Laboratory 1

Getting familiar with C Compiler, data types and most widely used functions

In Linux environment, **cc** and **gcc** are two well known C compilers. After writing the source code in C, the files has to be compiled, linked (most of the cases done automatically after compilation) and run it. All C files has to be stored with an extension .c e.g. **test.c, myfirstprog.c**, ..are valid C source files. To compile a source file test.c, use the command **cc test.c** (or **gcc test.c**). If there is no problem is the source code, it generates the executable **a.out** (default name) and then you may run the same by typing **a.out** or **./a.out** (depending upon the path). If you want to give a different name of the executable you need to use **cc (or gcc) test.c –o test** . This generates executable file test that you can run. If you don't want to create executable, rather you want to create only object file (.o file) you may use the command **cc –c test.c** that creates test.o. For inclusion of certain types of header libraries we need to give options while compiling e.g. **cc myprog.c –lm** (when math.h is included) or **cc mycursor.c –lcurses** (when curses.h is included).
Type the following sample programs, save it giving a file name, compile and run it. See the result and match with the expected outputs.

Do the following tasks after logging to your system. You are directed to note down the outputs in your rough lab notebook.

Program 1

```
#include<stdio.h>
main(){
 printf("Hello World\n");
 return 0;
}
```

Save this program as myfirstprog.c(or any other valid C file), compile and run. This program would print a string Hello World at the console.
stdio.h → This header file contains declarations of widely used input and output function.
printf→is one widely used function that prints a string passed or converts a value type into a string and prints in the standard output device. More about this function will be discussed when the instructors would discuss about "functions in c".
\n → newline character. One of the characters from special character set in C, enforces the next output in a new line.
main→is the function where from a C program starts its execution
return 0 → return is used to return certain value to the caller. In this case returns 0 helps returning the control to the operating system.
{ } → Any function body should be enclosed between two such braces as you have noticed here.

Program 2

```
#include<stdio.h>
main(){
 int in1,in2,out;
 printf("Input two integers\n");
 scanf("%d",&in1);
 scanf("%d",&in2);
 out=in1+in2;
 printf("Sum = %d\n",out);
return 0;
```

This program scans values of two integers' in1 and in2 from the user. Sum them and store the value in another integer variable out, then prints the value as their sum.
scanf→most often used function that takes value of a variable from standard input device.
%d →type specification used for decimal integer.
= →is used as assignment operator. The value in the right hand side will be assigned to the variable in the right hand side.

```
}
```

Program 3.

```
#include<stdio.h>
main(){
 int var;
 scanf("%d",&var);
 printf("Octal value=%o\n",var);
 printf("Hexadecimal value = %x\n",var);
 printf("Decimal value = %d\n",var);
 printf("Integer value=%i\n",var);
 return 0;
}
```

This program scans value of an integer and prints its value in octal,hexadecimal, decimal and default specification(which is again decimal value).
%o → octal value
%x→hexadecimal value
%d →decimal value
%i→integer value

Program4.

```
#include<stdio.h>
main(){
 char c;
 fflush(stdin);
 c=getchar();
 putchar(c);
 putchar(c-32);
 return 0;
}
```

This program intend to scan a lowercase character, prints the character and its uppercase.
getchar() →scans a character from keyboard and returns its ASCII value.
putchar() →prints a character whose ASCII value is passed.
The ASCII value of any upper character is 32 less than that of its lower case character.

Program 5

```
#include<stdio.h>
main(){
 int c;float f;
 printf("Give cecius temp\n");
 scanf("%d",&c);
 f = (9.0*c)/5.0 + 32.0;
 printf("Converted Temp = %f F\n",f);
 return 0;
```

This program takes a Celsius scale temperature as input and converts it into its corresponding fernheit scale. Even if the cesius temarature is scanned as integer, the corresponding fernheit temperature may be a real no with explicite decimal point. Hence f is declared as float(or you may declare it double precision floating point no i.e. double).
Will there be any change if we write f= 9/5 *c =32 ? Make change into the corresponding line and see the changes in output. Clarify the reason for the changes.

To do exercises:

roblem 6 Write a program to calculate volume and surface area of a sphere.[input radius, area=4*PI*R*R, vol=area*R/3]

roblem 7 Write a program to print the integer part and fractional part for the given number.

roblem 8 Write a program that accepts length in inches(integer value) and convert them into feet and yards.

rogram 9 Write a program to compute area of a triangle whose sides a,b,c are given. [later on pre assume that the length given as inputs are valid lengths. Later on, you need to perform a check whether a+b>c, b+c>a and c+a >b are true before finding the area.]

ogram10 Write a program that accept two integer number from user, and swap two given numbers with and without using third variable (+, - operator).

Laboratory 2

I/O and Control statements

1. Write a Program to calculate effective relativistic mass by taking rest mass & velocity. [effective mass=restmass/(sqrt(1.0-(v*v)/(C*C))), where v=velocity, C=speed of light. i.e 3.1E8]
2. Write a program that accepts a floating point number and round it off to its nearest integral value.
3. Write a program that takes a double number and find its ceiling and floor.
4. Given an input (x), write a program to print it's reciprocal value (1/x), negated value(-x) and square(x^2) of it.
5. Write a program to test whether a character is a in lowercase, upper case, digit or special character.
6. Program to calculate the salary of sales man where quantity and price are given from user and fixed basic of 15000, bonus of 200 and commission as 0.02 on both quantity and selling price
7. Write a program that compute the compound interest of given P, r, t, n as principle amount, interest rate, time period & compounding per year.
8. Write a program to calculate range, height archived by a projectile where initial velocity and angle of projection will be user input.
9. Write a program to check a given number is odd or even.
10. Write a program to print maximum and minimum of from three given numbers.
11. Write a program that accept student roll no and average mark from user and print the result and grade of that student as pass if average is greater then 35 and grade as ('A' for >=85, 85>'B'>=60, 60>'C'>=50 else 'D').
12. Write a program that accept two character (alphabet) from user, and print message that "Both character are same " if both alphabet are same and in opposite case otherwise convert the 2nd alphabet as the opposite case of the 1st alphabet.
13. Write a program that accept a character from user, and print its next and previous character (if the entered character is 'a' then 'b' & 'z' are next and previous character of character 'a').
14. Write a program to find that entered year is leap year or not.
15. A company gives festival discount on purchase of their products(minimum of 3) in the following percentages:
    If purchase amount < 1000 then 5% in total amount(except mincost product) and 7% in minimum cost product.
    If purchase amount >1000 and <=10000 then 7% in total amount(except mincost product) and 9% in minimum cost product.
    If purchase amount > 10000 and <=100,000 then 9% in total amount(except mincost product) and 11% in minimum cost product.
    If purchase amount >100,000 then 15% discount in total price. Write a C program to compute the amount to be paid by the customer after discount.
16. Write a program to find whether an input integer is divisible by both 2 and 3, divisible by 2 but not by 3 divisible by 3 but not by 2 or not divisible by 2 and 3.
17. Write a program that accepts a character and changes its case(upper to lower and lower to upper)
18. Write a small calculator program that does addition. subtraction, multiplication, division and modul operation of two input numbers.
19. Write a program to take a date as input in terms of day, month year and calculate Julian day for it.
20. Write a program to display week day (like Monday, Tuesday etc) when day of the month is given input. Assuming day for first date of the month is known.

Laboratory 3
Data types, operator and their limits

1. Write a program to find the size of each primitive data types in your compiler. Also see the range of each data type defined in limits.h and float.h
2. Write a program to store a value greater than the allowed range for each data type and check the value actually stored.
3. Write a program to check the Divide by zero exception, using floating point operand for modulus (%) operator. By writing a constant on the left side (LVALUE) of an assignment operator
4. Write a program to show the logical value of the following logical expressions for values a=5and b=10.
   a. Z1 = (a= =b) || (a>=5) &&(b<=a),
   b. Z2 = !(a) || (b-a);Z3 = 0 || 1 && 5
5. Given a number in seconds, Represent it in hours, minutes and seconds in the format: XX Hours : YY Minutes : ZZ Seconds
6. Find out whether the year entered by the user is leap year or not.
7. Given a number find out it's 1's complement and 2's complement. (represent the numbers in hexadecimal format)
8. int x=0, y=10, w=20, z, T=1, F=0;for the above variables Evaluate the value of Z after each statement
   a. z = ((x=y) < 10);
   b. z = (x==5 && y<15);
   c. z = (x==0 && y>5 && w==10),
   d. z = (x==0 || y>5 && w==20);
   e. z = (T && T && F && y && x);
   f. z = (F || ++x || w - 20 || x);
9. Write program to do the following bitwise operation on the following data

   A = 0x 67A4, B = 0x7
   a. A & B ,
   b. ~A,
   c. A |B,
   d. ~0
10. Write a program to check the value of the following expressions. Given a = 5, b = 7,
    a. Z = a++ + ++b + ++a – a + ++b;
    b. M = (a++ , a+=5, a-1);
    c. K = a > b ? a ++ : a - - ? b+1 : b +5 ;

which used to determine
three

C Lab Assignment

11. Do the left and right shift of the following values and check the result. char c1 = 50, c2 = -122; Unsigned char c3 = 122;
    a. 12480 >> 2,
    b. -120 << 5;
    c. c1 >> 4,
    d. c2 << 3,
    e. c3 << 3.
12. Use ternary operator to find out maximum of three given integers.
13. Use ternary operator to check whether a character is in upper case or lower case.
14. Write a program that converts an amount (in integer, upto 999999) into words.[i/p – 231504, output – 2 lakh 31 thousand 5 hundred and four only]
15. Write a program that takes one positive integer and shifts the whole bit pattern 3 bits to the left. Check that this operation is same as multiplying the no by 8 if no overflow occurs.
16. Write a program to clear desired bits in a given number. The data in which bits will be cleared and the bits need to be cleared will be given through user input.

    Example Number: 10110101

    Bits to be cleared: 00110110

    Output: 10000001
17. Write a program to set desired bits in a given number. The data in which bits will be set and the bits need to be set will be given through user input.

    Example Number: 10110101

    Bits to be set: 00110110

    Output: 10110111
18. Write a program to toggle desired bits in a given number. The data in which bits will be toggled and the bits need to be toggled will be given through user input.

    Example Number: 10110101

    Bits to be set: 00110110

    Output: 10000011.
19. Write a program to multiply two numbers, where the second number is power of two, using shift operator.
20. You have four colors to paint 100 houses in a lane, those are RED, GREEN, WHITE, BLUE. You have made a decision that the colors will be given in sequence, i.e House No 1 : RED, House No 2: Green, House No 3: White, House No 4: blue and House No 5 will be again paint with RED and this sequence will continue for all houses. Now write a program to print the color if user gives house no as input.

Laboratory 4
Control conditions & Loops

1. Write a program that serial number from 1 to 100.
2. Print a series: 1 0 0 , 9 9 , 9 8 , 9 7 , 9 6 , 9 5 ... ... 1 .
3. Print a series: 1 , 4 , 9 , 1 6 , 2 5 , 3 6 ... ... 20 elements.
4. Print a series: 0 , 7 , 2 6 , 6 3 , 1 2 4 , 2 1 5 ... ... 20 elements
5. Print Fibonacci series: 0 , 1 , 1 , 2 , 3 , 5 , 8 , 1 3 , 2 1 ... 20 elements.
6. Print Lucas series: 1 , 3 , 4 , 7 , 1 1 , 1 8 , 2 9 ... ... 20 elements.
7. Print series : 1 , 2 , 2 , 3 , 4 , 6 , 9 , 1 4 , 2 2 ... ... 20 elements.
8. Print series: 0, 1 , 2 , 4 , 6 , 1 0 , 1 2 , 1 6 , 1 8 , 2 2 ... 2 0 elements.
9. Print series: 1 , 2 , 4 , 7 , 1 1 , 1 6 , 2 2 , 2 9 , 3 7 ... ... 20 elements.
10. Write a program to compute, sum=1-1/2 + 1/3 + 1/4.....1/n.
11. Compute a series: Cos (x)=1- $x^{\wedge 2}/2!$ + $x^{\wedge 4}/4!$ + $x^{\wedge 4}/4!$.....$x^{\wedge n}/n!$ for a given x in radians.
12. Compute a series: Sin (x)=x-$x^{\wedge 3}/3!$ + $x^{\wedge 5}/5!$ + $x^{\wedge 7}/7!$.....$x^{\wedge n}/n!$ for a given x in radians.
13. Write a program to find the multiplication table of a given number.
14. Write a program that prints the ASCII value of all caps letters using for loop.
15. Write a program that prints the ASCII value of all small letters using for loop.
16. Write a program to convert the decimal number to binary,hexadecimal and octal equivalent.
17. Write a program that takes a positive integer as input and finds out the minimum number of bits required to store the number.
18. Write a program that checks whether a number is a power of 2 or not.
19. Write a program to compute Factorial of a given number (n).
20. Write a program to compute, sum=1! + 2! + 3! + 4!.....n!.
21. Write a program to check the given number is Prime or not.
22. Write a program to print all prime number from 1 to N.
23. Write a program that accept a number from user and check whether the entered number is **Armstrong** number or not.
24. Write a program that accept a number from user and print the sum of digits of the number (i.e. 123 = (3+2+1).
25. Write a program that accepts one integer from user and finds out largest digit in it.
26. Write a program that accept a number from user and print that in reverse form i.e. (123 to 321)
27. Write a program that computes LCM & GCD of two given integers using while loop.
28. Write a program that computes GCD and LCM of two given numbers using do – while loop.

29. generate the following pattern

```
*****  *****    *****    a       1       1
****    ****     ****    ab      21      10
***      ***      ***    abc     321     101
**        **       **    abcd    4321    1010
*          *        *    abcde   54321   10101
```

30.
```
+-+              1
| |              22
+-+-+            333
| | |            4444
+-+-+-+          55555
| | | |          666666
+-+-+-+-+
| | | | |
+-+-+-+-+-+
| | | | | |
+-+-+-+-+-+
```

Laboratory 5
Arrays and Strings

1. Write a program that accepts all elements of an integer array and finds out maximum and minimum element of the array.
2. Write a program that accepts all elements of an integer array and finds out sum and average among the values.
3. Write a program that accepts all elements of an integer array and finds out mean and standard deviation of the array.
4. Write a program that accepts all elements of a double array and finds its maximum and next maximum elements without using sorting.
5. Write a program that accepts two integer arrays, add them and store them in a third array.
6. Write a program that sorts an array of integers using bubble sort.
7. Write a program that generated the first 20 Fibonacci numbers and store them into an array of size 20.
8. Write a program that accepts a string and finds its length.[don't use any library function]
9. Write a program that accepts a string and count the total no of capital letters, small letters and digits present in it.
10. Write a program to take two string inputs and find out whether they are same or different.
11. Write a program to reverse a string without using any extra space.
12. Write a program to take a string and print the first character of each word in the string.
13. Write a program to take a string and print it in title case, sentence case.
14. Write a program that concatenates two strings. The second string is concatenated after the first string and it becomes the resultant string.
15. Write a program to check whether a string is a palindrome or not.
16. Write a program that accepts a string and counts the no of vowels (both upper case or lowercase) in it.
17. Write a program that accepts a sentence and counts the no of words in it and prints.
18. Write a program that accepts a string and output all palindromes from that string. ["ece" from "December"].
19. Write a program to take two strings and find out whether the first string is present in the second or not if it is present program should return position of occurrence.
20. Write a program that adds two matrices and store the result in a third matrix.
21. Write a program that multiplies two matrices and store the result in a third matrix.
22. Write a program to read a matrix and check it for Identity Matrix.
23. Write a program to accept an array of integers. Allow user to insert an new element as desired position or delete an element from any position.

24. Write a program to take two 2-dimensional arrays to store country and capital names and should return a capital name for given country name.
25. Write a program that finds out the transpose of a square matrix and store it in the same array.
26. Write a C program to find the frequency of odd numbers and even numbers in the input of a matrix.
27. Write a C program to accept a matrix of order M x N and store its elements and interchange the main diagonal elements of the matrix with that of the secondary diagonal elements.
28. Write a C program to accept a string and find the sum of all digits present in the string.
29. Write a C program to accept a matrix of order M x N and find the sum of each row and each column of a matrix.
30. Write a C program to accept a matric and determine whether it is a sparse matrix. A sparse matrix is matrix which has more zero elements than nonzero elements.

Laboratory 6
Macros, Functions and Recursive Function

1. Write a macro for finding max of two numbers. For i-5, j=10, try to find max of i++ and j++ using the macro and store the result in another variable k. See the actual outputs and its deviation from the expected outputs.
2. Instead of macro write a function for finding max of two numbers. For i=5,j=10, try to find max of i++ and j++ by calling the function from main and store the result in k. See that the actual output and expected outputs are same.
3. Write functions for finding GCD and LCM of two positive integers and call them from main.
4. Write a function that takes an array as parameter and return the sum of the elements.
5. Write a function that takes a number as parameter and returns its sum of digits.
6. Write a function that takes one positive integer and returns its reverse integer.[i.e. i/p- 459, o/p-954]
7. Write a Boolean function **Isperfect** that checks whether a number is perfect or not.
8. Write a function **IsPrime** that checks whether an integer is prime or not.
9. Write functions **mystrlen** that finds length of a string without doing any modification on it.
10. Write functions **mystrcpy** and **mystrcat** that works like strcpy and strcat library functions.
11. Write a program to illustrate indirect assignment using pointer.
12. Write a function **badswap** that tries to swap two values passed as parameter. Write a swap function that swaps values of two integers passing pointers to them.
13. Write a function that finds factorial of a given integer. Write both non recursive and recursive versions.
14. Write a recursive function that finds GCD of two positive integers.
15. Write a function that takes an integer n and returns fib(n), the n th Fibonacci no.
16. Write a Boolean function Ispalindrome that checks whether a string is palindrome or not.
17. Write a function **myatoi** that converts one string into integer.["1563" →1563]
18. Write a function myitoa that converts one integer into its equivalent string.[1765 → "1765"]
19. Write a function **mystrcmp** that compares two strings lexicographically.
20. Write a recursive function to findout factorial of a given integer.
21. Write a function **move(n,A,B,C)** to solve the tower of Hanoi problem recursively with n disks.
22. Write a recursive function to find sum of an AP series with n numbers.
23. Write a recursive function to multiply two numbers m and n.
24. Write a recursive function to find value of a^n where a is an integer and n is a positive integer.

25. Write a recursive function to find nth Ackermann function defined by

$$A(m,n) = \begin{cases} n+1 & \text{if } m = 0 \\ A(m-1,1) & \text{if } m > 0 \text{ and } n = 0 \\ A(m-1,A(m,n-1)) & \text{if } m > 0 \text{ and } n > 0. \end{cases}$$

26. Declare one pointer to function that returns one integer and accepts two integer parameter. Define two functions GCD and FMAX that accepts two integers. Call the functions using the function pointer.

27. Write a program that generates all possible permutation with few characters.[if a,b,c are given then it would generate all 6 possible permutations]

28. Write a recursive function to reverse a string without storing the string.

29. Write functions
    a. To read a given matrix
    b. To output a matrix
    c. To compute the product of two matrices taken as argument.

30. Write a function to test how a global variable is hidden when a local variable with same name exists in the function.

31. Write a function that takes three arguments: a character and two integers. The character is to be printed. The first integer specifies the number of times that the character is to be printed on a line, and the second integer specifies the number of lines that are to be printed. Write a program that makes use of this function.

32. Write a function that returns the index of the largest value stored in an array-of double. Test the function in a simple program.

33. Write a c program to check whether a number is strong or not. (A number is called strong number if sum of the factorial of its digit is equal to number itself. For example: 145 since 1! + 4! + 5! = 1 + 24 + 120 = 145)

Laboratory 7

Pointers and Storage classes.

1. Write a program to print the value and address of a variable.
2. Write a program to read values for an array and Print the values of the array using different array and pointer syntax. (like *(ptr+i), ptr[i], i[ptr], arr[i], * (arr+i))
3. Take an array of floating point numbers and test pointer arithmetic like ponter + int, pointer-int, pointer – pointer etc.
4. Write a swap function to swap the values of the argument passed to it.
5. Write a program to implement a 2D array to store multiple strings and sort them.
6. Write a program to reverse a string stored in array using pointer, without using any extra storage.
7. Write a program to test dangling pointers by returning the address of a local variable from a function.
8. Write a C program to read N integers and store them in an array A, and so find the sum of all these elements using pointer. Output the given array and the computed sum with suitable heading
9. Write a program to perform add, subtract, multiplication or division of two numbers based on user choice. But in this program you cannot use any control structure or ternary operator. (NB: Using Function Pointers)
10. Write a program to test constant pointer and pointer to constant.
11. Write a program to access a normal variable "var" with ***p , **q and *r.
12. Write a function which will print the number of times it is called by others using static variable.
13. Write a program to demonstrate the use of Extern variable.
14. Write a program to demonstrate different way to access a 2D array with pointer notation and array notations. Like (arr[i][j], *(*(ptr+i)+j), *(ptr[i]+j) etc..
15. Write a function to take two metrics as argument (using pointers) and return the result of their multiplication as pointer to the resultant array.

Laboratory 8

Structure, Union and Enums, dynamic memory allocation

1. Create a structure that stores a point in 2D. Accept 2 points and find out the distance between the two points.
2. Create a structure that stores the position vector of a point in space., Write a function IsPerpendicular that checks whether two given vectors are perpendicular or not .
3. Create a structure that stores name, rollno, and branch of a student. Accept data of 20 students and find out the no of students in each of the branches [CSE,ECE,EEE,EIE and IT].
4. Write a function that accepts two points in space and finds out the Euclidean distance between them. Call this function to find out the area of a triangle formed by 3 points.
5. Create a structure for a 2D point. Create also a structure of a line segment whose two end points are given. Write a Boolean function sIntersect(Line l1,Line l2) that returns true when the line segments intersect else returns false.
6. Either registration no or roll no is a must for student info. Apart from this, name, roll no and branch is must for a student. Create a suitable structure/union for a student. Enter 10 student info and display them.
7. One array of numbers to be sorted. The no of element of the array is an user input. Create the array dynamically, accept its members and sort the array.
8. Write two small programs to illustrate memory leak/garbage and dangling pointer/reference.
9. Dynamically create 3 square matrices of same sizes (a user input), scan elements of the first two matrices, add them and store the result in the third matrix. Use only malloc function to allocate memory dynamically.
10. Dynamically create 3 square matrices of same sizes (a user input), scan elements of the first two matrices, add them and store the result in the third matrix. Use only calloc function to allocate memory dynamically.
11. Declare an emum for all weekdays. Enter a day of the week (0 -6 , 0-Sunday, 6 – Saturday) and print the day name.

Laboratory 9

Files and Command line arguments

1. Write a program that reads 10 integers from an existing ASCII file, square the nos and writes to another ASCII file sqr.txt.
2. Write a program that reads few integers from an ASCII file data.txt. Writes all even integers into even.txt and all odd integers into odd.txt.
3. Student data [roll no,name,branch] is available in an ASCII file student.txt. read all the data and write them on different files depending on their branch[all CSE student data in cse.txt etc].
4. Write a program for storing, retrieving, and updating employee information using a flat (unformatted) file. Only the salary of an employee can be updated. Emp record consists of empid, name, and salary. All data to be written in the file data.dat in non readable format using fwrite. Use fread to retrieve the data. Options available n-new employee record, s-show particular employee record, v-view all recors, u-update an employee record.
5. Write a program myfilecopy.c that copies one file into another. Both the file names should be taken as inputs.
6. Write a program myecho.c using command line argument that will echo a string. Compile the program by **gcc myecho.c –o myecho**. Run the program by **myecho hello world** and it is expected that it would print hello world.
7. Write a program **mycalc.c** using command line argument that works like a mini command line calculator. Compile the program by **gcc mycalc.c –o mycalc**. Run it like **mycalc 45 + 32** and expected output would be 77.
8. Write a program **myfilecopy.c** that copies one file to another using command line argument.
9. Write a program **mygrep.c** that works like grep command using command line argument.
10. Write a program **mycat.c** that works like cat command using command line argument.

List of Mini Projects

1. Rat in a Maze - optimal path tracing
2. Game Development - Tic Tac Toe
3. Game Development - Chess in command mode
4. Polynomial arithmetic - creation, addition, multiplication, division
5. Polynomial arithmetic polynomial of multivariable - creation, addition, multiplication
6. Mini Dictionary implementation - using binary search tree
7. Calendar program. The program will displays the calendar of entered year
8. Mini dictionary - using multiple flat files
9. project to update system date and time - command mode
10. Design a command mode calculator.
11. Convert decimal nos to roman equivalent upto 10,000
12. Conway's Game of Life simulator
13. Keyword Extractor - using C
14. Mini lexical Analyzer in c
15. Implementing a symbol table in C
16. Day finder - when a date in entered - command mode
17. Amount to Word - using C
18. Counting loops in a program - using C
19. Encryption and Decryption of file of ASCII character
20. Non Recursive solution of TOH
21. Matrix inverse - order as an input
22. Matrix Inverse By Gauss Jordan Method
23. Maintaining employee details using binary files
24. Maintaining Student Records using binary files.
25. Formatting a text files - using C
26. Factorial of large number using grow able array
27. 8 queen problem - solution generator
28. Large value arithmetic - Store, Add, Subtract - command mode
29. Inversion pair finder - Divide and conquer rule.
30. Coin changing problem - using greedy approach
31. Simple text editor - for text files only
32. mini library management system using flat files
33. Root finding - bisection method
34. Root finding - Newton Raphson method.
35. HTML to text converter - simple implementation
36. Toeplitz matrix operations - addition, multiplication
37. Levinson Recursion to solve a system of equations involving toeplitz matrix
38. Discrete Fourier and cosine transforms of vectors.
39. LU decompositions of a square matrix
40. Launching notepad