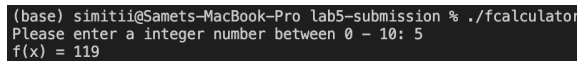


Lab Exercise 5

In this exercise, you are expected to write a C program that asks the user to enter a integer number x between 0 - 10, then calculates the value of $f(x) = x! - 1$ and prints the value. In order for you to get used to Multi-file C Programs and Makefiles, you are required to follow the following steps:

1. Create a directory called "lab5-submission"
2. Create the following files (file names are given in **bold**):
 - **io.c** a source file that will include your implementation for the functions called "ask_number" and "print_result"
 - **io.h** a header file that will include the function declarations for "ask_number" and "print_result"
 - **f.c** a source file that will include your implementation for the function called "calculate_f"
 - **f.h** a header file that will include the function declaration for "calculate_f"
 - **mainfunc.c** a source file that will include the main function
 - **Makefile** the makefile for this exercise
3. Write the following function declarations in the corresponding header files (.h) and then implement the functions (including main) in the corresponding source files (.c):
 - **int ask_number();** //asks the user to enter a integer between 0-10 & returns it
 - **void print_result(int result);** //prints the given integer parameter
 - **int calculate_f(int x);** //calculates $f(x) = x! - 1$ and returns it



```
(base) simitii@Samets-MacBook-Pro lab5-submission % ./fcalculator
Please enter a integer number between 0 - 10: 5
f(x) = 119
```

Figure 1: A screenshot showing the working program

4. Write a makefile that includes following target rules (rule names are given in **bold**):
 - **all** compiles everything by depending on "install" target rule (below) and runs the program
 - **install** compiles everything by depending on "fcalculator" target rule (below)
 - **clean** removes the object files (.o) and fcalculator executable
 - **fcalculator** links the object files generated by compilemain, io.o and f.o target rules (below) to generate an executable called "fcalculator"
 - **compilemain** compiles mainfunc.c to generate object file mainfunc.o
 - **io.o** compiles io.c to generate object file io.o
 - **f.o** compiles f.c to generate object file f.o

Note: You are expected to write dependencies between target rules correctly so that make program can run the target rules in the correct order.

5. In the end, please compress (zip) the "lab5-submission" and submit the zip file to the Blackboard.