

Introduction to Programming – IT110 – Lab Manual

Instructions:

1. Maintain a journal for this course.
 2. Attempt all questions, and get yourself evaluated for them through a TA.
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Lab 9

Write a C program for the following problems

Problem 1:

Write a general-purpose function which takes one roman number and one Decimal number and print there multiplication in both format.

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

Example: Input: XIII 5 then the Output: 65 LXV

Problem 2:

An integer number is said to be a perfect number if its factors, including 1 (but not the number itself), sum to the number. For example, 6 is a perfect number because $6 = 1 + 2 + 3$. Write a function perfect that determines whether parameter number is a perfect number. Use this function in a program that determines and prints all the perfect numbers between 1 and 1000. Print the factors of each perfect number to confirm that the number is indeed perfect.

Problem 3:

Design a Menu driven program such that user enter the 6 elements in the integer array and perform following functions:

1. Sort the array (call specific function inside case)
2. Calculate the average of all element of array.
3. Reverse the array
4. Search the element in the array using binary search.
5. Exit

Note: For each of the options 1 through 4, you need to write a separate function and call that function depending on the menu option selection.

Problem 4:

Write recursive function to add first n number i.e. $1+2+3+\dots+n$.

Problem 5:

Write a recursive function to reverse the number i.e. if the input number is 1234 then the recursive function should return 4321.

Problem 6:

Can main function be called recursively? Write a program containing a function main. Include static local variable count initialized to 1. Post-increment and print the value of count each time main is called. Terminating condition for recursion is when count value becomes 10. What happens when you run your program?