SE 1105 Fall 2021

**Project I**

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***Project Description:***

In this problem we need a input from user which is **n**. After that we need to iterate this number (0 to **n**) and print whose digits sum up to a perfect square number.

***Project Solution:***

Totally i used 3 loops, 2 if statements and 2 diffrent function exclude main.

First of all, i got the input from user with **scan\_f** *(used scan\_f insted of scan because of buffer check*) and then i created a for loop that is the most important part of code. It iterates each sub number and execute the internal functions. After that i created a function called **digitsSum** that is return sum of digits of the given value. After that i wrote a condition which is check it is a perfect square or not. So in the last part i noticed; i need one more function for print the digits and then i created a function which is called **printDigits.** It’s prints the digits least significant to significant with “:”. Finally i put the all functions together and organized the output.

***Implementation:***

#include <stdio.h>

#include <math.h>

void printDigits(int number){

    /\*

    params:

    number(int)

    returns: None

    "This function prints digits of the given number"

    \*/

    int x = 1;

    int digit;

    while(number){

        if ( number < 10) {

            digit = number % 10;

            printf("%d", digit);

            number = number / 10;

        } else {

            digit = number % 10;

            printf("%d", digit);

            number = number / 10;

            if(x % 2 == 1) {

                printf(":");

            }

            x++;

        }

    }

}

int digitsSum(int number){

    /\*

    params:

    number(int)

    returns:

    digitSum(int)

    "This function returns summary of all digits"

    \*/

    int digitSum = 0;

    int digit;

    while(number){

        digit = number % 10;

        number = number / 10;

        digitSum += digit;

    }

    return digitSum;

}

int main(){

   int n;

    printf("Please type a number ");

    scanf\_s(" %d", &n);

    if (n <= 0){

        printf("Please type a positive value\n");

        main();

    }

    for (int i = 1; i <=n; i++){

        int digitSum = digitsSum(i);

        if (pow(sqrt(digitSum), 2) == digitSum){

            printf("%d ", i);

            printDigits(i);

            printf(" %d", digitSum);

            printf("\n");

        }

    }

    return 0;

}

***Output of The Program:***

***N = 30***

*4 4 4*

*9 9 9*

*10 0:1 1*

*13 3:1 4*

*18 8:1 9*

*22 2:2 4*

*27 7:2 9*

***Conclusion:***

*I think i solved the problem with proper way but i can do more efficent if description paper has input limitation(min-max) values, i used 2 same codes at diffrent part of project. But in last it was good and working correct.*