User Manual

Number System Calculator

Overview:

This program is meant to provide the user the ability to do simple math and conversions with a variety of different number systems. The program allows the user to enter which number system each input will be in, respectively, and what number system the solution will be output in as well as what mathematical operator to use. The current number systems that are supported are hexadecimal, binary and decimal. Inputs can not be non-whole numbers, but the result may be if in decimal.

Goal:

The goal of this program is to allow anyone to easily convert between number systems and do basic math with ease even when in different systems. This program can be used by anyone that has to deal with various number systems.

Definition of Terms in Code:

- inputOne - this is the first number entered by the user
- inputTwo - this is the second number entered by the user

Inputs:

- givenSys - this is what determines the number system of inputOne and inputTwo. Capitalization does not matter as it will be converted to all caps, an improper input will result in a prompt to enter again.
- Input - this is a general variable for what the user enters as their input value. It will be tested to make sure the input matches the number system the user indicated it would be. If it passes it will then be converted to decimal.
- Solution - after the two inputs have been converted to decimal the mathematical operator is taken in and applied to the two inputs resulting in the solution. The solution is then converted to the desired number system.

Steps:

```
C:\Users\Chris\Documents\TCNJ\Sem 2\Comp Sci\Final>numSysCalc.exe
Please specify what type of number system your input is using by entering "Bin", "Hex", or "Dec"
(non-whole numbers are not supported)
Hex
```

Capitalization does not matter here, just spelling.

```
Please enter your base 16 (hexadecimal) number (letters do not have to be capitalized):
2A
```

The “A” does not have to be capitalized. I non-hexadecimal number would result in a prompt to enter again.

```
Please specify what type of number system your input is using by entering "Bin", "Hex", or "Dec"
(non-whole numbers are not supported)
bin
```

The second input can be of a different number system. Capitalization does not matter here, just spelling

```
Please enter your base 2 (binary) number (up to ten digits):
1000
```

A non-binary number would result in a prompt to enter again. Up to ten digits due to integer limitations.

```
Please enter the mathematical operator you would like to use (ex: +):
+
```

Can enter: + , - , * , x , or /. If not one of these, a prompt to enter again will appear.

```
Please specify what type of number system you would like the solution in by entering "Bin", "Hex", or "Dec"
Dec
The solution in base 10 is: 50
```

User can pick what number system to have the solution output as. Capitalization does not matter here, just spelling.

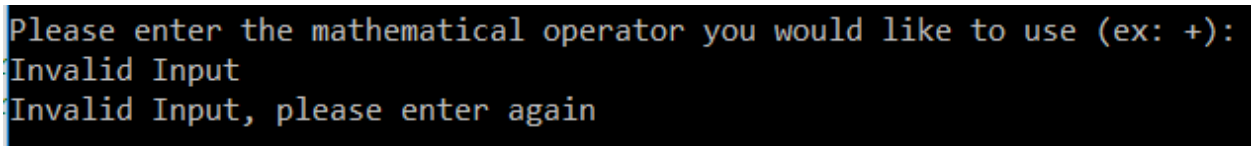
Potential Errors:

```
Please specify what type of number system your input is using by entering "Bin", "Hex", or "Dec"
(non-whole numbers are not supported)
Wrong Input
Invalid input, please enter again
```

If “Bin”, “Hex”, or “Dec”, is not entered then the user will be prompted to enter again. This will happen for the second input and solution as well.

```
Please enter your base 2 (binary) number (up to ten digits):
10024
Invalid Input, enter again
```

If the number entered does not match the number system indicated, then the user will be prompted to enter again.



If an unsupported operator or phrase is entered then the user will be prompted to enter again.