# 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:*

```c
#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.*