Loops

Consider the following code:

```c
int main(void) {
    int n = 5;
    int i;
    for(i=0;i<2;i++) {
        printf("computing %d minus %d ...", i, n);
        n = i-n;
        printf("n is %d\n", n);
    }
    return EXIT_SUCCESS;
}
```

What is printed on the screen?

Programming

The mathematical operation \( n! \) is defined as \( n! = (n - 1)! \times n \) for \( n > 0 \) and \( 0! = 1 \). Write a program that asked a user for a number \( n \), complains if that number is negative, and computes and outputs \( n! \) otherwise.
Programming with scanf

This question is similar to some of the lab 3 tasks. Write a program which takes in a series of integers from the screen and calculates the sum of these integers. The user indicates that (s)he is finished by inputting any non-integer input.

**Note:** You need to know a bit more about `scanf` to do this. You’ve seen it used in programs in lectures and labs:

```c
int a;
scanf("%d", &a);
```
(with the ‘magic’ ampersand that we’ll explain properly later) to read in an integer to the variable `a`.

You also need to know that `scanf` returns an integer, which is the number of items it successfully read. Thus `scanf("%d", &a);` will return `1` if it read something into `a`. It will return `0` if the user inputs a non-integer, or `-1` on error or end of input.

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Functions

Consider the following code:

```c
int i = 3;

int triple( int a ) {
    a = a*3;
    return a;
}

int main(void) {
    triple(i);
    printf("i, triple(i): %d, %d", i, triple(i));
}
```

Your goal is to work out what will be printed on the screen by this program (preferably *without* running the program). It will help you if you make drawings of the “program environment” like I have been doing in some lectures.