversion as we want. First it will take the base of inputted number then the base we want to convert and lastly the number itself.

Noted: It is limited between base-2 to base-16.

As an example: $(56)_7$ which is $(2D)_{14}$



```
"D:\Assignment 1.2\CSE 104\Project\Number converter.exe"
...: NUMBER CONVERSION TOOL :...

[1] Number Converter
[2] 2's Complement
[3] Binary Operation
[4] Long Arithmetic Summation

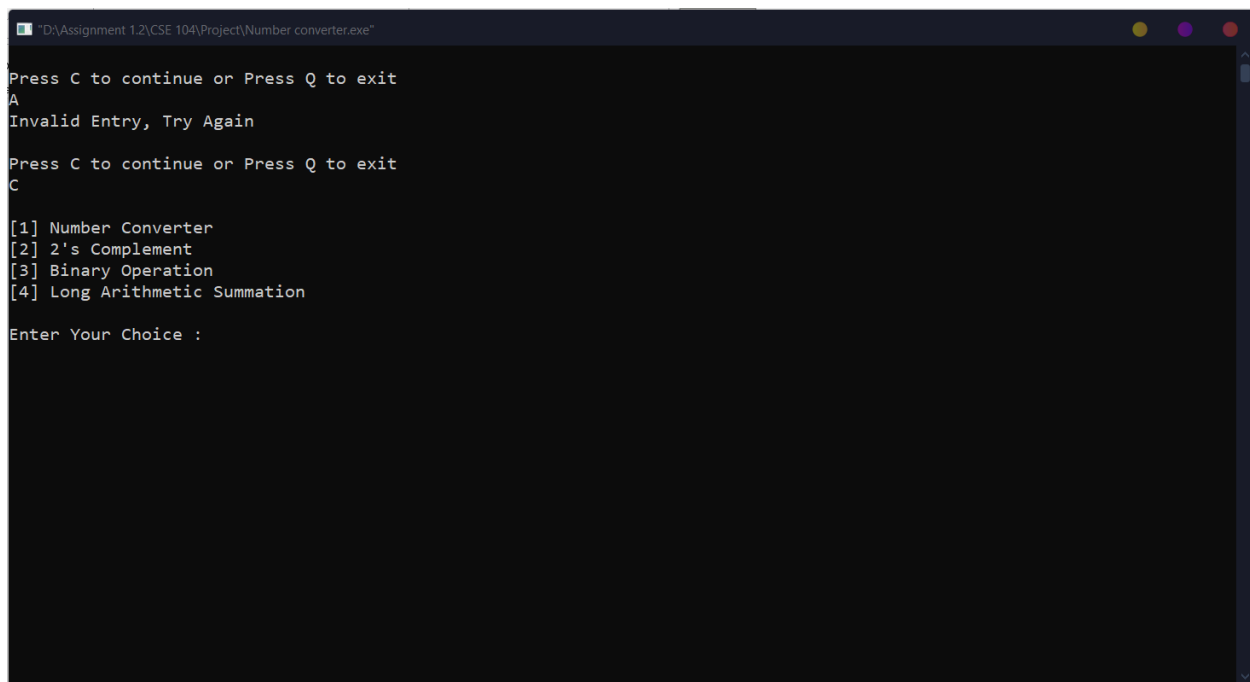
Enter Your Choice : 1

Enter Base : 7
In which base you want to convert : 14
Enter Your Number : 56
14 Base Number : 2D

Press C to continue or Press Q to exit
```

Special Feature: “A feature to continue this tool where if we press C the tool will continue and if we press Q the tool will exit”

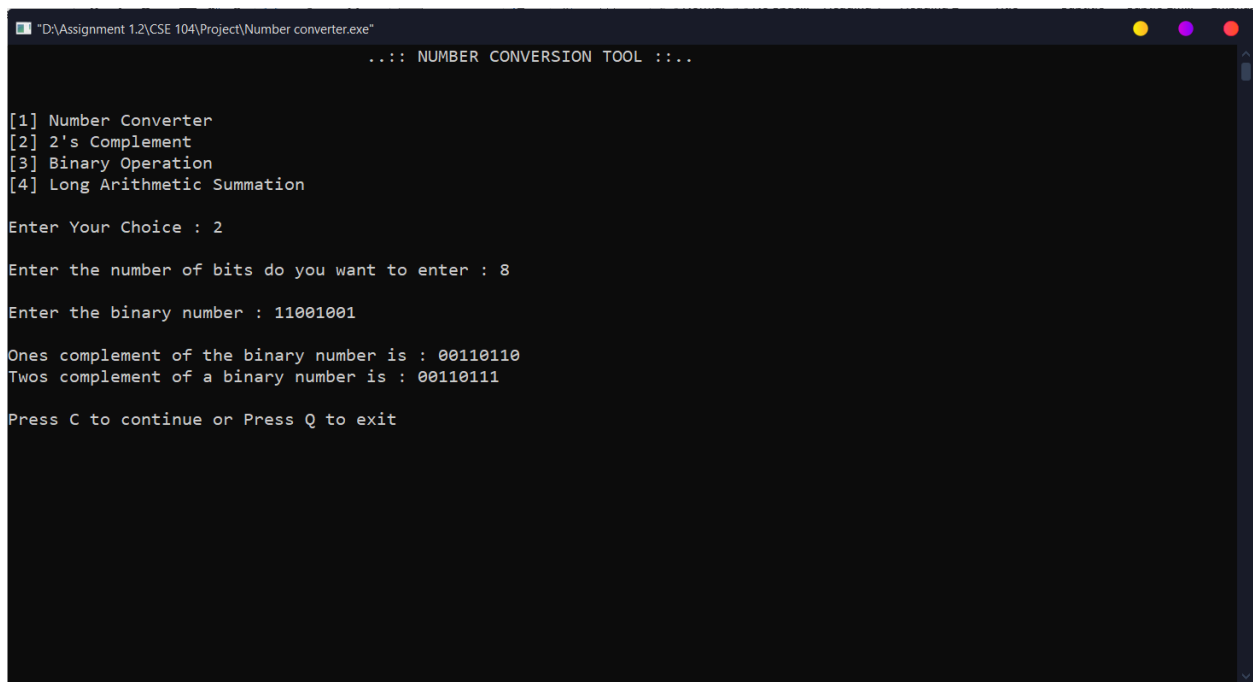
“And also if we press wrong key it will show ‘Invalid Entry, Try again’ and we will be able to enter again”



```
"D:\Assignment 1.2\CSE 104\Project\Number converter.exe"
Press C to continue or Press Q to exit
A
Invalid Entry, Try Again
Press C to continue or Press Q to exit
C
[1] Number Converter
[2] 2's Complement
[3] Binary Operation
[4] Long Arithmetic Summation
Enter Your Choice :
```

2's Complement: Here we can do 2's complement of any binary number. First we have input the number of bits then the number itself.

It will show the result of 2's complement of that binary number following the 1's complement too.



```
"D:\Assignment 1.2\CSE 104\Project\Number converter.exe"
...: NUMBER CONVERSION TOOL :...

[1] Number Converter
[2] 2's Complement
[3] Binary Operation
[4] Long Arithmetic Summation

Enter Your Choice : 2

Enter the number of bits do you want to enter : 8

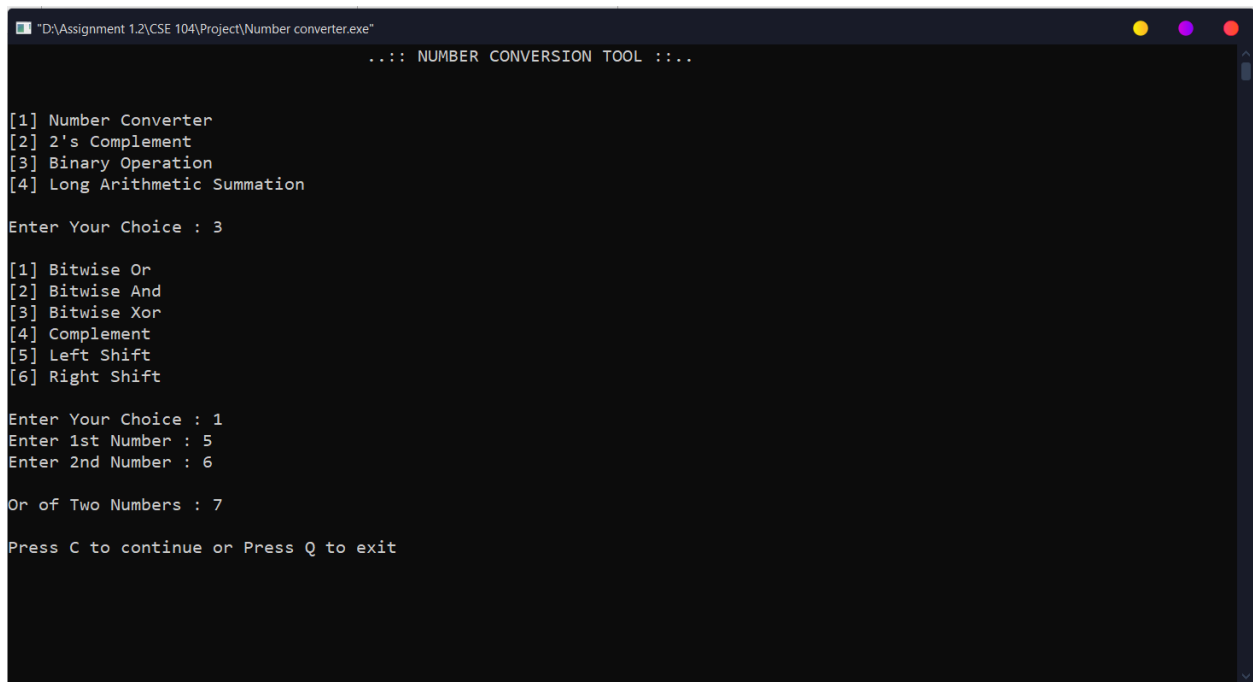
Enter the binary number : 11001001

Ones complement of the binary number is : 00110110
Twos complement of a binary number is : 00110111

Press C to continue or Press Q to exit
```

Binary Operation: Here in Binary operation we have all six binary operation. Bitwise or, Bitwise and, Bitwise xor, complement, left shift & right shift.

First we will enter two number in the case of or, and, xor binary operation. It will show the output.



```
"D:\Assignment 1.2\CSE 104\Project\Number converter.exe"
...: NUMBER CONVERSION TOOL :...

[1] Number Converter
[2] 2's Complement
[3] Binary Operation
[4] Long Arithmetic Summation

Enter Your Choice : 3

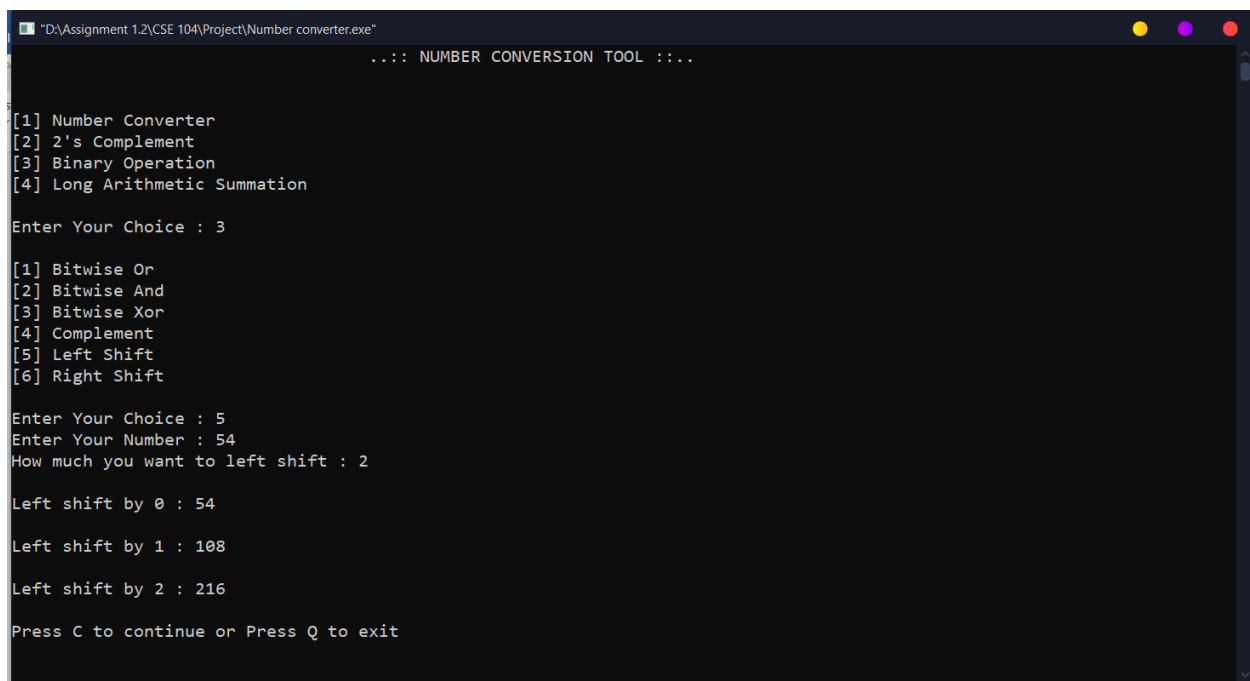
[1] Bitwise Or
[2] Bitwise And
[3] Bitwise Xor
[4] Complement
[5] Left Shift
[6] Right Shift

Enter Your Choice : 1
Enter 1st Number : 5
Enter 2nd Number : 6

Or of Two Numbers : 7

Press C to continue or Press Q to exit
```

In complement, left shift, right shift we will enter one number and it will show output. In both shift case we also have to input the number of bits we want to shift and here we called in a feature where it will show shift from 0 to the number, we want this to shift.



```
"D:\Assignment 1.2\CSE 104\Project\Number converter.exe"
...: NUMBER CONVERSION TOOL :...

[1] Number Converter
[2] 2's Complement
[3] Binary Operation
[4] Long Arithmetic Summation

Enter Your Choice : 3

[1] Bitwise Or
[2] Bitwise And
[3] Bitwise Xor
[4] Complement
[5] Left Shift
[6] Right Shift

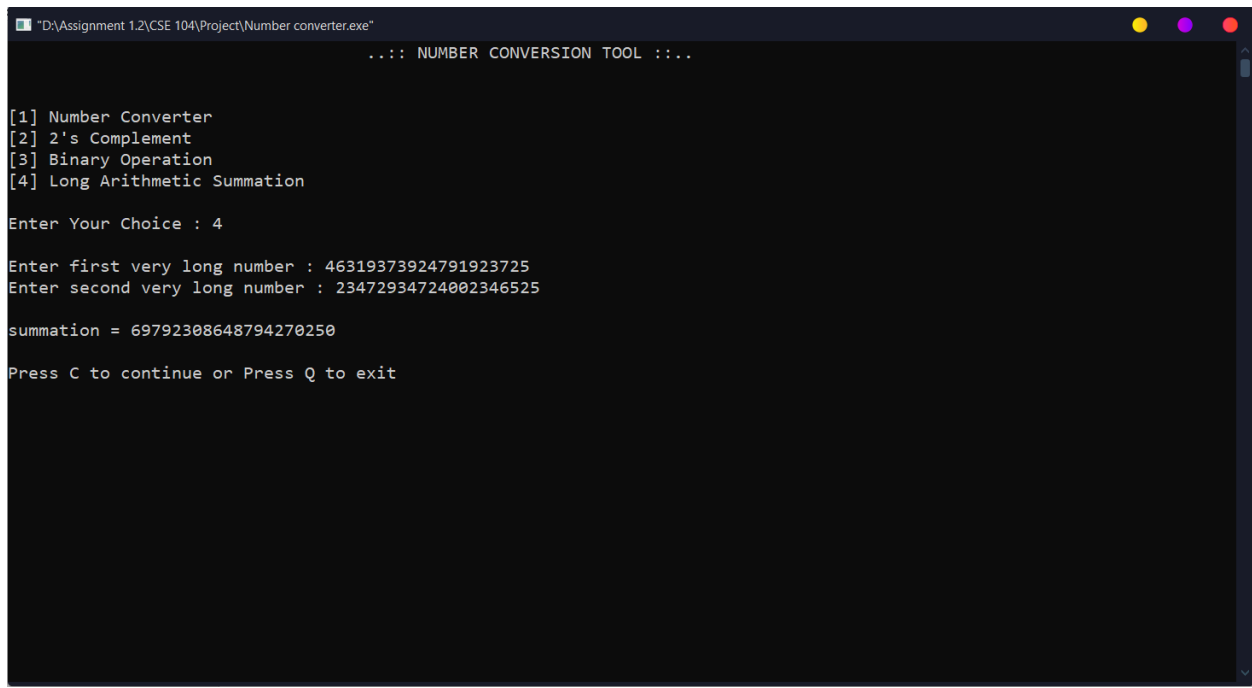
Enter Your Choice : 5
Enter Your Number : 54
How much you want to left shift : 2

Left shift by 0 : 54
Left shift by 1 : 108
Left shift by 2 : 216

Press C to continue or Press Q to exit
```

Long Arithmetic Summation: Here we will input two very long numbers. It is greater than long long integer. The maximum character string size is 64,000. The string size we used in our program is 10,000.

That's why we have to do this summation via string and using ASCII values of the number itself.



```
"D:\Assignment 1.2\CSE 104\Project\Number converter.exe"
...:: NUMBER CONVERSION TOOL :...

[1] Number Converter
[2] 2's Complement
[3] Binary Operation
[4] Long Arithmetic Summation

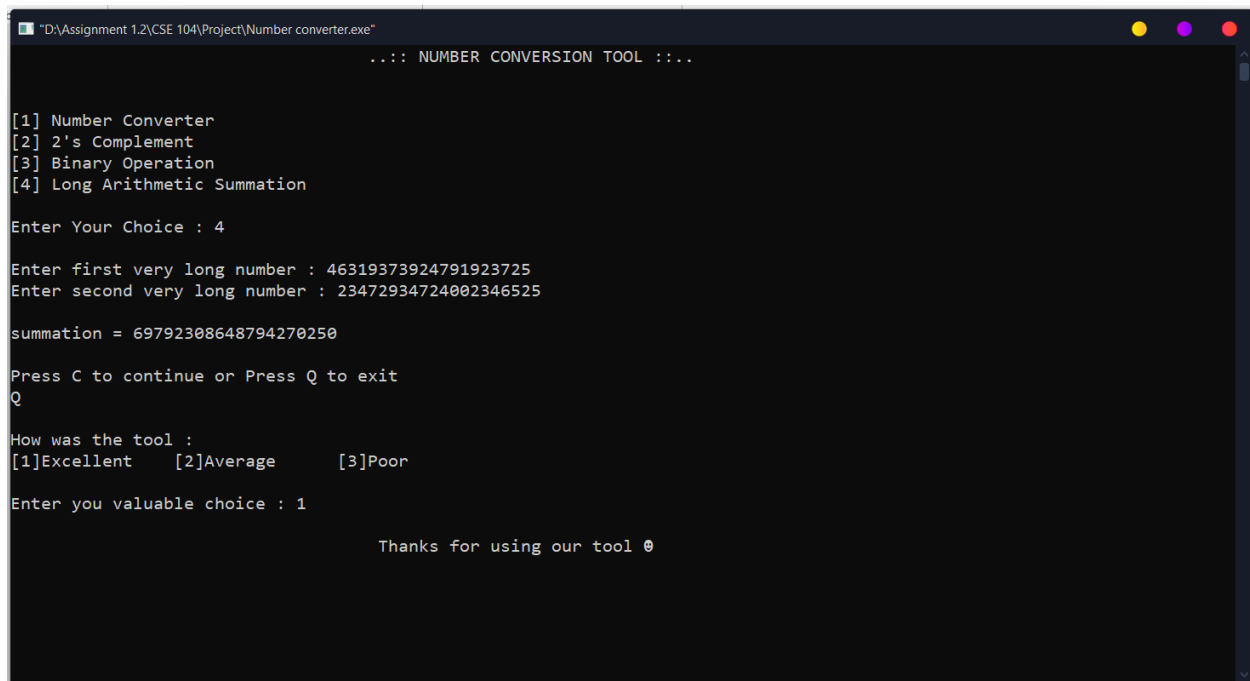
Enter Your Choice : 4

Enter first very long number : 46319373924791923725
Enter second very long number : 23472934724002346525

summation = 69792308648794270250

Press C to continue or Press Q to exit
```


Tool Evaluation: We had a feature that we said was to continue and exit with the following C and Q key. If we press Q it will exit the program but it will also ask us to rate the tool between Excellent, Average and Poor. After we evaluate our conversion tool, it will thank us and will close the program.



```
"D:\Assignment 1.2\CSE 104\Project\Number converter.exe"
...: NUMBER CONVERSION TOOL :...

[1] Number Converter
[2] 2's Complement
[3] Binary Operation
[4] Long Arithmetic Summation

Enter Your Choice : 4

Enter first very long number : 46319373924791923725
Enter second very long number : 23472934724002346525

summation = 69792308648794270250

Press C to continue or Press Q to exit
Q

How was the tool :
[1]Excellent    [2]Average    [3]Poor

Enter you valuable choice : 1

Thanks for using our tool 😊
```