Programming & Data Structure Laboratory (CS112)

Lab Exercise 10
Indian Institute of Technology, Patna
June 23, 2022

Submission Deadline: **5:00 pm 23/06/2022**

Instructions:

- Proper indentation is mandatory.
- You should comment the statements whenever necessary, to make the code understandable.
- Answers files: 10_1.c, 10_2.c

Total Marks: 50

EXERCISE 1 [25]: Suppose you were told to design a framework for the students and teachers of IIT Patna. Please follow the design as per the below guidelines and write the code in C.
a) Define a structure called "DOB" for Date of Birth, having integer attributes day, month and year.
b) Define a structure called "Person" with the attributes Personal Identification No., Gender(M/F) and date of birth using the "DOB" structure defined above in (a).
c) Define a structure called "Teacher" having the nested structure "Person" along with the added attribute Salary. Create another structure called "Student" having the nested structure "Person" along with the added attribute Marks.
d) Now create 2 arrays, one for the students and one for the teachers of capacity max. 5 each (Hint: Array of structures). Assign some values to these structure elements taking input from stdin/keyboard.
e) Print all the details of the teachers and the students to stdout/screen.
f) Define a function called "Sum" taking an array of structure of type "Student" as a parameter and prints out the average sum of the marks obtained by all the students.
g) Print out the size of the structure "Student" using the sizeof operator.

EXERCISE 2 [25]: Write a program for bank automation system which provides the following services:
a) Create new account for a customer and store the details (customer's identity number, name, new account number, balance). [Hint: use a sufficiently large array of accounts]
b) Deposit amount to the account. [Hint: take two inputs – account number and the amount]
c) Withdraw amount from the account. [Hint: take two inputs - account number and the amount]
d) Transfer amount from one account to another account in the same bank. [Hint: take three inputs - account number of the sender, account number of receiver and the amount]
e) Display the account details.