Exercício Programa - EP 5

The file https://github.com/HPCSys-Lab/HPC-101/blob/main/problems/01-matrix-multiply-2d.cu contains a host function *matrixMulCPU* which is fully functional. Your task is to build out the *matrixMulGPU* CUDA kernel. The source code will execute the matrix multiplication with both functions, and compare their answers to verify the correctness of the CUDA kernel you will be writing. Use the following guidelines to support your work:

- You will need to create an execution configuration whose arguments are both dim3 values with the x and y dimensions set to greater than 1.
- Inside the body of the kernel, you will need to establish the running thread's unique index within the grid per usual, but you should establish two indices for the thread: one for the x axis of the grid, and one for the y axis of the grid.

What you are supposed to do:

1) Implement the *matrixMulGPU* kernel.
2) Measure the execution time (both executing on the host and on the GPU) for at least three different matrix sizes (use square matrices).
3) Prepare a report:
    a) You name and UFSCAR number
    b) Characteristics of the GPU you used.
    c) Present a short description of the strategies you used to optimize your code.

Submit your material in a file named (EP5_Nome_Completo.zip), containing:

1) The report (.pdf)
2) Notebook, source code, etc.
3) Any other file, script, etc that you used to accomplish this task.