List of practical program using C

Simple programs :

01) Write a program to find the addition, subtraction, product, and division of two integers numbers.
02) Write a program to find square and cube value of given number.
03) The Employee's basic salary is input through the keyboard. His dearness allowance is 40% of basic salary, and house rent allowance is 20% of basic salary. Write a program to calculate his gross salary.
04) The distance between two cities(in KM.) is input through the keyboard. Write a program to convert and print this distance in meters, feet, inches and centimeters.
05) If the marks obtained by a student in five different subjects are input through the keyboard, find out the aggregate marks and percentage marks obtained by the student. Assume that the maximum marks that can be obtained by a student in each subject is 100.
06) Temperature if a city in Fahrenheit degrees is input though the keyboard. Write a program to convert this temperature into centigrade degrees.
07) The length and breadth of a rectangle and radius of a circle are input through the keyboard. Write a program to calculate the area and perimeter of the rectangle, and the area and circumference of the circle.
08) Two numbers are input through the keyboard into two locations C and D. write a program to interchange the contents of C and D.
09) If a five digit number is input through keyboard. Write a program to calculate the sum of its digits.
10) If a five digit number is input through keyboard. Write a program to reverse the number.
11) If a four digit number is input through the keyboard. Write a program to obtain the sum of the first and last digit of this number.
12) If principal , rate and period is input from the keyboard. Write a program to calculate simple interest.
13) If coefficients of quadratic equation are input through keyboard. Write a program in C to find the roots of quadratic equation $ax^2+bx+c=0$ whose coefficients are a, b and c.

Data types in C

Data type	Bytes	Range	Format
unsigned char	1	0 to 255	%c
signed char	1	-128 to 127	%c
short signed int	2	-32,768 to 32,767	%d
short unsigned int	2	0 to 65,535	%u
unsigned long int	4	0 to 4,294,967,295	%lu
signed long int	4	-2,147,483,648 to 2,147,483,647	%ld
float	4	3.4 * (10**-38) to 3.4 * (10**+38)	%f
double	8	1.7 * (10**-308) to 1.7 * (10**+308)	%lf
long double	10	3.4 * (10**-4932) to 1.1 * (10**+4932)	%Lf

Keywords (32)

auto , break case char const, default do double else enum extern far float for goto, if int long near register return, short signed static struct switch, this typedef union unsigned void while continue

Programs using if-else and logical operators and conditional operators

1. Any integer is input through the keyboard. Write a program to find out whether it is an odd number or even number.
2. Write a program to check whether the number entered is even ,odd , a positive , negative or zero.
3. Write a program in C to find the roots of quadratic equation $ax^2+bx+c=0$ whose coefficients are a, b and c. Consider the cases of unequal roots, equal roots and imaginary or complex roots and no quadratic equation.
4. Write a program in C to read the year in the form yyyy and check whether it is a leap year.
   (year y is called a leap year if it is divisible by 4 and not divisible by 100 or if it is divisible by 400.)
5. If a five digit number is input through keyboard. Write a program to obtain reversed number and to determine whether the original and reversed numbers are equal or not.
6. if cost price and selling price of an item is input through the keyboard, write a program to determine whether the seller has made profit or incurred loss.
7. While purchasing certain items, a discount of 10% is offered if the quantity purchased is more than 1000. If quantity and price per item are input through the keyboard , write a program to calculate total expenses.
8. In a company an employee is paid as under:
   If his basic salary is less than Rs.1500 , then HRA =10% of basic salary and DA=90% of basic salary. If his salary is either equal to or above Rs.1500, then HRA=Rs.500 and DA=98% of basic salary. If the employee's salary is input through the keyboard write a program to find his gross salary.

9. The marks obtained by a student in 5 different subjects are input through the keyboard. The student gets a division or grade as per the following rules: marks obtained by a student in 5 different subjects are input through the keyboard. The student gets a division or grade as per the following rules:

Percentage above or equal to 60 – First
Percentage between 50 and 59 – Second
Percentage between 40 and 49 – Pass
Percentage less than 40 – Fail.
Write a program to calculate the division or grade obtained by the student.

10. A company insures its drivers in the following case:
If the driver is married.

If the driver is unmarried , male and above 30 years of age.
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 , gender, and age of the driver are inputs from the keyboard. Write a program to determine whether the driver is to be insured or not.

11. Write a program to find the entered character is lower case alphabet or not.
12. Input three integers. Find the maximum number and print it.
13. Any three digit integer number is input through keyboard. Write a program to find out whether it is Armstrong number or not.
14. When a character is entered through the keyboard , write a program to determine whether the character entered is a upper case letter, a small case letter, a digit or a special symbol. ASCII values for various characters.
    i) A-Z 65-90 ii) a-z 97-122 iii) 0-9 48-57
    iv) special symbol 0-47, 58-64, 91-96 , 123-127
15. Write a program in C to display the day or the month depending upon a number entered using switch case … default statement .
16. Write a program in C to construct a simple calculator program to find addition, subtraction, product and division of two numbers using switch case… default statement.

Programs using WHILE and FOR loop

01) Write a program to find sum of numbers between 1 to 100.
02) Write a program to find and print only even numbers between 0 to 100.
03) Write a program to print square and cubes of numbers between 1 to 30.
04) Write a C program that prints all lower case letters and upper case letters.
05) Write a program to calculate overtime pay of 10 employees. Overtime is paid at the rate of Rs. 12.00 per hour for every hour worked above 40 hours. Assume that employees do not work for fractional part of an hour.
06) Write a program to calculate gross salaries of ten different persons. Use same information to calculate gross salary.
07) Write a program to convert temperatures from centigrade to Fahrenheit for 15 different cities. Use same information to convert temperature.
08) Write a program to calculate Simple interest for three different sets of p, n and r.
09) Write a program to find the number of all integers greater than 1 and less than 100 that are divisible by 5.
10) Write a program to find the number of and sum of all integers greater than 100 and less than 200 that are divisible by 7.
11) Write a program to input an integer of 10 digits, and to find the sum of the digits in the given integer.
12) Write a program to input an integer of 10 digits and to reverse its digits.
13) Write a C program to check whether the given number is a prime number.
14) Write a C program to find the prime numbers within the given range.(1 to 300).
15) Write a program that determines and displays the Armstrong numbers between 100 to 999.

16) Write a program to find the factorial value of any integer entered through the keyboard.

17) Two numbers are entered through the keyboard. Write a program to find the value of one number raised to the power of another. calculate the value of a^b

18) Write a program to fill the entire screen with a smiling face. (the smiling face has ASCII value 1).

19) The numbers in the sequence

1 1 2 3 5 8 13 21 ……..

are called Fibonacci numbers. Write a program to calculate and print the first m Fibonacci numbers.

After the first two numbers in the series, each number is the sum of the two preceding numbers.

20) Write a program that determine the value of following series upto n.

$1+x+x^2+x^3+x^4+\ldots\ldots\ldots\ldots\ldots\ldots+x^n$

21) Write a program to add first seven terms of the following series using a for loop.

1/1! + 2/2! + 3/3! + ……..

22) Shown below is a Floyd's triangle.

1
2 3
4 5 6
7 8 9 10
11 15
….
……
79 91.

Write a program to print this triangle.

23) Write a program to generate all combinations of forming a three digit number using digits 1,2 and 3.

24) Write a program to find the LCM and GCD of any two non-zero integers. Before finding the GCD check whether the two integers are positive, the integers are in the ascending order.

GCD * LCM= product of the two integers.

25) Write a program that determines persistence value of given number.

Input 2 digit positive integer number through keyboard.

e.g. persistence value of 49 is 3. 49,4*9=36, 3*6=18 , 1*8=1.

e.g. persistence value of 77 is 4. 77,7*7=49, 4*9=36, 3*6=18 , 1*8=1.

Program for Function

01) Write a program using user-defined function to determine whether the year is a leap year or not.

any year is input from the keyboard.

02) Write a program using user-defined function to find factorial value of any integer entered through the keyboard.

03) Write a function which receives a float and an int from main(), finds the product of these two and returns the product which is printed through main().

04) Write a function that receives 5 integers and returns the sum, average and standard deviation of these numbers. Call this function from main() and print the results in main().

05) Write a program using user-defined functions that will determine the length, slope and the y-intercept of a line where end points are given.

06) Write a C program that prints all prime numbers from 2 to 100. Use a function that will determine a prime number.

07) Write a program that determines and displays the Armstrong numbers between 100 to 999. Use function to find display the Armstrong numbers.

08) Write a function power(a , b) to calculate the value of a raised to b.

09) Use recursive function to find the factorial of n

10) Use recursive function to find nth Fibonacci number.

11) Use recursive function to find sum of digits of any entered positive integer.

12) A positive integer is entered through the keyboard.
Write a function to obtain the prime factors of this number .
for example: Prime factors of 24 are 2,2,2 and 3 and whereas prime factors of 35 are 5 and 7.

13) Write a general-purpose function to convert any given year into its roman equivalent. The following table shows the roman equivalents of decimal numbers.

Decimal	Roman	Decimal	Roman	Decimal	Roman
1	I	5	V	10	X
50	L	100	C	500	D
1000	M				

Example:
Roman equivalent of 1988 is MDCCCCLXXXVIII
Roman equivalent of 1525 is MDXXV.

Program for Array

1. Write a program that displays given array numbers in Forward and Reverse Direction.
2. Write a program to find average marks obtained by 25 students in a test .Use array to store marks of students.
3. 15 numbers are entered from the keyboard into an array. Write a program to find out how many of them are positive , how many are negative, how many are even and how many odd.
4. Write a program to test the given sequence of integers for Sort ascending order and print the integers in the ascending order. Also print the integers in descending order.
5. Write a program to find average marks of 4 different subjects obtained by 10 students in a test. Use a two dimensional array to store marks of students for each subject.
6. Write a program that determines the square of each array element. Given array elements are 10,20,30,40,50,60.
7. Write a program that displays the sum of integer array elements . The size of the array is input from the keyboard.
8. Write a program that converts decimal integer number to Binary equivalent. Use of an array is essential. Decimal number is input from the keyboard.
9. Write a program that converts decimal integer number to Octal equivalent. Use of an array is essential. Decimal number is input from the keyboard.

10. Write a program that converts decimal integer number to Hexadecimal equivalent. Use of an array is essential. Decimal number is input from the keyboard.
11. Write a program that converts any decimal integer number to binary , octal and hexadecimal equivalents. Write a general purpose function that converts decimal numbers to any base equivalent.
12. Write a program that finds and prints each array element added by 7 values.
13. Write a program that displays 2D Matrix which takes input rows and columns of Matrix.
14. Write a program that determines the sum of two Matrices 3 X 3 order . The program should display all three Matrices.

Program for String

1. Write a C program that prints all lower case letters and upper case alphabets. Use two different strings.
2. Write a C program that will demonstrate on string functions.(at least 6)
3. Write a program that will get a string from keyboard and displays the same string on VDU.
4. Write a program that completed following tasks on string.
    1) Copy “dbj college” this string into another string.
    2) Reverse latest string.
    3) Concat both strings original and reversed.
    4) Find the length of concat string.
5. Write a program that completed following tasks on string.
   Given string is “DBJ College ,Chiplun DBJ DBJ” .
    1) find the occurrence of “D’ in given string.
    2) Find the occurrences of “DBJ” in given string.
6. Write a program that sorts given strings. Use array to store given strings.

Programs using Pointer

1)Write a program that will interchange two values .Use call by value method and call by reference method.

2) Write a program that will read an array element using pointer and will display all the array elements in reverse order.

3) Write a program that will display memory addresses and values stored in them, by using pointer.
(at least 5 in both direction).

4)Write a program that displays each array element multiplied by 5.Develope a function that do same task , by using pointer pass the entire array to function.

5) Write a program to calculate factorial value of a number. That number is supplied at the command line.

Programs using structures

1. Write a program, which contents a structure to represent time in hours(0-23), minutes(0-59) and second (0-59). The program should accept two times from user and display the duration time between the two times.
2. Using structure, write a program that determines number of days between two given dates.
   (e.g. the given dates represent the republic day and impendence day in an year.)
3. Write a program that generates a list of students. Use structure variables to store the names ,roll-no, class and city of each student. The program should also display the number of students coming from a particular city (say:'Chiplun').
4. define a structure called cricket that will describe the following information player name,team name, batting average. Using cricket , declare an array player with 50 elements and write a program to read the information about all the 50 players and print a team wise list containing names of players with their batting average.
5. design a structure student r to contain name, BOD and total marks obtained. Use the date structure (day.month, year) to read data for 10 students in class and display list of students in rankwise.

Programs using File Handling

1. Write a program to read data from the keyboard. Write it to a input file. Again read the same data from the t file and display it on screen.
2. A data file contains a sequence of integers. Write a program to read these numbers and write all odd numbers to a file called ODD and all even numbers to a file called EVEN.
3. Write a program that will generate a data file containing a list of customers or students and their phone numbers. Use structure variables to store the names, city and phone numbers of each customer or student.
4. Write a program to count the number of characters, lines, spaces and tabs in a text file whose name is supplied at the command line.

x2+5x+6
a=1 b=5 c=6 input
output root1 : -2 root 2: -3
1 -4 4 (x2-4x+4)
root1: -2 root2: -2