1. Write a program in C to reverse the digits of the following integer array of size 9. Initialize the input array to the following values.

Input array: 18, 523, 301, 1234, 2, 14, 108, 150, 1928

Output array: 81, 325, 103, 4321, 2, 41, 801, 51, 8291

1. Write a program in C to simulate the all the operations of a calculator. Given inputs A and B, find the output for A+B, A-B, A\*B and A/B.
2. Write a program in C to toggle the character of a given string.

Example: suppose the string is “HeLLo”, then the output should be “hEllO”.

1. Write a C program to read a word of length N and produce the pattern as shown in the example.

Example: Input: PCBD Output: PCCBBBDDDD

1. Write a C program to read two strings S1 and S2 of same length and produce the resultant string as shown below.

S1: string S2: length Resultant String: slternigntgh

1. Write a C program to perform Matrix times vector product operation.
2. Write a C program to read a matrix A of size 5x5. It produces a resultant matrix B of size 5x5. It sets all the principal diagonal elements of B matrix with 0. It replaces each row elements in the B matrix in the following manner. If the element is below the principal diagonal it replaces it with the maximum value of the row in the A matrix having the same row number of B. If the element is above the principal diagonal it replaces it with the minimum value of the row in the A matrix having the same row number of B.

Example:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| A | | | | |
| 1 | 2 | 3 | 4 | 5 |
| 5 | 4 | 3 | 2 | 4 |
| 10 | 3 | 13 | 14 | 15 |
| 11 | 2 | 11 | 33 | 44 |
| 1 | 12 | 5 | 4 | 6 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| B | | | | |
| 0 | 1 | 1 | 1 | 1 |
| 5 | 0 | 2 | 2 | 2 |
| 15 | 15 | 0 | 3 | 3 |
| 44 | 44 | 44 | 0 | 2 |
| 12 | 12 | 12 | 12 | 0 |

1. Write a C program that reads a matrix of size MxN and produce an output matrix B of same size such that it replaces all the non-border elements of A with its equivalent 1’s complement and remaining elements same as matrix A. Also produce a matrix D as shown below.

Example:

A

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | 2 | 3 | 4 |
| 6 | 5 | 8 | 3 |
| 2 | 4 | 10 | 1 |
| 9 | 1 | 2 | 5 |

B

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | 2 | 3 | 4 |
| 6 | **10** | **111** | 3 |
| 2 | **11** | **101** | 1 |
| 9 | 1 | 2 | 5 |

D

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | 2 | 3 | 4 |
| 6 | **2** | **7** | 3 |
| 2 | **3** | **5** | 1 |
| 9 | 1 | 2 | 5 |

1. Write a C program that reads a character type matrix and integer type matrix B of size MxN. It produces and output string STR such that, every character of A is repeated r times (where r is the integer value in matrix B which is having the same index as that of the character taken in A).

Example: A B

p C a P 1 2 4 3

e X a M 2 4 3 2

Output string STR: pCCaaaaPPPeeXXXXaaaMM