



# C Language

**Duration: 1 Month**

## C Programming Curriculum

### C Language

- ☒ Introduction to C
- ☒ History of C
- ☒ Features of C
- ☒ Application Areas of C
- ☒ Execution flow of c program
- ☒ Other translators
- ☒ Structure of C Program with Example
- ☒ Keywords

**Hands-On - Installations of compilers, IDEs.**



Call For More Info

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## Basic Concepts

- ✓ Tokens
- ✓ identifiers
- ✓ constants
- ✓ variables
- ✓ Data Types
- ✓ input and output functions
- ✓ Qualifiers
- ✓ Modifiers
- ✓ Escape sequences

**Hands-On -Execution of Basic Programs with different data types ,i/o functions and other concepts.**



## Operators and Expressions

- ✓ Arithmetic operators
- ✓ Relational operators
- ✓ Logical operators
- ✓ Assignment operators
- ✓ Increment & decrement operators
- ✓ Conditional/ternary operator
- ✓ Bitwise operator
- ✓ Sizeof operator
- ✓ Comma operator
- ✓ Operators Precedence and Associativity
- ✓ Expressions
- ✓ Evaluation of Expressions

**Hands-On Execution of all types operators and explain how expressions are simplified .**



## Control Structures

- ✓ While
- ✓ For
- ✓ Do..While
- ✓ Goto Statement
- ✓ Break and Continue Statement

**Hands-On - usage of Control Structures with different scenarios.**





## Control /Decision Making Statements

- ☒ Simple if
- ☒ if..else
- ☒ Nested if
- ☒ if..else ladder
- ☒ Switch..Case statement
- ☒ find out given number is even or odd
- ☒ find out given character is uppercase or lowercase or digit
- ☒ find the biggest of 3 numbers
- ☒ find out given char is vowel or consonant
- ☒ find out given number is divisible by 2 or 3 or not
- ☒ find out day from a week
- ☒ find out given year is leap year or not
- ☒ develop a calculator based on user input ,if input is + do add,- is sub,\* is mul and / is div.
- ☒ read ssc marks of students based on marks scores give grades A,B,C,D & Fail.

**Hands-On -Observation of above control flow statements with following suitable Examples.**



## Assignments

- ☒ program to find the sum of first n natural numbers
- ☒ program to find the sum of digits of the number
- ☒ program to find the reverse of the number
- ☒ given number is palindrome or not
- ☒ print the fibonacci series
- ☒ armstrong number(3 digit and n digit armstrong no also)
- ☒ perfect number
- ☒ strong number
- ☒ root digit of a number
- ☒ prime no r not
- ☒ print 1 to n prime numbers
- ☒ print first n prime numbers
- ☒ lcm and hcf of 2 numbers
- ☒  $1+1/2+1/3+.....+1/n$ =find sum of the series and print the series





## Math.h Library

- ☒ abs(int x)
- ☒ floor()
- ☒ ceil()
- ☒ sqrt()
- ☒ pow()
- ☒ exp()
- ☒ log() and etc.....

**Hands-On - practice various built in functions of Math Library.**



## Arrays

- ☒ Introduction to arrays
- ☒ Types of arrays
- ☒ 1d array
- ☒ 2d array (matrix)



## Assignments

- ☒ find max element from array
- ☒ find 2 max element from array
- ☒ sort and search
- ☒ trace & difference of sum of 2 opposite diagonals.
- ☒ Decimal to Binary conversion
- ☒ Repeated element and count
- ☒ Rotate the array elements k times(left & right)
- ☒ String declaration and initialization

**Hands-On - Observation of sorting,searching and rotating array.**

### Strings



## string.h library

- ☒ strlen(str)
- ☒ strcpy(des\_str,src\_str)
- ☒ strcat(desc\_str,src\_str)
- ☒ strrev(str)
- ☒ strcmp(str1,str2)
- ☒ strlwr()
- ☒strupr()





## Assignments

- ✓ find the sum of numericals from the given Alphanumeric Input.
- ✓ find the frequency of each character in a given string.
- ✓ write the output code for the following inputs.

Input:codegnan it solutions

Output:nangedoc ti snoitulos

- ✓ write the output code for the following inputs.  
Input:codegnan it solutions  
Output:solutions it codegnan
- ✓ Find out strings are anagrams or not
- ✓ Find out string is palindrome or not without using string functions
- ✓ write the output code for the following inputs.

Input:venu java

Output:afov obab

**Hands-On - EXECUTION of above mentioned programs.and use cases of String functions.**



## Functions

- ✓ function types
- ✓ built in functions
- ✓ user defined functions
- ✓ Recursive functions
- ✓ call by value and call by reference



## Assignments

- ✓ find out the sum of 2 nos with above 4 ways based on function signature.
- ✓ find the factorial of given no by using function
- ✓ find the sum of first n natural nos using function
- ✓ find the square & cube of a given no by using function
- ✓ find the area and perimeter of a given circle by using function
- ✓ find the area of triangle using function
- ✓ find the ncr value
- ✓ program to print the pascal triangle by using function
- ✓ swapping of 2 nos using call by value and call by reference
- ✓ passing array as an argument calculates sum and average of given array elements.





## Recursions

- ☒ find the factorial of given no by using recursive function
- ☒ find the sum of first n natural nos by using recursion
- ☒ find the gcd of 2 nos by using recursion
- ☒ find the root digit of the no by using recursion
- ☒ Program to calculate power using recursion

**Hands-On - practice recursive and non-recursive functions.**



## Storage Classes

- ☒ auto
- ☒ static
- ☒ extern
- ☒ register



## Others

- ☒ Command Line Arguments
- ☒ const
- ☒ preprocessor directive statements

**Hands-On -Observes the storage classes Behaviour.**



## USER DEFINED DATATYPES

- ☒ Structure
- ☒ Union
- ☒ enum
- ☒ typedef

**Hands-On - Observe the differences of Struct and Union with different examples.**





## Pointers

- ☒ Pointer types
- ☒ Void Pointer
- ☒ Null Pointer
- ☒ Wild Pointer
- ☒ Dangling Pointer
- ☒ Array of Pointers
- ☒ Pointer to Pointer
- ☒ Pointer Arithmetic

**Hands-On -practice various pointer types.**



## Dynamic memory allocation

- ☒ malloc()
- ☒ calloc()
- ☒ realloc()
- ☒ free()

**Hands-On - usage of above functions.**



## Files

- ☒ Concept of a file
- ☒ Streams
- ☒ Text File and Binary Files
- ☒ Opening and Closing Files
- ☒ File Input / Output Functions
- ☒ Formatted Input-Output Functions
- ☒ Character Input-Output Functions

**Hands-On -Working with different file modes and file related functions.**

**Hands-on : Project Implementation from scratch.**





## Name: Project - Banking Management System uses following functionalities

- ✓ **menu()** – This function shows a menu or welcome screen that allows you to execute the various banking tasks listed below.
- ✓ **new acc()** – Creates a new customer account using this function. It requests the customer's name, date of birth, citizenship number, address, and phone number, among other personal and financial information.
- ✓ **view list()** – Displays a list of items. This feature allows you to access the customer's banking information, including the account number, name, address, and phone number supplied when the account was created.
- ✓ **edit()** – This method has been used to update the address and phone number associated with a specific customer account.
- ✓ **transact()** — This method allows you to deposit and withdraw funds from a specific client account.