

Object Oriented Programing (CL-217)

Lab 01

Deadline: Saturday, February 05, 2022 (02:00 PM After noon) (Submit on Google Classroom) Points: 100

Instructions:

1. Solve each problem in separate file, Name the code file with problem no (Task_01, Task_02,..)
2. Copy these files (Task_01, Task_02,..) in a folder and name the folder like that K21XXXX. where XXXX is your 4-digit Student Id.
3. Now compress that folder and submit on google-classroom.
4. Do not attach .exe file, otherwise it will show a threat or virus and not allow me to download.
5. Make sure you must Press the Turn-In button after uploading the solution folder. Otherwise, it will not be submitted.

Task_01:

Write a program that reads the input from user and store into the variable of all primitive datatypes (int, char, float, bool) using **cin** and **cout** stream operators.

Also, in comments of the solution file states the difference between primitive and derived datatypes

Task_02:

Declare a linear array of float datatype of 10 elements. Take input from the user and perform the following operations

(a) Sum of all the elements	$\sum_{i=0}^n Array[i]$
(b) Subtract the total from each element	$\sum_{i=0}^n \left(X_i - \sum_{i=0}^n Array[i] \right)$
(c) Average of all the elements	$\left(\frac{\sum_{i=0}^n Array[i]}{n} \right)$
(d) Normalize the array (Divide each element of the array with maximum value)	$\sum_{i=0}^n \frac{Array[i]}{\max value}$

Task_03:

Write a program which takes a matrix(2D-array) of any size as user input and returns the maximum element of matrix as output. Your code should also show the entered matrix on the screen.

Task_04:

Declare the variables of primitive datatype (int, char, float, bool). Now take input into these variables using pointer of that specific types. In the end print the values of these variables using pointers

Task_05:

You appeared in the entry test at FAST-NU. Your intelligence is calculated using the formula given below.

$$Iq_Score[i] = 2 * (A + 0.5t)$$

Where A= [0, 50] and t = [0,600]

Here **A** is the no of questions attempted and **t** is the total time to attempt these questions. You need to design a system which takes these 2 variables input 10 times. In the end, system will take average of these 10 Iq_score and display the category based on their average value

Message = {Iq_score < 10, "Poor"; 20 > Iq_score > 10, "Average"; 30 > Iq_score > 20, "Intelligent" }

Task_06:

Write a program to declare an array of 'N' no of inputs from the user. Take the stream of character from the user separated with a space ('_').

- (a) Use pointer, to sort the elements in the array.
- (b) Use pointer, calculate the frequency of each character in this array.
- (c) Use pointer, to convert the name in UPPER CASE letters
- (d) Use pointer, to calculate no of words in the array.

Note: A word is a collection of character followed by a space.

Task_07:

You need to declare an array of 5 x 9 elements. In which first 1st column contains the StudentID and its respective 5 courses obtained marks in following 5 five columns for the semester. In rest of 4 columns total marks, obtained marks, and Percentage as shown in given table.

- Use pointer, to initialize the array with its default value.
- Use pointer, to take user input for the first 6 columns.
- Use pointer, to calculate the Total marks, obtained marks, and Percentage columns will be filled by your program on the basis of required logic for each of the columns.

Std-id	C1-Marks	C2-Marks	C3-Marks	C4-Marks	C5-Marks	Total-marks	Obt-marks	percentage
1								
2								
3								
4								
5								

Task_08:

You are working part time job along with your three friends after university time. All of you sell six different products per day. At end of duty time each of you submit a report which contains the information like employee id of each of you, the id of the product which you sold and the total amount for the products which you have sold. After one month of your job your reporting officer wants you to write a program which read the report at end of the month and summarize the total sale made by each employee for each product. Your program should display the processed information in the form of table where each row will represent the respective product and each column will be the representation for each employee. Your program should also print the total product sale and the total sale by particular employee.

Enjoy Coding