Homework 01/29/2023

Question 1: Compute the sum of a series of numbers (10 points)
Write python code to compute the following expression and show the result on the hub.

1*2+2*3+3*4+4*5+….+99*100=?

Question 2: Get Fibonacci number (20 points)
The Fibonacci series is defined as follows:

The first number is 1; the second is 1; and for any of the remaining numbers, its value is equal to the sum of its two preceding numbers. That is, a(n) = a(n-1) + a(n-2).

Here is an example of the Fibonacci series:

1, 1, 2, 3, 5, 8, 13, …..

Please print the 50th Fibonacci number.

Question 3: Random car race game (35 points)
Let your robot hop-move straight forward with 0.2-seconds rest intermittently.
At the very beginning, you generate a random number (denoted as R) in the range of [2,10], and then the robot will start moving. Every time it's restarted from a rest, it moves forward a random distance in the range of [0,R] cm with the speed of 50.

After you all finish the codes, let's race the three robots and see which one will win the game in next class :-).

Question 4: Button_Number Controller (35 points)

Use the hub's left and right button to show different numbers on hub's digital_matrix. Initially, the hub shows 5. When you press the left button, the number will decrease by 1. When you press the right button, the number will increase by 1. The numbers to be shown are limited in the range of [0, 9]. That is, don't let your hub show negative numbers or two-digit numbers.