Kasetsart University, Sriracha Campus

03603111: Programming Fundamentals I

	Structure	Lab 10

Objective:

- Know how to define and declare structures
- Know how to access data elements in a structure
- Understand how to pass structures as arguments to a function

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Exercise 1. Create a *structure* called RECORD containing five strings, i.e., address1, address2, city, state, and zip. Then use the struct to keep the input from user as following:

```
Enter the first address: 2600
Enter the second address: TenthStreet
Enter city: Berkeley
Enter state: California
Enter zip code: 94710

The data record is [2600, TenthStreet, Berkeley, California,
94710].
```

Exercise 2. Create a *structure* called "rectangle" containing 2 integers (width, height). Then use the struct to keep the input from user as following:

```
Enter the width: 10
Enter the height: 20

Area = 200
```

Exercise 3. Write a *structure* that contain 3 floating point numbers (x, y, y). Write *function* ReadVector for receiving inputs and return them out. Write *function* PrintVector that receive struct as its parameter and print out to screen.

```
Enter a vector
X element: 6
Y element: 13
Z element: 1

You enter a vector (6.00,13.00,1.00)
```

Exercise 4. Write a *structure* that contain 2 double value of real part and imaginary part of complex number and write a program that contain *function* for display 2 points complex number as **a + bi or a – bi**

```
Input the value of real part: 1.00
Input the value of imaginary part: 3.00

Output: 1.00 + 3.00i, 1.00 - 3.00i.
```

Exercise 5. Create a *structure* for keeping co-ordinate (x,y). Use the created struct for receiving co-ordinate of point A and B. Then Write a *function* to find distance between point A and B.

$$distance\ (a,b) = \sqrt{(a_x - b_x)^2 + \left(a_y - b_y\right)^2}$$

```
Enter 1st coordinate (x y): 1 2
Enter 2nd coordinate (x y): 3 4

Distance between (1,2) and (3,4) is 2.83
```

```
Enter an integer (-1 to exit): 1
Enter an integer (-1 to exit): 2
Enter an integer (-1 to exit): 3
Enter an integer (-1 to exit): 4
Enter an integer (-1 to exit): 5
Enter an integer (-1 to exit): -1

Enter the number to search: 8

Sorry, 8 is not in [1,2,3,4,5].
```