 **FACULTY OF COMPUTER SCIENCE AND ENGINEERING**

**Time: 1.5 hr CS221 Lab Marks: 10**

**Lab No: 02 Dated: 10/03/2021**

**Lab Activity 1:**

Learning Objective: Basic Syntax and accessing structures elements

Design a C program in which you declare a structure named Distance with two data members i.e. feet (int) and inches(float). Create two distance variables and initialize them with some values (take values from the user using scanf function)

After successful initialization create the third structure variable named as sum which contains summation of already entered distance variables.

Note: Apply the check for changing the inches into feet if inches are equal or greater than 12.

Expected Output

1st distance

Enter feet: 12

Enter inch: 7.9

2nd distance

Enter feet: 2

Enter inch: 9.8

Sum of distances = 15'-5.7"

**Lab Activity 2:**

Learning Objective: Dynamic memory allocation of structs

Sometimes, the number of struct variables you declared may be insufficient. You may need to allocate memory during run-time.

Design a C program to declare the structure of person with data members age(int) and name(char array). Ask the user that how many persons data he/she wants to add.

Now, create a structure pointer and dynamically allocate this pointer with the number of memory given by the user previously. Initialize the structure data members and display the record accordingly using structure pointer.

Expected Output:

Enter the number of persons: 2

Enter first name and age respectively: Harry 24

Enter first name and age respectively: Gary 32

Displaying Information:

Name: Harry Age: 24

Name: Gary Age: 32

**Lab Activity 3:**

Learning Objective: how to pass structures to a function and nested structures.

Design a C program using nested structures which make a **structure** named **Date** with data members **month**, **day** & **year** of type of **int** and another structure named as **University** with its data members **Uni\_Name**, **Category**, and **Location** of type **char array**. Add **Date** object as a data member into **University** structure.

Now write two functions **void input\_details(University \*u)** and **void** **print\_details(University u).**

Input the details of any university using **input\_details** function and call **print\_details** function to display its data.

**Expected Output:**

S.No University Name Category Location Established

1 Giki Engineering Topi(Swabi) January 12, 1988