

C,C++ Lectureflow

Module 1) C,C++ - Introduction	4
<ul style="list-style-type: none"> • Introduction to student • Working on Assignment • Career in IT • Understanding Student Login of TOPS ERP • Using Lab • Introduction to C • What is Language? • What is programming and program? • Fundamental of Algorithms and Flowchart • Real world problems - get solution via programs • Practical Example: 1. Write a Flow chart of real problems - Days to month conversion system. • Data Types and Variables - Data Types, Void Data Types, • History of C • Compiler and interpreter • environment setup • Basic Syntax • Type Modifiers, • Basic Structure of C Programs • Variables • Importance of C • Fundamentals of C • Difference between turbo C and Dev C/C++ • Practical Example : 1. Write a program of scanf 2. Write a program to demonstrate escape sequence 3. Write a program to demonstrate comments • Comments • Keywords • Escape Sequence • Practical Example: 1. Write a program to print (Hello World). 2. Write a program to print the sum of two numbers. 3. Write a program to exchange values of two variables using the 3rd variable. 4. Write a program to convert days into years and years into days. 	
Module 2) C,C++ - Fundamentals of C	3
<ul style="list-style-type: none"> • Data Types and Variables - Data Types, Void Data Types, • History of C • Compiler and interpreter • environment setup • Type Modifiers, • Basic Syntax • Variables • Basic Structure of C Programs • Importance of C • Fundamentals of C • Difference between turbo C and Dev C/C++ • Practical Example : 1. Write a program of scanf 2. Write a program to demonstrate escape sequence 3. Write a program to demonstrate comments • Comments • Keywords • Escape Sequence • Practical Example: 1. Write a program to print (Hello World). 2. Write a program to print the sum of two numbers. 3. Write a program to exchange values of two variables using the 3rd variable. 4. Write a program to convert days into years and years into days. 	

Module 3) C Language Programming with C	15
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- Operators and Expression
- Control statements : Conditional statements 1) If statement 2) If..else statement 3) Else if statement 4) Nested if statement 5) Switch statement
- Practical Example : 1. Write a program to find user eligible for vote or not 2. Write a program to find user entered number is even or odd 3. write a program to find user entered numbers between 1 and 100 4. write a program to calculate percentage and grade 5. Write a program to check vowel using switch case
- Looping statements 1) For loop 2) While loop 3) Do.. while loop
- Jumping Statements 1) Break statement 2) Continue statement 3) Goto statement
- Practical Example: 1. Write a program to print 1 to 50 using for loop 2. Write a program to print sum of odd and even numbers between 1 to N 3. Write a program to print 1 to 5 using while loop and do.. While loop 4. Write a program to print half pyramid using * , numbers and characters 5. Write a program to demonstrate break, continue statement with for loop 6. Write a program to demonstrate goto statement
- Functions
- User Defined Functions
- Function categories
- Function Variable scopes
- local variables
- Formal parameters
- Practical Example: 1. Write a program to demonstrate four categories of function 2. Write a program to demonstrate menu driven calculator using function 3. Write a program to create Quiz application
- Practical Example: 1. Write a program to find factorial using function 2. Write a program to find Fibonacci series using function
- Arrays
- Types of array
- Practical Example : 1. Write a program to print static array 2. Write a program to take 10 values from the user and store them in an array 3. Write a program to demonstrate multi dimensional array
- Arrays and functions
- Practical Example : 1. Write a c program to arrange accepted numbers in ascending and descending order using array. 2. Write a c program for multiplication of matrix 3. Write a c program for addition of two matrix.
- Strings
- String Functions : Theoretical Explanation
- Strlen
- Strrev
- Strcat
- Strcmp
- Practical Example: 1. Find the frequency of a character in a string 2. Find the length of a string 3. Find the number of vowels, consonants, digits and white spaces 4. Write a program to copy string 5. Write a program to concatenate two strings 6. Write a program to remove all characters in a string except alphabets 7. Find the length of a string without using inbuilt function 8. Write a program to reverse string without using inbuilt function
- Pointers
- Pointers arithmetic
- Practical Example: 1. Assigning addresses to Pointers 2. Get Value of Thing Pointed by Pointers 3. Changing Value Pointed by Pointers
- Structure and unions
- Practical Example: 1. Write a program to demonstrate structure 2. Write a program to demonstrate structure with array 3. Write a program to demonstrate structure of array
- Practical Example: 1. Write a program to demonstrate structure within structure 2. Write a program to demonstrate structure with function 3. Write a program to demonstrate difference between structure and union

Module 4) C,C++ - File and Error Handling, Debugging	1
<ul style="list-style-type: none"> • File handling • File I/O, Writing and reading file • Practical Example : 1. Write a program to read the names and marks of n numbers of students and store them into a file. 2. C program to write all the members of an array of structures to a file using fwrite(). Read the array from the file and display on the screen 	
Module 5) C,C++ - C++ (Basics of C++)	2
<ul style="list-style-type: none"> • Similarities in C and C++ • Difference between C and C++ • Basics of C++ • Difference between oop and pop • Advantages and disadvantages of oops • Input statement and output statement in C++ • Practical Example : 1. Write a program to demonstrate difference between c and c++ 	
Module 6) C,C++ - Programming with C++	12

• Practical Examples: 1. Write a program to check whether entered number is even or not using if..else statement in C++ 2. Write a menu - driven program to calculate the area of the circle, rectangle and triangle. 3. Write a program to calculate factorial of given number using for loop 4. Write a program to print the fibonacci series using while loop 5. Write a program to check whether the given number is palindrome using do..while loop. 6. Write a program to demonstrate jumping statements

- Array
- Types of Array
- String
- Class and pointer
- Class and objects
- Practical Example: 1. Write a program to demonstrate pointer with class 2. Write a program to demonstrate dynamic object using new keyword
- Member Function
- Comparisons of class and object
- Namespace
- Scope resolution operator
- Class and arrays : 1) Array within class 2) Array of objects
- Practical Example: 1. Write a program to print the score card of two students using an array of objects.
- Practical Example: 4. Write a program to demonstrate pass object to a function 5. Write a program to demonstrate return object from function
- Encapsulation
- Static Keyword
- Constructors and Destructors
- Types of constructors
- Difference between constructor and destructor
- Practical Example: 1. Write a program to demonstrate difference between constructor and destructor 2. Write a program to demonstrate copy constructor
- Importance of inheritance
- Access modifiers
- Types of inheritance 1 - Single level 2 - Multi-level 3 - Multiple 4- Hierarchical 5- Hybrid
- Practical Example : Write a program to implement single level inheritance 2. Write a program to demonstrate single level inheritance in private mode 3. Write a program to demonstrate the ambiguity in single level inheritance 4. Write a program to demonstrate multilevel inheritance 5. Write a program to demonstrate multiple inheritance 6. Write a program to demonstrate the hierarchical inheritance 7. Write a program to demonstrate the hybrid inheritance
- Practical Example: 1) Write a program to demonstrate constructor invocation in inheritance
- Types of polymorphism
- Compile time
- Run time
- Abstract class
- Aggregation
- Practical Example: 1. Write a program to demonstrate function overloading with different types of arguments 2. Write a program to demonstrate function overloading with default arguments 3. Write a program to show the constructor function overloading

Module 7) C,C++ - Exception Handling and Templates

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- Class templates
- Function templates