Question :

Water Simulation

Please read important information first.

Description

In this question you are expected to simulate water movement using a list.
Each value in this list corresponds to the water height at that position.
You are given map_size, amount_of_water, water_index, total_steps and water_change_div inputs which are explained in the User Input section.

How It Works

You are expected to create a list. len(list) = map_size.
Since each value in this list is the water height, they all need to be 0.
Then you are expected to put amount_of_water on list's water_index.
After that, for total_steps times, you will take some water from the high cell to the lower neighbours.
An example map with size = 11, amount_of_water = 100 and water_index = 5 is :
0.00 0.00 0.00 0.00 0.00 100.00 0.00 0.00 0.00 0.00 0.00
For water_change_div = 4, next step would be :
0.00 0.00 0.00 0.00 25.00 50.00 25.00 0.00 0.00 0.00 0.00
We transfer (cell value - neighbour value) / water_change_div amount of water to each neighbour cell with lower water height.

User Inputs:

- map_size : size of the list that needs to be created by you
- amount_of_water : amount of water (height) to add at the start
- water_index : index of the list with initial water (amount_of_water)
- total_steps : total simulation steps
- water_change_div : used to change the water transfer amount

Warning: You should **not** take any user input, instead use the variables given to you.

Outputs:

- Initial values of the list (after water addition)
- Values of the list after each step

Note: You can use the print_map function provided to print the values

Warning: Check the example for output format.

Warning: You are **not** allowed to use any imports.

Examples:

map_size	amount_of_water	water_index	total_steps	water_change_div	output
11	100	5	10	4	START 0.00 0.00 0.00 0.00 0.00 100.00 0.00 0.00 0.00 0.00 0.00 STEP 1 0.00 0.00 0.00 0.00 25.00 50.00 25.00 0.00 0.00 0.00 0.00 STEP 2 0.00 0.00 0.00 6.25 25.00 37.50 25.00 6.25 0.00 0.00 0.00

					STEP 3 0.00 0.00 1.56 9.38 23.44 31.25 23.44 9.38 1.56 0.00 0.00 STEP 4 0.00 0.39 3.12 10.94 21.88 27.34 21.88 10.94 3.12 0.39 0.00 STEP 5 0.10 0.98 4.39 11.72 20.51 24.61 20.51 11.72 4.39 0.98 0.10 STEP 6 0.32 1.61 5.37 12.08 19.34 22.56 19.34 12.08 5.37 1.61 0.32 STEP 7 0.64 2.23 6.11 12.22 18.33 20.95 18.33 12.22 6.11 2.23 0.64 STEP 8 1.04 2.80 6.67 12.22 17.46 19.64 17.46 12.22 6.67 2.80 1.04 STEP 9 1.48 3.33 7.09 12.14 16.69 18.55 16.69 12.14 7.09 3.33 1.48 STEP 10 1.94 3.81 7.41 12.02 16.02 17.62 16.02 12.02 7.41 3.81 1.94
5	80	1	10	4	START 0.00 80.00 0.00 0.00 0.00 STEP 1 20.00 40.00 20.00 0.00 0.00 STEP 2 25.00 30.00 20.00 5.00 0.00 STEP 3 26.25 26.25 18.75 7.50 1.25 STEP 4 26.25 24.38 17.81 8.75 2.81 STEP 5 25.78 23.20 17.19 9.53 4.30 STEP 6 25.14 22.34 16.78 10.14 5.61 STEP 7 24.44 21.65 16.51 10.66 6.74 STEP 8 23.74 21.06 16.33 11.14 7.72 STEP 9 23.07 20.55 16.22 11.59 8.58 STEP 10 22.44 20.10 16.14 11.99 9.33