

- 1. Write a program contains a structure Student that has data members: name (string), age (float), Id (int), ten grades (float), avg(float) function to read data members and set the value of avg which is equal to the average of ten grades. In main function, define an array of n Student, read this array, sort this array according to the average (descending order). Finally, display only the data for the students with min and max average.**
- 2. Write a program contains a structure TTax that has data members: price (float), tax(float). Also, it contains a structure Toy that has data members: Tname(string), Tprice (TTax), Net\_price(float). Toy structure contains a function to set the data members (read all data members and set the value of Net\_price from Tprice 's elements), and a function to display the data members. In main function define an array of Toy structure of length n, reads the elements of array and display only elements which net price > 50.**
- 3. Write a program contains a structure GCD that has three integer data members: a , b, c. This program contains a function to return the greatest common divisor for two given positive numbers (recursive function). A function to set the data members for one structure (read a, b and set c which is equal to the greatest common divisor for a, b), and a function to display the data members for one structure in one line as this form  $GCD(a, b) = c$ . In main () function, define an array of structure GCD of length n, and applies all functions on it.**
- 4. Write a program contains Series structure that has data members: x (float), n (int), S1 (double), S2 (double). This program contains:**
  - i. A function to return a factorial of a given number.**

ii. A function to set the data members for one structure (reads x, n and set the value of S1 which is equal to  $\frac{1!}{\sqrt{x+1}} - \frac{3!}{\sqrt{x^3-3}} + \dots$ , and the value of S2 which is equal to  $\frac{2!}{\sqrt{x^2+1}} - \frac{4!}{\sqrt{x^4-4}} + \dots$  ).

iii. A function to display the data members for one structure in one line.

In main function, define an array of three Series elements, and apply all functions on it (display the elements in a tabular form).