CS 160 – Assignment 10

# Problem Description:

Write a program in Python to read a 32-bit integer and output its corresponding value in dotted decimal notation. For example the number 10000000111111110000001100001111 would become 128.255.3.15.

# Inputs

Your Python program should accept a 32-bit integer as a raw string.

# Output

Your program should print the dotted decimal notation.

# Approach

First, you will want to get your input as a string rather than an integer, because we'll want to break up the string into four pieces with 8 bits each. It is easy to break up strings into pieces but much harder to do this for integers.

The second step will be to break this string up into pieces.

The third step will be to make a function that takes an eight-character string of ones and zeroes as input and calculates it's corresponding decimal integer value for the output. The tricky part here is to figure out what to do as you extract each bit from the string. A loop would be helpful here along with an if statement, but watch out! The number 1 is not the same thing as the character '1' and you want to check for characters from your string, not numbers! Once you've computed the total contributed by each bit in your string, you should return that total value. The videos in my previous modules and this module will help you write this program. Please see references below.

The final step is to combine the first three steps in a small program. You should get the input as a string, break it into four pieces with the square bracket and colon syntax, send each of those pieces to your decimal conversion function, and print out the results of each function call. Be sure to remember to separate each of the four decimal numbers with a dot!

# Examples of output

Python 3.5.2 (v3.5.2:4def2a2901a5, Jun 25 2016, 22:01:18) [MSC v.1900 32 bit (Intel)] on win32

Type "copyright", "credits" or "license()" for more information.

>>>

=================== RESTART: C:/Temp/a07.py =====================  
Please enter the 32-bit integer:10000000111111110000001100001111

The dotted decimal notation is: 128.255.3.15

# References:

Refer to this pdf file (link [here](http://anh.cs.luc.edu/python/hands-on/3.1/Hands-onPythonTutorial.pdf)) sections:

* 1.6 Variables and Assignment page 17
* 1.9.4 Program Documentation String page 23
* 1.10 Input/output page 23.
* 3.1.5 Multiple Tests and if-elif statements page 119
* 3.3.1 Simple while Loops page 141
* 1.13.5 Simple Repeat Loop (for loops) page 50
* 2.1.2 String Indices page 73
* 2.1.3 String Slices page 74
* 1.11 Defining your own functions page 28

Also check out this [link](http://learnpython.org/) for more tutorials.