

Programming – TU857/1

Lab 17 – Thursday, March 14th, 2024

Note: You are expected to finish all programs in your own time if you do not get these done during the lab session. This is your own responsibility.

Structures (part 1)

Remember: Use Symbolic names in your programs. Do not hard-code.

Write separate programs to:

1. Q1 on screen shot (use a single .c file and place all the templates one after the other).
2. Q3 on screen shot.

Mandatory Exercise Question – You must complete and Demo to your Lab TA

3. Using Structures, write a program to do the following:

Design structure templates, incorporating the use of nested structures, to store biographical data about a person.

Your program must:

- a) Enter data for a person's first name, surname, date of birth, height, weight, eye colour & country of citizenship.
- b) Display the data entered.
- c) Copy the data and store it in a 2nd person's record and then modify it.
- d) Display the new data for the 2nd person.

contd. →

Exercises

1. Write a structure template for each of the following:
 - (a) a playing card, such as the five of diamonds or the three of spades
 - (b) a stock record consisting of a stock number (integer), a stock description (20 characters), and a stock quantity (integer)
 - (c) a library book record consisting of ISBN (13 characters), book title (30 characters), author (25 characters), and a price (float)
 - (d) a customer record consisting of a customer number (unsigned int), a name (25 characters), an address (45 characters), and an outstanding balance (double)
 - (e) a transaction record consisting of a transaction type (1 character), the date of the transaction (3 integers), and the amount of the transaction (float)
 - (f) the time of day using the twelve-hour format, i.e. hours, minutes and seconds and either a.m. or p.m.
 - (g) the longitude and latitude co-ordinates of a geographical position consisting of degrees (int), minutes (int), and direction ('N', 'S', 'E' or 'W')
 - (h) thirty teams in a league. For each team store the team name (20 characters) and the number of wins, draws and losses for both home and away games.

3. Given the following definitions:

```
struct stock_record
{
    int no ;
    char description[21] ;
    float price ;
    int qty ;
} ;

struct stock_record stock_item ;
```

Write statements to:

- (a) assign a value to each member of `stock_item`
- (b) input a value to each member of `stock_item`
- (c) display the value of each member of `stock_item`.