

The Fibonacci Sequence

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1 Introduction

The Fibonacci sequence is a series of numbers in which each number (Fibonacci number) is the sum of the two preceding ones. The sequence typically starts with 0 and 1.

2 Definition

Mathematically, the Fibonacci sequence is defined by the recurrence relation:

$$F(n) = F(n-1) + F(n-2)$$

with initial conditions:

$$F(0) = 0, \quad F(1) = 1$$

3 First Few Terms

The first few terms in the Fibonacci sequence are:

$$0, 1, 1, 2, 3, 5, 8, 13, 21, 34, \dots$$

4 Problem Statement

Write a function that utilizes dynamic programming to compute the n -th Fibonacci number efficiently. Write a function for both the recursive and iterative dynamic programming solution