

# For Loops Challenge 11:

## Binary Hexadecimal Converter App

### Description:

You are responsible for writing a program that will generate binary and hexadecimal values from 1 up to a specified user value. Recall that decimal is a base 10 number system, binary is a base 2 number system, and hexadecimal is a base 16 number system. Your program will use list slicing to first only show a portion of these values. Your program will then loop through the entire lists of decimal, binary, and hexadecimal values to show the relationship between numbers of different bases.

### Step By Step Guide:

- Print a welcome message.
- Get user input for how many values they would like to convert to binary and hexadecimal.
- Using the range function, generate a list of numbers holding the decimal values from 1 up to the users maximum value.
- Create a blank list for the binary values.
- Create a blank list for the hexadecimal values.
- Use a for loop to loop through the decimal values. During each iteration:
  - Determine the binary representation and hexadecimal representation of the decimal value and add each value to the appropriate list.
    - To accomplish this use the built in `bin()` and `hex()` functions.
    - Google or check the python documentation on how to use these functions.
- Print a message informing the user that the lists are complete.
- Rather than print the whole list initially, use slicing to only show a portion of each list.
  - Get user input for the decimal number to start and stop at.
  - Be careful and think as to how these numbers relate to the indices of a list slice.
- Print a message for each list slice.
- Use a for loop to loop through the portion of the list specified and print each element.
- Prompt the user to press Enter to see the entire list generated.
  - To pause a program you can use an input statement.
- Print a table header.
- Using only one for loop, print the decimal, binary, and hexadecimal values for each element in each list.
  - This can be accomplished using the `zip()` function or proper list indexing.

- Use at least 2 comments to describe sections of your code.
- “Chunk” your code so that is readable.
- Use appropriate and informative variable names.
- Format your output as below.

### Example Output:

Welcome to the Binary/Hexadecimal Converter App

Compute binary and hexadecimal values up to the following decimal number: 12

Generating lists....complete!

Using slices, we will now show a portion of each list.

What decimal number would you like to start at: 4

What decimal number would you like to stop at: 7

Decimal values from 4 to 7:

4

5

6

7

Binary values from 4 to 7:

0b100

0b101

0b110

0b111

Hexadecimal values from 4 to 7:

0x4

0x5

0x6

0x7

Press Enter to see all values from 1 to 12.

Decimal----Binary----Hexadecimal

1----0b1----0x1

2----0b10----0x2

3----0b11----0x3

4----0b100----0x4

5----0b101----0x5

6----0b110----0x6

7----0b111----0x7

8----0b1000----0x8

9----0b1001----0x9

10----0b1010----0xa

11----0b1011----0xb

12----0b1100----0xc