I Year - I Semester

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COMPUTER PROGRAMMING LAB

OBJECTIVES:

- Understand the basic concept of C Programming, and its different modules that includes conditional and looping expressions, Arrays, Strings, Functions, Pointers, Structures and File programming.
- Acquire knowledge about the basic concept of writing a program.
- Role of constants, variables, identifiers, operators, type conversion and other building blocks of C Language.
- Use of conditional expressions and looping statements to solve problems associated with conditions and repetitions.
- Role of Functions involving the idea of modularity.

Programming

Exercise - 1 Basics

a) What is an OS Command, Familiarization of Editors - vi, Emacs
b) Using commands like mkdir, ls, cp, mv, cat, pwd, and man
c) C Program to Perform Adding, Subtraction, Multiplication and Division of two numbers From Command line

Exercise - 2 Basic Math

a) Write a C Program to Simulate 3 Laws at Motion
b) Write a C Program to convert Celsius to Fahrenheit and vice versa

Exercise - 3 Control Flow - I

a)Write a C Program to Find Whether the Given Year is a Leap Year or not.
b)Write a C Program to Add Digits & Multiplication of a number

Exercise – 4 Control Flow - II

a)Write a C Program to Find Whether the Given Number is
  i) Prime Number
  ii) Armstrong Number
b) Write a C program to print Floyd Triangle
c) Write a C Program to print Pascal Triangle

Exercise – 5 Functions

a) Write a C Program demonstrating of parameter passing in Functions and returning values.
b) Write a C Program illustrating Fibonacci, Factorial with Recursion without Recursion

Exercise – 6 Control Flow - III

a) Write a C Program to make a simple Calculator to Add, Subtract, Multiply or Divide Using switch…case

b) Write a C Program to convert decimal to binary and hex (using switch call function the function)

Exercise – 7 Functions - Continued
Write a C Program to compute the values ofsin x and cos x and e^x values using Series expansion. (use factorial function)

Exercise – 8 Arrays
Demonstration of arrays
a) Search-Linear.
b) Sorting-Bubble, Selection.
c) Operations on Matrix.

Exercises - 9 Structures
a)Write a C Program to Store Information of a Movie Using Structure
b)Write a C Program to Store Information Using Structures with Dynamically Memory Allocation
c) Write a C Program to Add Two Complex Numbers by Passing Structure to a Function

Exercise - 10 Arrays and Pointers
a)Write a C Program to Access Elements of an Array Using Pointer
b) Write a C Program to find the sum of numbers with arrays and pointers.

Exercise – 11 Dynamic Memory Allocations
a) Write a C program to find sum of n elements entered by user. To perform this program, allocate memory dynamically using malloc () function.

b) Write a C program to find sum of n elements entered by user. To perform this program, allocate memory dynamically using calloc () function. Understand the difference between the above two programs

Exercise – 12 Strings
a) Implementation of string manipulation operations **with** library function.
    i) copy
    ii) concatenate
    iii) length
    iv) compare
b) Implementation of string manipulation operations **without** library function.
    i) copy
    ii) concatenate
    iii) length
    iv) compare

Exercise -13 Files
a)Write a C programming code to open a file and to print it contents on screen.
b)Write a C program to copy files

Exercise - 14 Files Continued
a) Write a C program merges two files and stores their contents in another file.
b) Write a C program to delete a file.

Exercise - 15

a) System Assembling, Disassembling and identification of Parts / Peripherals. b) Operating System Installation-Install Operating Systems like Windows, Linux along with necessary Device Drivers.

Exercise - 16

a) MS-Office / Open Office

i) Word - Formatting, Page Borders, Reviewing, Equations, symbols. ii) Spread Sheet - organize data, usage of formula, graphs, charts.

iii) Powerpoint - features of power point, guidelines for preparing an effective presentation.

b) Network Configuration & Software Installation-Configuring TCP/IP, Proxy, and firewall settings. Installing application software, system software & tools.

OUTCOMES:

- Apply and practice logical ability to solve the problems.
- Understand C programming development environment, compiling, debugging, and linking and executing a program using the development environment
- Analyzing the complexity of problems, Modularize the problems into small modules and then convert them into programs
- Understand and apply the in-built functions and customized functions for solving the problems.
- Understand and apply the pointers, memory allocation techniques and use of files for dealing with variety of problems.
- Document and present the algorithms, flowcharts and programs in form of user-manuals
- Identification of various computer components, Installation of software

Note:

a) All the Programs must be executed in the Linux Environment. (Mandatory)
b) The Lab record must be a print of the LATEX (.tex) Format.