**Code Demo 3: Matrix Operations and Element-wise Operations**

Write a Python function that takes two NumPy arrays as input: `matrix\_a` and `matrix\_b`. The function should perform the following operations:

1. Multiply `matrix\_a` by a scalar value of 3.

2. Add 5 to `matrix\_b`.

3. Calculate the element-wise product of `matrix\_a` and `matrix\_b`.

4. Compute the dot product of the resulting matrix from step 3 and the transposed `matrix\_a`.

Finally, the function should return the resulting matrix obtained from the dot product.

Here's an example implementation of the exercise:

| import numpy as np  def matrix\_operations(matrix\_a, matrix\_b):  *# Multiply matrix\_a by scalar value of 3*    *# Add 5 to matrix\_b*    *# Calculate element-wise product of matrix\_a and matrix\_b*    *# Compute dot product of element\_wise\_product and transposed matrix\_a*    return dot\_product  *# Example usage* a = np.array([[1, 2], [3, 4]]) b = np.array([[5, 6], [7, 8]]) result = matrix\_operations(a, b) print(result) |
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In this exercise, you perform scalar operations by multiplying `matrix\_a` by a scalar value and adding 5 to `matrix\_b`. Then, you calculate the element-wise product of the scaled `matrix\_a` and the added `matrix\_b`. Finally, you compute the dot product between the element-wise product and the transposed `matrix\_a` using `np.dot()`. The resulting matrix is returned by the function and printed in the example usage.