

PROGRAMMING FOR PROBLEM SOLVING LAB (C Language Lab)

A good basic knowledge is a strong foundation for every aspect. Here the 'C' language programming is practiced so as to inculcate among students a way to interact and understand the way a computer works.

Software – Turbo C,

OBJECT ORIENTED PROGRAMMING LAB (C++ Language Lab)

C++ is one of the most widely used programming languages. These practical's, written in the spirit of learning by doing, are designed to give students a working knowledge of the C++ programming language. .

Software- Turbo C++, CODE BLOCK.

DATA STRUCTURE LAB

This lab serves as a guide for learning and implementing the data structure in a programming language. The aim of the course is to teach students abstract data types and dynamic data structures. Students use different type of data structures to model real world aggregations of data. Softwares- Turbo C.



Lab Manual for C++ Programming Lab

S. No.	Name of Program
1	C++ program print ASCII value of a character and convert lower to upper
2	WAP to create class to get and print detail of a student
3	Raising a number n to a power p is the same as multiplying n by itself p times. Write a function called power () that takes a double value for n and an int value for p, and returns the result as double value. Use a default argument of 2 for p, so that if this argument is omitted, the number will be squared. Write a main () function that gets values from the user to test this function.
4	Two classes DM and DB which store the value of distances. DM stores distances in metres and centimeters and DB in feet and inches. Write a program that can read values for the class objects and add one object of DM with another object of DM function to carry out the addition operation. The object that stores the results maybeobject or DB object, depending on the units in which the results are required.DISPLAY should be in the format of feet and inches or metres and centimetres depending on the object on display.
5	class rational which represents a numerical value by two double values- NUMERATOR & DENOMINATOR. Include the following public member Functions CONSTRUCTOR with no argument destructor with two arguments. reduce() that reduces the rational number by eliminating the highest common factor between the numerator and denominator. <ul style="list-style-type: none"> • Overload + operator to add two rational number. • Overload >> operator to enable input through cin. • Overload << operator to enable output through cout. Write a main () to test all the functions in the class.
6	A hospital wants to create a database regarding its indoor patients. The information to store include <ol style="list-style-type: none"> a) Name of the patient b) Date of admission c) Disease d) Date of discharge Structure to store the date (year, month and date as its members). Create a base class to store above information. The member function should include functions to enter information list of all the patients in the database. Create a derived class to store the age of the . List the information about all the to store the age of the patients. List the information about all the pediatric patients (less than twelve years in age).
7	C++ program to use function as a L-VALUE using reference variable
8	Write a program to access a function with the help of pointer
9	Make a class Employee with a name and salary. Make a class Manager inherit from Employee. Add an instance variable, named department, of type string. Supply a method to to String that prints the manager's name, department and salary. Make a class Executive inherit from Manager. Supply a method to String that prints the string "Executive" followed by the information stored in the Manager superclass object. Supply a test program that tests these classes and methods.
10	Imagine a tollbooth with a class called toll Booth. The two data items are a type unsigned int to hold the total number of cars, and a type double to hold the total amount of money collected. A constructor initializes both these to 0. A member function called paying Car () increments the car total and adds 0.50 to the cash total. Another function, called nopayCar (), increments the car total but adds nothing to the cash total. Finally, a member function called displays the two totals.Include a program to test this class. This program should allow the user to push one key to count car, and another to count a non paying car. Pushing the ESC kay should cause the program to print out the total cars and total cash and then exit.
11	function called reversit () that reverses a string (an array of char). Use a for loop that swaps the first and last characters, then the second and next to last characters and so on. The string should be passed to reversit () as an argument. a program to exercise reversit (). The program should get a string from the user, call (), and print out the result. Use an input method that allows embedded blanks. Test the program with Napoleon's famous phrase, "Able was I ere I saw Elba".
12	Program to write and read an object in ,from binary file using write () and read () in C++
13	C++ program to implement string in ST

Lab Manual of Data Structure and Algorithm Lab

S. No	List of Programs
1	Two assignments related to creating and manipulating matrices and linear lists. Write the programs in C/C++ to find Matrix Addition, Subtraction, Transpose, Multiplication.
2	Two assignments on array and linked implementation of stacks. Write the programs in C/C++ to Implement Push and Pop operation on Stack using Array.
3	Two assignments on array and linked implementation of Queue. Write the programs in C/C++ to Implement Insertion and deletion operation on Queue using Array.
4	Two assignments on trees and their applications. Write the programs in C/C++ to traverse a tree in Pre-order, In-order and Post-order manner
5	Two assignments on graphs and their applications. Write the programs in C/C++ to Implement Depth First and breadth First Search in a Graph
6	Two assignments associated with linked list, operations on linked lists and their applications. Write the programs in C/C++ to Creating a linked list, Inserting and Deletion an element in a linked list
7	Two assignments on different searching and sorting methods along with their complexity analysis. Write the programs in C/C++ to Implement Linear and Binary Search.
8	Write the programs in C/C++ to Implement Bubble, Selection, Insertion Sort.
9	One assignment on challenging problems on data structures to be given in groups.
10	Write the programs in C/C++ to Inset and Delete an element from Binary Search tree
11	Write the programs in C/C++ to find shortest path in a weighted/directed Graph using Warshall's Technique.
12	One assignment on challenging problems on data structures to be given in groups.
13	Write the programs in C/C++ to Implement Merge, Quick, Heap and Shell Sort.