**Lesson 4**

Simple review of python

Basics:

* Lists
* Dictionaries
* Tuple
* Sets
* Strings
* Control Flow

Functions

Modules and Scoping Rules

Numeric Types

* Formats, Comparisons, Division, Precision
* Bitwise Operations

Function topics

* Function design
* Recursive functions

Small practices

1. Write a program which can compute the factorial of a given numbers.

Suppose the following input is supplied to the program:

8

Then, the output should be:

40320

Solution:

def fact(x):

pass

2. Write a program which takes 2 digits, X,Y as input and generates a 2-dimensional array. The element value in the i-th row and j-th column of the array should be i\*j.

Note: i=0,1.., X-1; j=0,1,Y-1.

Example

Suppose the following inputs are given to the program:

3,5

Then, the output of the program should be:

[[0, 0, 0, 0, 0], [0, 1, 2, 3, 4], [0, 2, 4, 6, 8]]

Solution:

3. Write a program that accepts a comma separated sequence of words as input and prints the words in a comma-separated sequence after sorting them alphabetically.

Suppose the following input is supplied to the program:

without,hello,bag,world

Then, the output should be:

bag,hello,without,world

Solution:

4. Write a program that accepts sequence of lines as input and prints the lines after making all characters in the sentence capitalized.

Suppose the following input is supplied to the program:

Hello world

Practice makes perfect

Then, the output should be:

HELLO WORLD

PRACTICE MAKES PERFECT

Solution:

5. Given a number, check if the number is a prime number by recursion

Input: n=11

Ouput: True

Input: n = 15

Output: False

Solution:

def isPrime(n, i=2):

pass

6. Please write a binary search function which searches an item in a sorted list. The function should return the index of element to be searched in the list.

Solution:

def bin\_search(li, element):

pass

li=[2,5,7,9,11,17,222]

print bin\_search(li,11)

print bin\_search(li,12)