

Lab 10

Pointers in C

Marks: 5

Question 01:

Convert numerical date into following format using pointers:
25 8 2017 => Friday, August 25, 2017

Question 02:

A class of students took a math test. Their teacher found that the mean score on the test was an 85%. She then wants to calculate the standard deviation to confirm the mean. She ask for your help and wanted you to design a single function that receives an array of 10 integers and returns the standard deviation of these numbers **without using return statement**. Invoke the function in **main()** and output the result.

$$\text{Mean} = \frac{\text{Sum of all data values}}{\text{Number of data values}}$$

Symbolically,

$$\bar{x} = \frac{\sum x}{n}$$

Sample Standard Deviation

$$s = \sqrt{\frac{\sum (x - \bar{x})^2}{n - 1}}$$

where \bar{x} (read as 'x bar') is the mean of the set of x values,
 $\sum x$ is the sum of all the x values, and
 n is the number of x values.

Question 03:

Write a C language program. The program intends to include the following modules. The solution must be provided using only the mentioned functions. No global variables shall be declared. Use appropriate data types, return types and function arguments.

- a. Module Name: "ProductsList()". This module holds and displays a list of hard coded products along with their prices.

The list is as follows:

Products:	Price
Milk	80.23/-
Loaf	347.52/-
Beef	50.36/-
Eggs	50/-
Fish	85/-
Surf	56.58/-

Cake	70.236/-
Soap	103.63/-
Lamb	50.23/-
Corn	70.236/-

- b. Module Name: “AddProduct()”. This function takes the products’ names as input from the customer and adds them to an array named “shoppingCart”. The shoppingCart must contain five or less products. If more than five products are entered, an error message must be displayed. If the product does not exist in the list, the user must be prompted to enter the valid product.
- c. Module Name: “CalculateBill()”. This function calculates the bill by matching the products in “shoppingCart” and the hard coded list in order to obtain the prices. If the “shoppingCart” contains two or more similar products (e.g. two Soaps) then the customer is only charged for one such product as a discount.
- d. Module Name: “DisplayProductsBill()”. This function displays the added products(i.e. the “shoppingCart”) along with the final bill.
- e. Module Name: “main()”. It must only call the ProductsList() module to begin the execution.

Question 04:

Write a program to print the following pattern

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UN
UNIV
UNIVER
UNIVERSI
UNIVERSITY
UNIVERSI
UNIVER
UNIV
UN

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Question 05:

Get an ‘n’ sized array from user, sort it and then prompt user to provide integer and place it in the array at its respective index via pointer.