Lecture 10: Introduction to Computer Programming Course - CS1010

DEPARTMENT OF COMPUTER SCIENCE | 10/11/2019

Rensselaer

Announcements

- ALAC Tutoring Now Available
  - Monday-Wednesday: 8-10 pm in AE 118
- Homework 5 is posted

Goals for today

- Problems on:
- Tuples and Images

Problem 1

- Write a function called add_tuples that takes three tuples, each with two values, and returns a single tuple with two values containing the sum of the values in the tuples.

- Test cases
- add_tuples((1,4), (8,3), (14,0)) : (23, 7)
- add_tuples((3,2), (11,1), (-2,6)): (12, 9)

Problem 2

- Get an image (your own or from google) and do the following:
- Read the image into python
- Crop it (Based on the size of the Image crop half – for both x and y co-ordinates)
- Covert it to grayscale
- Save it in your working folder.

Problem 3

- Given two tuples as inputs (a and b), that represent points in the x-y plane output a tuple that lies at the midpoint of the line joining a and b.
- Test cases:
- midpoint((2,3),(5,6)) : (3.5,4.5)
- midpoint((-1,0),(7,-4)) : (3.0, -2.0)

Problem 4

- Write a function that takes a tuple as an input and prints its elements in reverse order.
- Test cases:
- reverse((1,2,3,4,5)): (5, 4, 3, 2, 1)
- reverse(('a','b','c','d')): ('d', 'c', 'b', 'a')

Problem 5

```
def test( x ):
    if x[0] > x[1]:
        return (x[1], x[0])
    else:
        return x

s = ('a', 'b')
t = (1, 2, 3)
u = (4, 5, 2)
print( t[1] + u[0] )
print( t+u )
print( s[1] * t[2] )
print( test(u) )
print( test( (5, 2, 3) ))
```

- Without typing into Spyder predict the output of the code shown.

Next Lecture

- Lists