CSCE 206 Spring 2020 Lab Assignment: #3

Submission Deadline: 23:59, March 8th 2020 (Sunday).

1. Follow the submission guidelines in the below link and make the submission through eCampus.

<https://prathiksha1995.github.io/CSCE206//Submission.html>

1. Add comments to your code including your name, UIN and the class section you are in with block comments to the head of your code file.

**Question 1. Special Numeric** (25 points)

A special numeric has three digits and holds a property that it is exactly equal to the summation of the cubes of each digit. For example, 370 is special numeric.

370 = 33 + 73 + 03

Write a C program to explore these special integers from 100 to 999 and display all of them on the screen. You can use **for** loop. Name your program file Hw3\_q1\_code.c

**Question 2. Pattern** (25 points)

Take an integer n as input from the user and display the following pattern. Name your program file Hw3\_q2\_code.c

**Example input and output: (Text in purple is what the program should print on the screen to instruct the user, text in black is what the user types in or the program outputs).**

Enter the value of n: 3

1

22

333

Enter the value of n: 5

1

22

333

4444

55555

**Question 3. Recursion Sum** (50 points)

A Summation formula is defined as:

𝑠𝑢𝑚(𝑛, 𝑘) ≜ 𝑛0 + 𝑛1 + 𝑛2 + ⋯ + 𝑛𝑘

For example:

𝑠𝑢𝑚(10, 4) ≜ 100 + 101 + 102 + 103 + 104 = 11111

Write a C program to ask user to input a **decimal** 𝑛 and an **integer** 𝑘 and return the correct summation following the formula defined above. The C program is required to use **Recursion function (a function calling itself, 30 points)** for this purpose. It is required to use **Recursion** to evaluate the power of n. Name your file Hw3\_q3\_code.c.

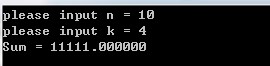
Hint: Write a custom power function using recursion learned in class (you are **not allowed** to use **pow** in **math.h** library).

**Example input and output: (Text in purple is what the program should print on the screen to instruct the user, text in black is what the user types in or the program outputs).**

Please input n = 6.5

Please input k = 5

Sum = 13712.34375.



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