Columbia College
Vancouver, Canada

Introduction to Computer Science and Programming 1
CSCI120

Chapter10: Tuples

Assignment 10

# of Students in the Group:		
Student 1	*First name, last name*	*Student-ID*
Student 2	*First name, last name*	*Student-ID*
Student 3	*First name, last name*	*Student-ID*
Student 4	*First name, last name*	*Student-ID*

Requirements

- Please use meaningful name for your variables and functions
- Try to reuse your solutions as much as possible.
- For each of the following problem you need to
  - o Define a function
  - o For all test cases you have already written for your algorithm, write a function call inside the main function
- Define all the functions in one file (all in one)
- Define one main function
- Call the functions inside the main function
- If the function you have implemented for a question is big, please try to break down to multiple functions.
- Do not use methods, functions, statements that we have not covered in the previous lectures.
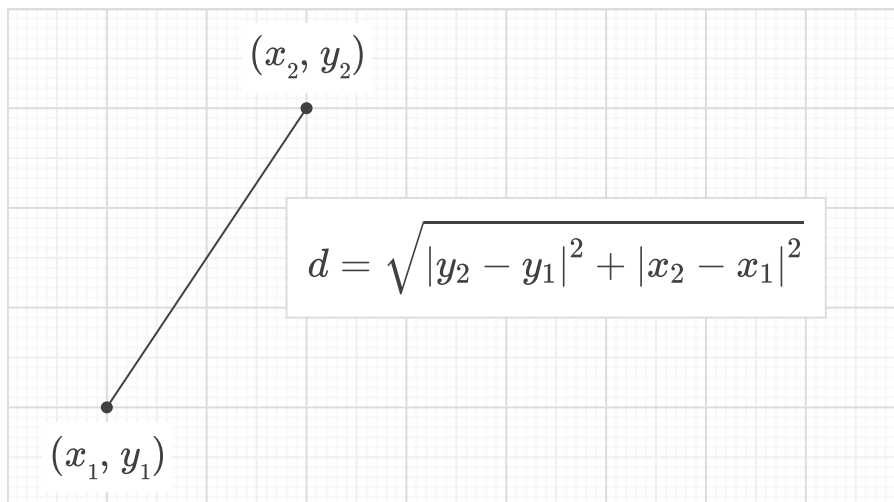
Problem1

- Write a function which receives a list of number and calculate the average and standard deviation (std) of the numbers and returns both the average and std.

Problem2

Write a function which receives 2 points in the a cartesian coordination system and calculate the distance between two numbers:

Note: The image below shows the formula.

$$d = \sqrt{|y_2 - y_1|^2 + |x_2 - x_1|^2}$$

(The figure shows two points (x_1, y_1) and (x_2, y_2) connected by a line segment on a grid.)

Problem3

- Write a function that receives a tuple of Integers as its input parameters and converts the tuple to a list and returns it.

Problem4

- The following table is given (as a sample data). Write a python function that receives such a table and returns a tuple containing the first name, last name and grade of the students who have received the maximum grade.

Firstname	Lastname	Grade

Bryan	Hinton	80
Adam	Juarez	76
Veronica	Morley	83
Harvir	Sandhu	75
Reis	Wheeler	83

Problem5

- Write a function with one input parameter which is a number called size. The function then asks the user to enter as many words as the size. Then the function will find the followings and returns it as a tuple:
  - o The first item in the tuple is the size
  - o The second item in the tuple is the number of words whose length is less than 5
  - o The third item in the tuple is the number of words which only contains upper case letters.
  - o The fourth item in the tuples is the number of words which contains at least one letter in the word

Good Luck ☺