PDS Lab 4
Section 3
Date: 20.05.2021

Question 1

Write a C program to keep taking inputs till the input is a positive integer with at least 3 digits. The main program then checks whether the input integer is a Fascinating number or not. Finally, the main program prints the result.

Definition: Consider a positive integer of at least 3 digits. Let S be the set of digits appearing in the number, in the number multiplied by 2 and the number multiplied by 3. Suppose in S the digits from 1-9 appear exactly once while 0's may appear multiple times. Then such a number is called a Fascinating number.

Eg:
192 x 1 = 192
192 x 2 = 384
192 x 3 = 576
S = {1,9,2,3,8,4,5,7,6}
Therefore, 192 is a Fascinating number.

Similarly, 1920 is also a fascinating number.

Question 2

Write a C program to detect all Armstrong numbers within a certain range.
The main function takes as input two positive integers that mark the lower bound and upper bound of a range. The program then finds out all Armstrong numbers within that range by calling a function isArmstrong().
isArmstrong() checks if a positive integer is an Armstrong number or not.
Finally, using a function printArmstrong() the entire list of Armstrong numbers in the input range is output.
For the above two functions, you can decide the number of parameters to pass but they must all be of type int. You can write other functions if necessary.

Definition: A positive integer of n digits is called an Armstrong number if the sum of the n-th power of each digit adds up to the number itself.

Eg: 153 is a 3 digit number; $153 = 1^3 + 5^3 + 3^3$