TASK SHEET

1. Array Initialization: Write a function to create a 2D array of size m×n with all elements initialized to zero.
2. Array Initialization with Ones: Write a function to create a 2D array of size m×n with all elements initialized to one.
3. Identity Matrix: Write a function to create an n×n identity matrix.
4. Element-wise Addition: Write a function to add two arrays element-wise.
5. Element-wise Multiplication: Write a function to multiply two arrays element-wise.
6. Matrix Multiplication: Write a function to perform matrix multiplication on two 2D arrays.
7. Transpose of a Matrix: Write a function to find the transpose of a 2D array.
8. Sum of Elements: Write a function to calculate the sum of all elements in a 2D array.
9. Mean of Elements: Write a function to calculate the mean of all elements in a 2D array.
10. Standard Deviation: Write a function to calculate the standard deviation of all elements in a 2D array.
11. Element-wise Subtraction: Write a function to subtract one array from another element-wise.
12. Element-wise Division: Write a function to divide one array by another element-wise.
13. Array Slice: Write a function to extract a subarray from a given 2D array based on the specified row and column ranges.
14. Flattening an Array: Write a function to convert a 2D array into a 1D array (flattening the array).
15. Reshape an Array: Write a function to reshape a 1D array into a 2D array with specified dimensions.
16. Diagonal Elements: Write a function to extract the diagonal elements of a 2D array.
17. Upper Triangular Matrix: Write a function to create an upper triangular matrix from a given 2D array.
18. Lower Triangular Matrix: Write a function to create a lower triangular matrix from a given 2D array.
19. Trace of a Matrix: Write a function to calculate the trace (sum of diagonal elements) of a square matrix.
20. Dot Product: Write a function to calculate the dot product of two 1D arrays.
21. Matrix Determinant: Write a function to calculate the determinant of a square matrix.
22. Matrix Inverse: Write a function to calculate the inverse of a square matrix.
23. Row-wise Sum: Write a function to calculate the sum of elements for each row in a 2D array.
24. Column-wise Sum: Write a function to calculate the sum of elements for each column in a 2D array.
25. Element-wise Exponential: Write a function to raise each element in a 2D array to the power of a specified value.