



**INDIAN INSTITUTE OF TECHNOLOGY TIRUPATI**  
**DEPARTMENT OF MATHEMATICS AND STATISTICS**

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**MA517M-Basic Programming Laboratory**

Tutorial Problem - 4

1 September 2025

1. Write a C++ program to get two matrices, add, subtract, scalar multiply them using pointers (using array of pointers).
2. Write a C++ program to get two matrices, add, subtract, scalar multiply them using pointers. (Using only pointers, not array of pointers).
3. Write a C++ program to find the transpose of a matrix and trace of the matrix using pointers.
4. Write a C++ program to multiply two rectangular matrices using pointers (Check the dimensions agree accordingly).
5. Write a C++ program for the following sorting algorithm:
  - (a) Insertion Sort
  - (b) Bubble Sort
  - (c) Selection Sort
  - (d) Counting Sort
  - (e) Shaker Sort
  - (f) Exchange Sort
6. Write a C++ program for the following search algorithm:
  - (a) Linear Search
  - (b) Binary Search (No recursion)
  - (c) Jump Search
  - (d) Exponential Search
7. Write a C++ program to search for an element in an array using pointers.
8. Write a C++ program to get two arrays, merge them into a single array, and then sort them in ascending order using pointers.