**1. Matrix Operations Functions**

1.1 **add\_matrices(matrix1, matrix2)**

* Takes two matrices as input (**matrix1** and **matrix2**).
* Returns a new matrix that is the result of element-wise addition of the input matrices.

1.2 **subtract\_matrices(matrix1, matrix2)**

* Takes two matrices as input (**matrix1** and **matrix2**).
* Returns a new matrix that is the result of element-wise subtraction of the second matrix from the first.

1.3 **multiply\_matrices(matrix1, matrix2)**

* Takes two matrices as input (**matrix1** and **matrix2**).
* Returns a new matrix that is the result of matrix multiplication of the input matrices.

1.4 **transpose\_matrix(matrix)**

* Takes a matrix as input.
* Returns a new matrix that is the transpose of the input matrix.

**2. Example Matrices**

* Initializes two example matrices **matrix\_a** and **matrix\_b**.

**3. Matrix Operations**

3.1 Addition (**addition\_result**)

* Calls **add\_matrices** with **matrix\_a** and **matrix\_b**.
* Prints the result of matrix addition.

3.2 Subtraction (**subtraction\_result**)

* Calls **subtract\_matrices** with **matrix\_a** and **matrix\_b**.
* Prints the result of matrix subtraction.

3.3 Multiplication (**multiplication\_result**)

* Calls **multiply\_matrices** with **matrix\_a** and **matrix\_b**.
* Prints the result of matrix multiplication.

3.4 Transpose (**transpose\_result\_a** and **transpose\_result\_b**)

* Calls **transpose\_matrix** with **matrix\_a** and **matrix\_b**.
* Prints the transpose of each matrix.

**4. Display Results**

* Prints the results of each matrix operation.

**Note:**

* The matrix operations are implemented using list comprehensions, making the code concise.
* The example matrices are simple for illustration purposes, but the functions can handle matrices of different sizes.
* Matrix multiplication is implemented using nested list comprehensions and the **sum** function.
* Transposition is achieved by swapping rows and columns using list comprehensions.

Top of Form