**CPE100 Computer Programming for Engineers**

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**Objective**

This exercise will allow you to practice coding C language which is the most important computer language, in conditional and iterative statements. This exercise will focus on gaining basic knowledge of how “if-else” and “for loop” statement in C works for further coding.

**Instructions**

1) Write a program in C to convert a binary number into a decimal number without using array, function ,while loop. Only for loop allow.

Input : 1010101 Output : 85

Input : 100011 Output : 35

2) Write a c program to check whether a given number is a perfect number or not.

\*\*\* perfect number is a [positive integer](https://en.wikipedia.org/wiki/Positive_integer) that is equal to the sum of its positive [divisors](https://en.wikipedia.org/wiki/Divisor), excluding the number itself.

Input : 56 Output : 56 is not a perfect number

\*\*\* The positive divisor : 1 2 4 7 8 14 28 , Sum is 64

Input : 6 Output : 6 is a perfect number

\*\*\* The positive divisor : 1 2 3 , Sum is 6

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3) Write a program in C to Check Whether a Number can be Express as Sum of Two Prime Numbers.

Input : 16

Output :

16 = 3 + 13

16 = 5 + 11

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Input : 40

Output :

40 = 3 + 37

40 = 11 + 29

40 = 17 + 23

4) Write a C program to input a number from user and find reverse of the given number.

Input : 12345 Output : 54321

Input : 121341 Output : 143121

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5) Write a program in C to display the first n terms of Fibonacci series.

\*\*\* Fibonacci series , Fn = Fn-1 + Fn-2 , F1 = 1 and F2 = 1.

For example, 1 1 2 3 5 8 13 21 34 55 89 ……

Input : 5 Output : 1 1 2 3 5

Input : 7 Output : 1 1 2 3 5 8 13

6) Write a program in C to check whether a number is a palindrome or not.

\*\*\* Palindrome number, a word, phrase, or sequence that reads the same backward as forward, e.g., madam , nurses run , 10101.

Input : 132 Output : 132 is not a palindrome number.

Input : 12121 Output : 12121 is a palindrome number.

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7) P’tum need some thing much more cool than last pyramid.

Write a C program to display Pascal's triangle, by input number of floors.

\*\*\* Pascal’s Triangle is a method to know the binomial coefficients of terms of binomial expression (x + y)n, it will show to co efficient number of the result binomial expression

Input : 5

Output :

1

1 1

1 2 1

1 3 3 1

1 4 6 4 1