Homework 3: Coding

<u>DO NOT POLLUTE!</u> AVOID PRINTING, OR PRINT 2-SIDED MULTIPAGE.

In this homework you will review some basic topics that you need to know in order to understand what is AI and how it works. Each problem is worth 20 points.

Problem 1. Explain in words what the following python code will do.

```python
z = 0
while z < 5:
    print(z)
    z = z+1
```

Problem 2. Run the following python code. What is the output?

```python
import numpy as np

# Define two matrices
A = np.array([[1, 2],
              [3, 4]])

B = np.array([[5, 6],
              [7, 8]])

# Method 1: Using the @ operator (preferred in modern Python)
C1 = A @ B
print(f'Result using @ operator:\n{C1}')

# Method 2: Using the np.matmul() function
C2 = np.matmul(A, B)
print(f'Result using np.matmul():\n{C2}')

# Method 3: Using the np.dot() function
C3 = np.dot(A, B)
print(f'Result using np.dot():\n{C3}')
```

Problem 3. Create your own function that receives as inputs two matrices and outputs its product. Show your code.

Problem 4. Use your function to multiply the matrices in Problem 2. Show your code and the result.