

Coding Assignment 0

ESO207 2024-25-I

August 6, 2024

1 Introduction

In this homework you will implement a C program to return the n -th Fibonacci number.

The deadline of this homework is Tuesday, August 13, 11 PM IST. Your submissions will not be accepted after this time.

2 Submission Instructions

- You must submit a C program. Other programming languages such as C++, Python, etc. are not allowed. Your code must take the input from “stdin” and write the output to “stdout”.
- The input will consist of a single line consisting of a positive integer n . The input n is promised to be less than 90. An example input is shown below; here $n = 87$

87

The output will consist of a single line consisting of the n -th Fibonacci number $F(n)$. Note that $F(0) = 0$ and $F(1) = 1$. Thus, for the above input the correct output will be:

679891637638612258

(Note that there will be no space or newline or any other character after the desired Fibonacci number in the output).

- As you know Fibonacci numbers grow very fast with n . Thus, it is recommended that you use a data type such as “`unsigned long long int`” to be able to handle large positive integers.
- Your code will be automatically graded in Gradescope on some test cases as above which will be hidden from you. Therefore, you must make sure that you understand and precisely follow the expected input-output behavior.
- Please write a single C code and name it as ‘fib.c’. This is extremely important. If you violate this, your code will not pass the automatic test cases even if your code runs correctly in your local machine. Common examples of failures include:
 - if you write a C++ program that has the correct input-output behavior
 - if you write two or more different C codes or .h header codes and link them
 - or write a single correct code but name it as ‘test.c’

In any of the above cases, your code will result in a failure. Thus, while you are perfectly allowed to develop your code in your local machine and it works correctly, your code may run into problem in Gradescope until and unless you follow the above instruction.

- This homework will have 80 marks in total consisting of four test cases. Two visible test cases are given below. The hidden test cases will not be visible to you.
- Submit your code on *Gradescope*. Otherwise your code will not be graded. In particular, do NOT submit on hello IITK or over email. Email to us (instructor or the TAs) or start a discussion in helloIITK if you run into any issues.

3 Test Cases

You will be evaluated on hidden test cases. These test cases will not be revealed to you. For each hidden test case, you need to match the expected output. Then only you are going to get the full marks. So, for example, if there are 5 hidden test cases, and each test case consists of 20 marks, and you get 2 of them right, your score will be 40/100. You will not get to see your score until the deadline is over, when we will grade your code using autograder, and publish the result.

Additionally, there will be one/two/a few visible test cases to help you. For this particular assignment, there will be two visible test cases. One of them we have already mentioned in the above. The other one is as follows.

Sample Input:

50

Sample Output:

12586269025

When you submit your code, it will show whether your code matches the expected output or not, only on the visible test cases. If it matches, you will see a score b/b where b is the marks for this particular test case. If it does not match, you'll see a score $0/b$ and an error message that will show what the expected and your code's outputs were. In the right, it will show your total scores. You can resubmit the code any number of times until the deadline. Only your final submission will be graded.

For this homework, there will be two hidden test case with a score of 20 each. Both the visible test cases will have scores 20 as well. Thus total marks is 80.