

CPE100 Computer Programming for Engineers

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 C program to check whether an input character is an alphabet, a digit or a special character.”

Input : C Output : Alphabet

Input : 8 Output : Digit

Input : @ Output : Special character

2) Write a C program to give the result of GCD (the Greatest Common Divisor) from two input numbers.

Input : 12 14 Output : 2

Input : 7 3 Output : 1

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3) Write a C program to show a sequence of Prime number from 2 to an input integer. The result must only display 10 numbers per row.

Input : 10

Output :

2 3 5 7

Input : 40

Output :

2 3 5 7 11 13 17 19 23 29

31 37

4) Write a C program to get three numbers representing three sides of a triangle. Then the program will check if three line can form a triangle or Not ?”

*** Hint : 3 lines can form a triangle if the summation of 2 sides is greater than the rest.

Input : 3 4 6

Output : Yes

Input : 10 5 15

Output : No

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5) Write a C program to give the result of the sum of series [9 + 99 + 999 + 9999 ...], where an input n is the number of terms.

Input : 3 Output : 1107

*** 9+99+999 = 1107

Input : 5 Output : 111105

*** 9+99+999+9999+99999 = 111105

6) Write a C program to get a list of numbers ending with 0 and then calculate for an average of these input numbers. The answer will be printed out with two decimal digits.

Input : 4 7 9 10 12 0 Output : 8.4

Input : 7 23 -2 4 19 22 31 0 Output : 14.86

*** Only show last 2 decimal

7) Write a C program to check whether a given number is prime or not.

Input : 13 Output : 13 is a prime number.

Input : 100 Output : 100 is not a prime number.

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8) The Great Pyramid of Giza is the largest Egyptian pyramid and the tomb of Fourth Dynasty pharaoh Khufu. It was built in the early 26th century BC during a period of around 27 years. The pyramid is the oldest of the Seven Wonders of the Ancient World, and the only one to remain largely intact. The mighty P'Tum one of the best Pharaoh in CPE also needs the Pyramid.

Help him to write a C program to display n-leveled pyramid with asterisks, where n is an input number.

Input : 5

Output :

```
  *
 * *
* * *
* * * *
* * * * *
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9) It is not COOL!!! , P'Tum said. “ I need a pyramid that look cool more that this!!!!”

Write a C program to (Make P'Tum happy) by “Output n-leveled pyramid with replacing asterisks with the number of its level, where n is an input number.

Input : 6

Output :

```
  1
 2 2
3 3 3
4 4 4 4
5 5 5 5 5
6 6 6 6 6 6
```