Opened: Thursday, 5 October 2023, 12:00 AM
Due: Friday, 13 October 2023, 12:00 AM

L1 Activities

Problem1:

Given a number N, the task is to print Fibonacci Series till Nth number without using any loop.

Example1:
Input: N = 5
Output: 0 1 1 2 3
Example1:
Input: N = 10
Output: 0 1 1 2 3 5 8 13 21
34
Approach: Using Recursion
1. Declare three variable a, b, sum as 0, 1, and
0 respectively.
2. Call recursively fib() function with first term, second term and the current
sum of the Fibonacci series.
3. After main function call fib() function, the fib() function call him self until the
N numbers of Fibonacci Series are calculated.
4. Update the value of a, b, and sum in each recursive call as shown below:
sum = a + b
a = b
b = sum

Problem 2:

Given a positive integer 'n'(1 <= n <= 1015). Find the largest prime factor of a number.
Example:
Input: 6
Output: 3
Explanation
Prime factor of 6 are- 2, 3. Largest of them is '3'
Approach
1. Initialize variables largest_prime to -1, i to 2, and n to the input integer.
2. Start a while loop that continues as long as i * i <= n. This loop will iterate
through all possible factors of n.
3. In the while loop, start another while loop that continues as long as n % i
== 0. This inner loop will divide n by i until n is no longer divisible by i.
4. In the inner loop, set largest_prime to i, and update n by dividing it by i.
5. At the end of the inner loop, increment i by 1.
6. After the outer loop, if n > 1, set largest_prime to n. This is because n could
be a prime number larger than any of its factors.
7. Return largest_prime.

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Problem 3:

Given a sequence, find the length of the longest palindromic subsequence in it.
Example:
 If the given sequence is "BBABCBCAB", then the output should be 7 as
"BABCBAB" is the longest palindromic subsequence in it.
"BBBBB" and "BBCBB" are also palindromic subsequences of the given
sequence, but not the longest ones.
Approach
1. Let X[0..n-1] be the input sequence of length n and L(0, n-1) be the length
of the longest palindromic subsequence of X[0..n-1].

2. If last and first characters of X are same, then L(0, n-1) = L(1, n-2) + 2.
3. Else L(0, n-1) = MAX (L(1, n-1), L(0, n-2)).

Problem 4: Given an array of integers where each element represents the max number of steps that can be made forward from that element. Write a function to return the minimum number of jumps to reach the end of the array (starting from the first element). If an element is 0, then cannot move through that element.
Example:
Input: arr[] = {1, 3, 5, 8, 9, 2, 6, 7, 6, 8, 9}
Output: 3 (1-> 3 -> 8 ->9)
First element is 1, so can only go to 3. Second element is 3, so can make at most 3 steps eg to 5 or 8 or 9.
Approach
1. A naive approach is to start from the first element and recursively call for all the elements reachable from first element.
2. The minimum number of jumps to reach end from first can be calculated using minimum number of jumps needed to reach end from the elements reachable from first.
minJumps(start, end) = Min (minJumps(k, end)) for all k reachable from start

L2 Activities

Problem: Working with CSV Files

Case1: Opening an existing CSV file, extracting data and printing data on the console.
Approach:
1.Open CSV File using File Pointer.
2.Extract the whole file data into a char buffer array.
3.Now initialize row and column variables with value 0.
4.Print data separated by a comma and increase the column variable.
5.When reached to the end of a row entry initialize column variable to 0 and increase row variable.
6.Repeat steps until the pointer reaches the end of the file.
7.Close the file.

Case 2: Append the data in the CSV file and display the entire contents with the updated data.
Approach:
1.Open CSV File using File Pointer in append mode which will place a pointer to the end of the file.
2.Take Input from the user in temporary variables.
3.Use fprintf() and separate variables according to their order and comma.
4.Close the file.

📋 car_price_prediction.csv.zip   5 October 2023, 12:56 PM

[Edit submission]   [Remove submission]

Submission status

Submission status	Submitted for grading
Grading status	Not graded
Time remaining	Assignment was submitted 5 days 2 hours early
Last modified	Saturday, 7 October 2023, 9:46 PM

File submissions		
	📁 L1 Activities	
	⚙ L1P1.c	7 October 2023, 7:21 PM
	⚙ L1P2.c	7 October 2023, 7:21 PM
	⚙ L1P4.c	7 October 2023, 7:21 PM
	📁 L2 Activities	
	⚙ L2Case1.c	7 October 2023, 7:21 PM
	⚙ L2Case2.c	7 October 2023, 9:46 PM

Submission comments	
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