**Dear Students**

*I am delighted to present this computer Lab Schedule to you.*

*In the study of computer science, what is more important is the practical knowledge. Unless one acquires efficiency in writing computer programmes, no degree in computer science is useful. Acquiring practical skill in computers requires development of logical skill. For this, one has to do a large number of programmes and execute them on computers. The more you practice, more skill you develop. Practice makes man perfect. We want to make you perfect.*

*It is for this specific purpose that we have prepared this computer Lab Schedule which includes a large number of programmes based on C and C ++ languages.*

*I take this opportunity to record my whole-hearted appreciation for the work done by department of Computer Science in giving an almost exhaustive shape to this Lab Schedule.*

*I hope this will prove to be highly beneficial for any student of Computer Science who is seriously interested in developing skill in Computer Programming.*

***ROSSUM***

***Computer Programs List***

## LAB :1

# *SCOPE: Knowing how to construct a program*

1. Write a program to add and subtract two numbers.
2. Write a program to multiply and divide two numbers and print them in the form of equation (4\*3=12, 8/4=2)
3. Write a program to find the square and cube of a given number.
4. Write a program to find the square root of a given number (use sqrt() function).
5. Write a program to find the area and perimeter of a square.

## LAB: 2

*SCOPE: Making use of language tokens.*

1. Write a program to find the area and circumference of a circle.
2. Write a program to find the area of a sphere.
3. Write a program to find the volume of a cylinder.
4. Write a program to find your age in days.
5. Write a program to find the simple interest and compound interest.

## LAB: 3

*SCOPE:* *Usage of various arithmetical operators.*

1. The total mechanical energy of a particle is given by e=mgh+1/2mv2.
2. Write a program to convert the given seconds into hours – minutes – seconds.
3. A milk vendor buys milk at the rate of 3.25/lt then adds a litre of water for every 4 litres of milk and sells the water milk at the rate of 4.15/lt. Calculate the gain for milk vendor.
4. The temperature of the city is input through the keyboard in Fahrenheit. Write a program to convert into Celsius.
5. Two numbers are input into two locations ‘a’ and ‘b’ Write a program to interchange the contents of ‘a’ and ‘b’ without using temporary variables.
6. Given the coordinates of two points (x1, y1) and (x2, y2). Write a program to find the distance between these two points.

## LAB: 4

*SCOPE: Getting thoroughness with the input and output statements.*

1. Rajesh’s basic salary is input through the keyboard. His D.A. is 40% of basic salary, and H.R.A. is 20% of basic salary. Write a program to calculate his gross salary.
2. The distance between two cities in Km. is input through the keyboard. Write a program to convert and print the result in meters and centimeters.
3. Write a program which accepts the amount in dollars and convert into rupees.
4. Write a program to read your address and print it.
5. Write a program to print the area of a triangle if b and h values are given.
6. Write a program to print the area of a triangle if three sides are given.

## LAB: 5

*SCOPE: Knowing the usage of conditional statement ‘if’.*

1. Write a program to read the marks of 3 subjects and display the total, avg, class.
2. Write a program to check whether the given number is positive or negative.
3. Write a program to find out the given number is odd or even.
4. Write a program to find smallest of given two numbers.

## LAB: 6

*SCOPE: The usage of conditional statement ‘if-else’.*

1. Write a program to find biggest of given three numbers.
2. Write a program to check whether the given year is leap year or not.
3. Write a program to find the roots of a given quadratic equation and print the nature of roots.

## LAB: 7

*SCOPE: More on conditional statements.*

1. Write a program to read positive numbers continuously until negative number is

given by using ‘if’.

1. Write a program to read ten numbers and print their sum by using ‘if’ statement.
2. Write a program to read three sides a, b, c of a triangle and print the type of the triangle.

right angled triangle (a\*a)+(b\*b)==(c\*c) || (b\*b)+(c\*c)==(a\*a) || (c\*c)+(a\*a)==(b\*b)

equilateral triangle (a==b) && (b==c)

isoceles triangle (a==b) || (b==c) || (c==a)

scalen (a! = b&&b!=c&& c!=a)

**LAB: 8**

*SCOPE: Usage of ‘if-else-if’ and ‘nested if’.*

1. Write a program to calculate the monthly income of a person using the following commission schedule : (use ‘if-else-if’ statement).

Monthly sales income

>= Rs.50,000 Rs.375 + 16% sales.

>= Rs.50,000 but >=Rs.40,000 Rs. 350+14% sales.

<= Rs.40,000 but >=Rs.30,000 Rs. 325+12% sales.

<= Rs.30,000 but >=Rs.20,000 Rs. 300+9% sales.

<= Rs.20,000 but >=Rs.10,000 Rs. 250+5% sales.

<= Rs.10,000 Rs. 200+3% sales.

1. Write a program to read a 3 digit number and find whether the middle digit is numerically equal to the sum of the other two digits and prints an appropriate response.
2. A Company insures its drivers in the following cases
3. If the driver is married.
4. If the driver is unmarried, male and above 30 years of age.
5. if the driver is unmarried, female and above 25 years of age.

In all other cases, the driver is not insured. If the marital status, sex, age of the driver are the inputs, write a program to determine whether the driver is insured or not. (use ‘nested-if).

**LAB: 9**

*SCOPE: Processing on characters*

1. Write a program to read the characters continuously until ‘$’ is given and display the number of characters entered.
2. Write a program to read a character and find out whether it is uppercase or lowercase.
3. Write a program to print the uppercase letter of a given lowercase.
4. Write a program to check whether the given input is digit or lowercase character or uppercase character or a special character (use ‘if-else-if’ ladder).
5. Do the above program by using ‘case’ statement.

**LAB: 10**

*SCOPE: Usage of multiway decision maker*

1. Write a program to read a vowel character and print any appropriate word by using “case”.
2. Write a program to find the biggest number among 2 numbers by using case.
3. Write a program to emulate a four function calculator which can perform addition, subtraction, multiplication and division. Program should read two real numbers and an operator which tells the operation to be performed. Do it by using case.
4. Write a program to read a number and print how many numbers of 500, 100, 20, 10, 5,2,1 notes are available in the given amount by using case.
5. Write a program to accept a date and print it in words by using case.

**LAB: 11**

*SCOPE: Getting knowledge in iteration*

1. Write a program to read your name and print it ‘n’ times.
2. Write a program to find whether the given numbers existing in an array or not.
3. Write a program to find the sum of ‘n’ natural numbers.
4. Write a program to find the sum of ’n’ distinct numbers.
5. Write a program to find the sum of even ‘n’ natural numbers.

**LAB: 12**

*SCOPE: Printing numbers in various formats.*

1. Write a program to display the numbers sequentially from 1 to 99 with 5 numbers on

each line.

1. Write a program to display the numbers sequentially from 1 to 99 with 5 numbers on each column.
2. Write a program to read 9 elements and print the array elements in 3 x 3 matrix format.
3. Write a program to display the multiplication table for a given number.

**LAB: 13**

*SCOPE: Getting started to work with arrays.*

1. Write a program to find the biggest of the given numbers.
2. Write a program to find the second smallest number and its position among the given ‘n’ numbers.
3. Write a program to find the total number of +ve numbers, -ve numbers and zeros out of a given 10 real numbers.
4. Write a program to print the numbers which are divisible by both 3 and 7 from 1 to 100.

**LAB: 14**

*SCOPE: Using of while, for, and repeat loops.*

1. Write a program to find the given number is prime or not.
2. Write a program to find the given number is perfect or not.
3. Write a program to find the given number is automorphic or not.
4. Write a program to find the given number is Armstrong or not.
5. Write a program to find the given number is palindrome or not.

**LAB: 15**

*SCOPE: Usage of mod and div operators*

1. Write a program to find the sum and product of the individual digits of a given number.
2. Write a program to accept maximum of 6 digits number and find out the sum of even digits of that number and multiplication of odd digits of that number.
3. Write a program to find the number of digits of a given number.
4. Write a program to print the reverse of a given number.

**LAB: 16**

*SCOPE: More on looping constructs*

1. Write a program to find the factorial of the given number.
2. Write a program to print all prime numbers from 1 to 99.
3. Write a program to print the factorial prime from 1 to 99.
4. Write a program to print Fibonacci series for a given number.

**LAB: 17**

*SCOPE: Processing on integer numbers using loops*

1. Write a program to find ‘n’ power ‘n’ (nn).
2. Write a program to find ‘m’ power ’n’ (mn).
3. Write a program to find ‘m’ power ‘n’ value without using (\*).
4. Write a program to find the G.C.D. of ‘n’ numbers.
5. Write a program to find the L.C.M. of ‘n’ numbers.

**LAB: 18**

*SCOPE: Getting thoroughness with arrays.*

1. Write a program to find the second biggest number from the given ‘n’ numbers.
2. Write a program to find the second biggest, second smallest and replace their positions and then print the array elements.
3. Write a program which reads the names of 5 sales persons into a one-dimensional array and their sales figure in each of six months into a two-dimensional array. The program then must print the total sales for each sales person and the grand total for the six months as well.
4. Write a program to display frequency table of an array elements.

**LAB: 19**

*SCOPE: Various processing on array elements.*

1. Write a program to suppress the negative elements into the down positions of an array.
2. Write a program to store 10 elements in an array, find the minimum element in the array subtract it from each element of the array and display the array elements.
3. Write a program to read 10 elements in an array, keep last 5 elements in the first phase and first 5 elements in the last phase without using dummy array.

**LAB: 20**

*SCOPE: Operation on array elements and exchange array elements into different positions.*

1. Write a program to read 10 elements in to an array, find out the zeros from the first element of the array and keep the accumulation of the entire array, wherever zero has occurred.
2. Write a program to read the numbers into two arrays of each 5 and perform the following operations.

a [1] b [1]

a [2] b [2]

a [3] b [3]

a [4] b [4]

a [5] b [5]

**LAB: 21**

*SCOPE: Conversion of numbers from one base to other.*

1. Write a program to convert the given integer into binary and vice versa.
2. Write a program to convert the given integer into octal.
3. Write a program to convert the given integer into hexadecimal.

**LAB: 22**

*SCOPE: Various operations on numbers.*

1. Write a program to find the positional value of the given digit in a number. If the given digit is occurred in various positions, then print all positional values.
2. Write a program to print the given number in words.

**LAB: 23**

*SCOPE: Operation on numbers such as sorting and convertion.*

1. Write a program to sort the elements in ascending order.
2. Write a program to sort the elements in descending order.
3. Write a program to convert the given number in Roman Letter.

**LAB: 24**

*SCOPE: More operations on numbers.*

1. Write a program to print the ASCII values of numbers from 0 to 255, page by page.
2. Write a program to print the multiples of a given number upto 200.
3. Write a program to find the mean, variance and standard deviation of the given ‘n’ numbers.

**LAB: 25**

*SCOPE: Printing numbers in triangle patterns.*

1. Write a program to print the floyd’s triangle.

1

1. 3

4 5 6

7 8 9 10

1. Write a program to print the following triangle

1

1. 2

1 2 3

1 2 3 4

1 2 3 4 5

1. Write a program to print the following triangle
2. 2
3. 3 3
4. 4 4 4
5. 5 5 5 5

**LAB: 26**

*SCOPE: Displaying number in various patterns.*

1. Write a program to print the following triangle

1

1. 1

1 2 1

1 2 3 1

1 2 3 4 1

1 2 3 4 5 1

1. Write a program to print the following triangle

1 2 3 4 5

1 2 3 4

1 2 3

1. 2

1

1. Write a program to print the following triangle

1 1 1 1 1

2 2 2 2

3 3 3

4 4

5

**LAB: 27**

*SCOPE: Showing different patterns of numbers*

1. Write a program to print the following triangle

5 5 5 5 5

4 4 4 4

3 3 3

2 2

1

1. Write a program to print the following triangle

5 4 3 2 1

5 4 3 2

5 4 3

5 4

5

1. Write a program to print the following triangle

5

5 4

5 4 3

5 4 3 2

5 4 3 2 1

**LAB: 28**

*SCOPE: Resulting numbers in triangle formats*

1. Write a program to print the following triangle

1 1 1 1 1

2 2 2 2

3 3 3

4 4

5

1. Write a program to print the following triangle

1 2 3 4 5

1 2 3 4

1 2 3

1 2

1. Write a program to print the following triangle

1 2 3 4 5

2 3 4 5

3 4 5

4 5

5

**LAB: 29**

*SCOPE: Various triangle patterns on numbers*

1. Write a program to print the following triangle

1

1 2

1 2 3

1 2 3 4

1 2 3 4 5

1. Write a program to print the following triangle

1 2 3 4 5

2 3 4 5

3 4 5

4 5

5

1. Write a program to print the following triangle

5 4 3 2 1

5 4 3 2

5 4 3

5 4

5

1. Write a program to print the following triangle

5

5 4

5 4 3

5 4 3 2

5 4 3 2 1

**LAB: 30**

*SCOPE: Getting knowledge in positional print out*

1. Write a program to print the following triangle.

1

2 1

3 2 1

4 3 2 1

5 4 3 2 1

1. Write a program to print the following triangle.

5

4 5

3 4 5

2 3 4 5

1 2 3 4 5

1. Write a program to print the following triangle.

1

2 2

3 3 3

4 4 4 4

5 5 5 5 5

1. Write a program to print the following triangle.

5

4 4

3 3 3

2 2 2 2

1 1 1 1 1

**LAB: 31**

*SCOPE: More on triangle Patterns*

1. Write a program to print the following triangle.

5

4 4

3 3 3

2 2 2 2

1 1 1 1 1

1. Write a program to print the following triangle.

5 5 5 5 5

4 4 4 4

3 3 3

2 2

1

1. Write a program to print the following triangle.

1

1 2

1 2 3

1 2 3 4

1 2 3 4 5

**LAB: 32**

*SCOPE: Printing numbers in triangle formats*

1. Write a program to print the following triangle.

5 5 5 5 5

4 4 4 4

3 3 3

2 2

1

1. Write a program to print the following triangle.

1

2 3 2

3 4 5 4 3

4 5 6 7 6 5 4

5 6 7 8 9 8 7 6 5

**LAB: 33**

*SCOPE: Displaying the numbers in various formats*

1. Write a program to print the following.

5 5 5 5 5

4 4 4 4

3 3 3

2 2

1

2 2

3 3 3

4 4 4 4

5 5 5 5 5

1. Write a program to print the following.

4

4 3 4

4 3 2 3 4

4 3 2 1 2 3 4

4 3 2 3 4

4 3 4

4

# LAB: 34

*SCOPE: Printing numbers in triangle patterns with operations.*

1. Write a program to print the following triangle.

1

1 1

1 2 1

1 3 3 1

1 4 6 4 1

1 5 10 10 5 1

1. Write a program to print the following triangle for given number of rows:

1

2 3

4 5 6

7 8 9 10

11 12 13 14 15

**LAB: 35**

*SCOPE: Arithmetical Operations on numbers.*

1. Write a program to compute the series.

1 + 3 + 5 +7 + 9+…………………… +n

1. Write a program to compute the series.

1 + 4 + 9 + 16 +.…………………… +n

1. Write a program to compute the series.

1 + 8 + 27 + 64 +.……………………+n

**LAB: 36**

*SCOPE: Performing arithmetic operations on numbers.*

1. Write a program to compute the series.

1 + 3 + 6 + 10 +.……………………+n

1. Write a program to compute the series.

1 + 4 + 8 + 11 +.…………………...+n

1. Write a program to compute the series.

1!+2!+3!+4! +.………….…………..+n

1. Write a program to compute the series.

1!/1+2!/2+3!/3+4!/3 +.……………+n!/n

# LAB: 37

SCOPE: More on arithmetic operations.

1. Write a program to compute cosine series.

1-x2/2!+x4/4!- x6/6!+…………….+xn/n!

1. Write a program to compute sine series.

1-x3/3!+x5/5!- x7/7!+………………xn/n!

1. Write a program to compute exponential series.

1+x+x2/2!+x3/3!- x4/4!+………….xn/n!

1. Write a program to compute the following series.

1.0+1.1+1.2+1.3+………..……….+2.5

# LAB: 38

*SCOPE: More operations on numbers.*

1. Write a program to compute the following series.

1/1+1/3+1/5+1/7+………..……...+2.5

1. Write a program to compute the following series.

1- x2/ (22\*1!) + x4/ (24\*2!) – x6/ (26\*3!)

1. Write a program to compute the following series.

-1 + 2 – 4 + 8 - 16………..…….+1024

1. Write a program to compute the following series.

1/2+3/4+3/6+………..………..+99/100

# LAB: 39

SCOPE: Getting started to work with two dimensional arrays.

1. Write a program to add two matrices.
2. Write a program to subtract two matrices.
3. Write a program to multiply two matrices.

**LAB: 40**

*SCOPE: Various operations on two dimensional arrays.*

1. Write a program to read two-dimensional array and convert it into one dimensional array.
2. Write a program to find the trace of the matrix. [trace=sum of diagonal elements of the matrix].

# LAB: 41

SCOPE: More on two dimensional arrays.

1. Write a program to find the norm of the matrix

[norm=square root of the sum of the square of the elements of the matrix].

1. Write a program to find row sum and column sum of matrix.
2. Write a program to print the upper and lower triangle of the given matrix separately.

# LAB: 42

*SCOPE: Performing positional operations on two dimensional arrays.*

1. Write a program to print the diagonals of the matrix of the matrix in the following form:

1 2 3 4 1 4

2 3 4 1 3 4

3 4 2 1 4 2

4 3 2 1 4 1

1. Write a program to print the inner square of the given matrix.

1 2 3 4

2 3 4 1 3 4

3 4 2 1 4 2

4 3 2 1

# LAB: 43

*SCOPE: More on positional operations in array elements.*

1. Write a program to find the outer square of the given matrix.

1 2 3 4 1 2 3 4

2 3 4 1 2 1

3 4 2 1 3 1

4 3 2 1 4 3 2 1

1. Write a program to read the given matrix and perform the required operations to print the given resultant matrix. (Let us consider the array name as a. Then a[2,2]=a[2,2]+a[2,3], a[2,3]=a[2,3]+a[3,3], a[3,3]=a[3,3]+a[3,2],a[3,2]=a[3,2] +a[2,2].

1 2 3 4 1 2 3 4

2 3 1 4 2 4 3 4

4 3 2 1 4 3 2 1

1. Write a program to traverse the matrix helically.

1 2 3

4 5 6 1 2 3 6 9 8 7 4 5

7 8 9

# LAB: 44

*SCOPE: Getting thoroughness in matrix operations.*

1. Write a program to check whether the given matrix is magic or not. [magic square=column sum=row sum=diagonal sum and elements of the matrix should be distinct].
2. Write a program to find the saddle point of the given matrix.

[saddle point = minimum element in row and maximum element in that column].

# LAB: 45

*SCOPE: Various matrix operations.*

1. Write a program to print the transpose of the given matrix.

[Transpose of a matrix=elements of the rows and columns are interchanged].

1. Write a program to check whether the given matrix is symmetric or not.

[symmetric=Transpose of the matrix is the same as given matrix].

1. Write a program to read the matrix and find out the zero’s keep the difference between the row sum and the column sum of that position where the zero has occurred.

720 126

231 231

032 -432

# LAB: 46

*SCOPE: Implementing the recursion technique*

1. Write a program to find the factorial of the given number using recursion.
2. Write a program to print the Fibonacci of the given series for a given number using recursion.
3. Write a program to find the G.C.D. of the given number using recursion.

# LAB: 47

*SCOPE: Implementing recursion technique on character processing*

1. Write a program to find the sum of the ‘n’ natural numbers using recursion.
2. Write a recursive function convert (number, base) to convert the given positive integer, to its equivalent number in another base.
3. Write a program to solve the towers of Hanoi problem recursively.

# LAB: 48

*SCOPE: More on recursion technique.*

1. Write a program to find minimum and maximum of the given numbers recursively.
2. Write a program to reverse the given ‘n’ number of characters recursively.
3. Write a program to find the binomial coefficient using the formula (or) Write a program to find NcR value by using recursion. NcR=NI/(R!\*(N-R)!).
4. Write a program to accept any number and print the sum of that number up to a single digit recursively (Lucky number).

# LAB: 49

*SCOPE: Printing characters in triangle patterns*

1. Write a program to print the following triangle.

r

o s

s u m

1. Write a program to print the following

r

r o

r o s

r o s s

r o s s u

r o s s u m

# LAB: 50

*SCOPE: Displaying characters in various patterns.*

1. Write a program to print the following

r o s s u m

r o s s u

r o s s

r o s

r o

r

1. Write a program to print the following

\* \*

\* \* \* \*

\* \* \* \*

\* \* \*

\* \*

\*

# LAB: 51

1. Implement a program to calculate factorial of a number using static.
2. Writing a program to generate fibonoacci number using static.
3. Accept any two numbers and find a big number.

Note: Use any 2 different files for processing the biggest number using extern.

1. Accept a string and find the total vowels and consonants. Use two functions and state storage space.
2. With the help of storage specifier REGISTER. Write a routine which will print your name 10 times on the screen.
3. With the help of auto, write a program which will print all ASCII values from 1 to 255.
4. With the help of static, which will find length of any string.

Don’t use the STRLEN ( ) function.

1. Use auto storage specifier to fine LCM for 3 numbers.
2. Use extern storage specifier to find gcd for 2 numbers.
3. Use static storage specifier to concatenate two strings.

# LAB: 52

*SCOPE: Various operations on characters.*

1. Write a program read a string and print the occurrences of each character.
2. Write a program to check whether the given string is palindrome or not.
3. Write a program to read ‘n’ names and print it in ascending order.
4. Write a program to read ‘n’ names and print the distinct names.

# LAB: 52

*SCOPE: More operations on character processing*

1. Write a program to read ‘n’ names and print the names which are occurred more than once.
2. Write a program to read a string, a substring which is to be replaced and a substring which is to be placed and print the modified string.
3. Write a program to read two strings and find both are same or not.

# LAB: 53

*SCOPE: More operations on character processing*

1. Write a program to read a line of text and find the number of blank spaces.
2. Write a program to read a line of text and find the number of words.

# LAB: 54

*SCOPE: More operations on character processing.*

1. Write a program to read a line of text and find the number of words when the words are separated by more than one space.
2. Write a program to read a line of text and find the words which are occurred more than once.

# LAB: 55

*SCOPE: More operations on character processing.*

1. Write a program to read a line of text and delete the characters which are occurred more than once.
2. Write a program to read a line of text and convert all the lowercase into uppercase and vice versa.

# LAB: 56

*SCOPE: More operations on character processing.*

1. Write a program to read a line of text and change the each word into upper and lowercase alternatively.
2. Write a program to read a line of text and a word which is to be included into the text and read a position where the given word is to be inserted.

# LAB: 57

*SCOPE: More operations on character processing.*

1. Write a program to read a line of text and a word, delete that word wherever it has occurred.
2. Write a program to count the number of vowels, consonants and white spaces of a given line text.

# LAB: 58

*SCOPE: More operations on character processing.*

1. Write a program to read a paragraph and read a line number which is to be deleted and print the modified paragraph.
2. Write a program to read a paragraph and read the range of line numbers to be deleted and print the modified paragraph.

# LAB: 59

*SCOPE: More operations on character processing.*

1. Write a program to read a paragraph and read a line of text and append that line into the given paragraph.
2. Write a program to read a paragraph and read a line of text and a line number where the given line of text is to be included and print the modified paragraph.

# LAB: 60

*SCOPE: More operations on character processing.*

1. Write a program to keep on-line space between each word if here is more than one space has occurred in a given paragraph.
2. Write a program to read a paragraph and a word, delete that word wherever it has occurred.

# LAB: 61

*SCOPE: More operations on character processing.*

1. Write a program to read a paragraph and find out which word has occurred more number of times.
2. Write a program to read a paragraph and display distinct words and their numbers of occurrences.

# LAB: 62

*SCOPE: Various operations on structures.*

1. Write a program to read a student name, marks of three subjects and display these details with total marks and average by using structure.
2. Write a program to read and store 5 employee records and print them in neat tabular format. Each employee record is consisting of eno, ename, bp, hra, ta, da, pf, tax.
3. Write a program to store your name, age, birth date into record and print. Do this program by using nested structure.

# LAB: 63

*SCOPE: Operations on structures.*

1. Write a program to store the following details into record and to print by using structure within structure feature.

student name,

option

1: (Telugu, English)

2: (Tamil, Malayalam, Hindi) total, avg, class.

1. Write a program to store the student details into record by using nested structure and print student no, student name, address

1: Day Scholar (H.no., street name, district name)

2: Hostler (Room number)

1. Write a program to declare two different records called book 1, book2 which are of same type, input the data into book 1 and copy the contents of book 1 to book 2 and print the contents of book 2. The record book 1 is consisting of the following fields: book name, author name, price, date of publishing, number of pages.

# LAB: 64

*SCOPE: Following programs have to be done by using structures using nested structures and unions.*

1. Write a program to accept name of captains of cricket teams, number of test played, date of birth, date of playing first test and age and print those details by using structure.
2. Write a program to maintain records of persons to accept name and point of 1st,2nd and 3rd round of game and also display the total. Write this program from passing array of structures to functions.
3. Write a program to read 10 records of student information and print a record which has highest average mark.

# LAB: 65

*SCOPE: More on structures.*

1. Write a program to accept names of 5 countries which are playing cricket, number of matches played in this year, number of wins, number of loss, number of draws and print the points and grade with these details for a given country.
2. 3 points for each win.
3. -1 point for each loss.
4. 1 point for each draw.

grade of teams is based on points.

1. Points>=2\* number of matches played------------grade is GOOD
2. Points<=2\*number of matches played-------------grade is AVERAGE
3. Points<number of matched played--------------grade is BAD
4. Write a program to read the array of structures to store employee details and sort them by using ename as a key.
5. Write a program to read emp. details in array of structures and pass it as an argument to a function and print them.

# LAB: 66

*SCOPE: Various operations on files.*

1. Write a program to create a data file for appending a record which has following details: sno, sname, maths, physics, computers.
2. Write a program to write a text message into a text file.
3. Write a program to print the required details of a record in a file by using eno as a key.

# LAB: 67

*SCOPE: More operations on files.*

1. Write a program to create a text file and copy the contents of one file into another file.
2. Write a program to convert all lower case letters into upper case letters in a file.
3. Write a program to find the average length of a line in a given text file.

# LAB: 68

*SCOPE: More operations on files.*

1. Write a program to create 2 files, one to store odd numbers and another to store even numbers in the range 1-100.
2. Write a program to delete the blank spaces of a text which is in text file and print the modified file.
3. A hospital keeps a file of blood donors in which each record has the form

Name string [30]

address string [40]

age integer

blood group chart [A, B, O]

1. Write a program to create a data file for N blood donors.
2. Use the data file to print out all the blood donors whose age is below 35 and blood group is of ’O’ type.

# LAB: 69

*SCOPE: More operations on files.*

1. Write a program to find out the number of vowel characters in a text which is stored in a text file.
2. Write a program which will read a text file and count all occurrences of a particular word.
3. A file “marks.int” is a data file defined as an integer type. It contains the marks of 10 students. Read this file and find the average marks. Also write a program to append a file.

# LAB: 70

*SCOPE: More operations on files.*

1. Write a sequential file to eliminate the duplicate records. The name of the input file is “Sort.Dat”. The output should be written to another file in the name of “Sort1.Dat”. The content of “Sort.Dat” file is as follows:

Rama 101

Kosalai 102

Rama 101

Lakshman 103

Rama 101

1. Write a program to find a particular character and replace every occurrence of it by another character. (replace ‘o’ with ‘a’).

Input: Oracle is one of the most popular RDBMS

**Note:** Lab 71-80: Exclusively for BCA Students.

# LAB: 71

*SCOPE: More operations on files.*

1. Write a program to beautify the text file, by giving left and right margins.
2. Write a program which imitates DOS copy routine. The program must be capable of copying text and binary files.
3. Write a program which copies a text file to another file but in reverse order. The file size could be extremely large and hence cannot be read entirely at a time.

# LAB: 72

*SCOPE: More operations of files.*

1. Write a program to display the contents of the directory specified on the command line (using BIOS calls).
2. Write a program to merge two files into third file.
3. Write a program to append the second file contents into the first file.

# LAB: 73

*SCOPE: Various operations on pointers.*

1. Write a program to print the address of a variable through its pointer for all primitive data types.
2. Write a program to print the values of a variable through its pointer for all primitive data types.
3. Write a program to do all the arithmetic operations for two integer variables using pointers.

# LAB: 74

*SCOPE: More operations on pointers.*

1. Write a program to find the biggest and smallest number from an array of numbers using pointers.
2. Write a program to concatenate two strings by using pointers.
3. Write a program to compare two strings by using pointers.
4. Write a program to find the length of a string by using pointers.

# LAB: 75

*SCOPE: More operations on pointers.*

1. Write a program to exchange the values of two variables by using function (pass pointers as arguments to the function|| call by reference).
2. Write a program to multiply two matrices by using pointers. (Use dynamically memory allocation for arrays).
3. Write a program to allocate a buffer of 3 integers first, and then increase its size by 3 bytes every time the buffer until-1 is given as input and print the entered integers (use realloc ()).

# LAB: 76

*SCOPE: More operations on pointers.*

1. Write a program to read the student number, name, average score and print these details with appropriate grades by using pointers to structures.
2. Write a program to read two strings and find the numbers of characters at the beginning of string 1 which are not in string 2 using pointers.

# LAB: 77

*SCOPE: More operations on pointers.*

1. Write a program to arrange the elements of an array in ascending order using pointers.
2. Write a program to sort string of an array using pointers.

# LAB: 78

*SCOPE:*

1. Write a program to read strings which are separated by ‘;’ and display the tokens only using pointers. (Use strtok()).
2. Write a program which does the same of strspn() using pointers.

# LAB: 79

*SCOPE: More operations on pointers.*

1. Write a program which does the same of strchr () using pointers.
2. Write a program which does the same of strrchr () using pointers.
3. Write a program which does the same of strcpy() using pointers.

# LAB: 80

*SCOPE: More operations on pointers.*

1. Write a program to read 3 numbers and print neither bigger nor smaller using pointers.
2. Write a program to print the transpose of a matrix using pointer.

Note: LAB 81-95, Exclusively for B.Sc Students.

**DATA STRUCTURES**

# LAB: 81

*SCOPE: Operations on stacks.*

1. Write a program to perform operations on stack.
2. Creating Stack
3. Pushing an element into stack
4. Popping an element from stack
5. Write a program to reverse a string using stack?

# LAB: 82

*SCOPE: More programs on Stacks.*

1. Write a program to find factorial of a number using stack.
2. Write a program to merge stacks into single stack.

# LAB: 83

*SCOPE: Applications of Stacks.*

1. Write a program to evaluate an expression
2. In order expression to pre order expression
3. Post Order expression to pre order expression
4. Pre order expression to In order expression

# LAB: 84

*SCOPE: Operations on Queues*

1. Write a program to perform operations on Queues:
2. Creating a Queue
3. Inserting an element into a queue
4. Deleting an element from a queue
5. Write a program for creating Circular Queue and operations on them:
6. Creating queue
7. Pushing an element into circular queue
8. Deleting an element from a circular queue

# LAB: 85

*SCOPE: More operations on Queues*

1. Write a program to perform operations on Double ended Queue:
2. Creating a queue
3. Inserting an element into a Dequeue
4. Deleting an element from a Dequeue

# LAB: 86

*SCOPE: Operations on Linked list*

1. Write a program to perform operations on Single Linked list:
2. Creating a single linked list
3. Inserting 1) at beginning 2) ending 3) any position
4. Deleting 1) at beginning 2) ending 3) any position

# LAB: 87

*SCOPE: More programs on linked list*

1. Write a program to Sort a single linked list of names?
2. Write a program to pickup duplicate elements in a single linked list?

# LAB: 88

*SCOPE: More Programs on linked list*

1. Write a program to merge two single linked list into one single linked list?
2. Write a program to find no. of nodes in a single linked list?
3. Write a program to find biggest and smallest number in linked list?
4. Write a program to search the given number in linked list then display appropriate message?
5. Write a program to copy one linked list to another using recursion?
6. Write a program to turn off the duplicate elements in a single linked list?
7. Write a program to create single list and do the all operations such as deleting inserting, updating using menu options?

# LAB: 89

*SCOPE: Operations on double linked list*

1. Write a program to perform operations on double linked list
2. Creating a double linked list
3. Inserting a) at beginning b) ending c) any position
4. Deleting a) at beginning b) ending c) any position
5. Updating a) at beginning b) ending c) any position
6. Write a program to compare two linked lists using recursion?
7. Write a program to create single circular linked list?
8. Write a program to create double circular linked list?
9. Write a program to count number of nodes in linked list using recursion?

# LAB: 90

*SCOPE: Programs on trees*

1. Write a program to create a tree (binary) and perform operations.
2. Inserting an element into a tree ii) Deleting an element from a tree
3. Write a program to pick duplicates in a tree?

# LAB: 91

*SCOPE: More programs on Trees*

1. Write a program to search an element a tree?
2. Write a program to Traverse a tree in
3. in order ii) Pre order iii) Post order

# LAB: 92

*SCOPE: Sorting techniques*

1. Write a program to sort n numbers using Bubble sort?
2. Write a program to sort n numbers using insertion sort?
3. Write a program to sort n numbers using Linear sort?

# LAB: 93

*SCOPE: More sorting techniques*

1. Write a program to sort n numbers using quick sort?

# LAB: 94

*SCOPE: More sorting techniques*

1. Write a program to sort n numbers using Heap sort?
2. Write a program to sort n numbers using selection sort?

# LAB: 95

*SCOPE: Searching techniques*

1. Write a program to perform Binary search?
2. Write a program to perform Linear search?

# LAB: 96

*SCOPE: More Searching techniques*

1. Write a program to perform Hash search?
2. Write a program to perform Binary search using recursion?

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