Practice problems on structure

1. Do the followings in the same program.

(a) Write down a structure named **Time** that will be used to store hour and minute of a city's time in 24-hour clock.

(b) Using the **Time** structure take input of two city's time in your main function and calculate time difference between them.

Sample Input/output:

Enter Time of the first city
Hour: 10
Minute: 20
Enter Time of the second city
Hour: 9
Minute: 50
Time difference: 0 hours 30 minutes.

2. Do the followings in the same program.

(a) Write down a structure named **Point** that will be used to store x, y coordinates of a **point** in a 2-dimensional space.

(b) Write down a function **calDist** that will that will accept two **Point** variables as parameters and return the Euclidian distance between them. Euclidian distance (E.D.) between two points P(x1, y1) and Q(x2, y2) is defined as follows:

$$E.D. = \sqrt{(x1 - x2)^2 + (y1 - y2)^2}$$

(c) Using the **Point** structure take input of two points in your main function and calculate Euclidian distance between them using the above **calDist** function. Finally print the distance.

3. (a) Write down a structure capable of storing following information about a student of a university:
  - Student ID number
  - Marks in two subjects
  - Grades in those two subjects

b) Use the above structure to take necessary information of ONE student as input in your main function, calculate grades in each subject using a function which will take a mark as a parameter and will return its corresponding letter grade according to the following grade chart. [Hints: call the function twice]

A → 90 or more

B → 80 – less than 90

C → 70 – less than 80

D → 60 – less than 70

F → below 60