**CSCI 301 Moustafa Elsayed**

**Computer Science 2**

**Project 2: Add up the digits of an integer**

**Introduction**

Adding up digits in an integer can be achieved by taking each integer and adding it to the next integer, then the sum of these two integers is added to the third integer and so on. This program takes the input of the user, separates the first digit and second digits and adds them up, then repeats the same action with the third integer and the sum. Then the program prints the sum of the digits within that integer.

**Data Structures**

This program uses an integer “result” in the main function to hold the returned value of the function “digsum()” and to identify of there is a negative input. An integer “n” in the main function to hold the user input and to be the input of the function “digsum()”. An integer “sum” in the “digsum()” function to hold the first digit in the input and to be added to the returned value of the recurred function “digsum()”.

**Functions**

This program uses only one function “digsum()” that takes the input then checks to see if the input is less than 0, then it returns -1. If the input is less than 10, then it returns the input . If none of the first two conditions are true, then the function assigns the first digit of the integer to the variable “sum”. Then the function adds the value of the “sum” variable to the returned value of the recurred “digsum()” function that has the rest of the digits as the input except the first one that has been assign to the “sum” variable. Then the function returns the value of the “sum” variable.

**The main program**

The program asks the user for an integer input. Then the program calls the “digsum()” function and assigns its value to the “result” variable. If the “result” variable has the value of -1, then the program will print “Invalid input”. If not then the program will print the sum of the digits.