Mini Project (MATRIX CALCULATOR)

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1 Introduction

This Matrix Calculator is a mini project designed to perform basic matrix operations. It allows users to input matrices and perform operations such as addition, subtraction, multiplication, determinant calculation ,inverse of a matrix ,adjoint of a matrix ,transpose of a matrix ,and to check weather a matrix is an identity matrix or not.

2 Output of the code

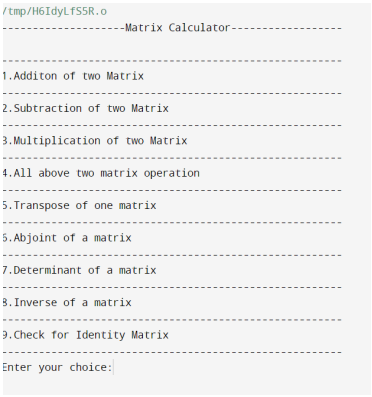

Figure 1: Menu Window

```
Enter your choice:1
Enter number of rows:2
Enter number of col:2
Enter elements of matrix 1 :
Enter element of (1 , 1):1
Enter element of (1 , 2):2
Enter element of (2 , 1):3
Enter element of (2 , 2):4
1  2
3  4
Enter elements of matrix 2 :
Enter element of (1 , 1):5
Enter element of (1 , 2):6
Enter element of (2 , 1):7
Enter element of (2 , 2):8
5  6
7  8
Additon of two Matrix:
6  8
10  12
```

Figure 2: Output for choice 1

```
Enter element of (2 , 3):5
Enter element of (3 , 1):4
Enter element of (3 , 2):3
Enter element of (3 , 3):2
10  9  8
7  6  5
4  3  2
Enter elements of matrix 2 :
Enter element of (1 , 1):1
2Enter element of (1 , 2):
3
Enter element of (1 , 3):4
Enter element of (2 , 1):5
Enter element of (2 , 2):6
Enter element of (2 , 3):7
Enter element of (3 , 1):8
Enter element of (3 , 2):9
Enter element of (3 , 3):6
1  3  4
5  6  7
8  9  6
Subtraction of two matrix:
9  6  4
2  0  -2
-4  -6  -4
```

Figure 3: Output for choice 2

```
Enter your choice:3
Enter number of rows:2
Enter number of col:2
Enter elements of matrix 1 :
Enter element of (1 , 1):1
Enter element of (1 , 2):2
Enter element of (2 , 1):3
Enter element of (2 , 2):4
1  2
3  4
Enter elements of matrix 2 :
Enter element of (1 , 1):5
Enter element of (1 , 2):6
Enter element of (2 , 1):7
Enter element of (2 , 2):8
5  6
7  8
Multiplication of two Matrix:
19  22
43  50
```

Figure 4: Output for choice 3

```
Additon of two Matrix:
7  10  10
11  8  12
12  6  15
Subtraction of two matrix:
3  4  6
-3  -2  2
-6  2  1
Multiplication of two Matrix:
131  66  101
92  41  72
106  45  82
```

Figure 5: Output for choice 4

```
Enter your choice:5
Enter number of rows:3
Enter number of col:3
Enter elements of matrix:
Enter element of (1 , 1):1
Enter element of (1 , 2):2
Enter element of (1 , 3):3
Enter element of (2 , 1):4
Enter element of (2 , 2):5
Enter element of (2 , 3):6
Enter element of (3 , 1):7
Enter element of (3 , 2):8
Enter element of (3 , 3):9
1  2  3
4  5  6
7  8  9
Transpose of a Matrix:
1  4  7
2  5  8
3  6  9
```

Figure 6: Output for choice 5

```
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Enter your choice:6
Enter number of rows:3
Enter number of col:3
Enter elements of matrix:
Enter element of (1 , 1):1
Enter element of (1 , 2):2
Enter element of (1 , 3):3
Enter element of (2 , 1):4
Enter element of (2 , 2):3
Enter element of (2 , 3):2
Enter element of (3 , 1):5
Enter element of (3 , 2):4
Enter element of (3 , 3):6
1  2  3
4  3  2
5  4  6
Adjoint of Matrix:
10  0  -5
-14  -9  10
1  6  -5
```

Figure 7: Output for choice 6

```
Enter your choice:7
Enter number of rows:3
Enter number of col:3
Enter elements of matrix:
Enter element of (1 , 1):1
Enter element of (1 , 2):5
Enter element of (1 , 3):4
Enter element of (2 , 1):6
Enter element of (2 , 2):3
Enter element of (2 , 3):7
Enter element of (3 , 1):5
Enter element of (3 , 2):4
Enter element of (3 , 3):7
1  5  4
6  3  7
5  4  7
Deteminant of matrix:
-6
```

Figure 8: Output for choice 7

```
Enter your choice:8
Enter number of rows:3
Enter number of col:3
Enter elements of matrix:
Enter element of (1 , 1):4
Enter element of (1 , 2):5
Enter element of (1 , 3):6
Enter element of (2 , 1):11
Enter element of (2 , 2):7
Enter element of (2 , 3):6
Enter element of (3 , 1):4
Enter element of (3 , 2):7
Enter element of (3 , 3):3
4  5  6
11  7  6
4  7  3
Adjoint of Matrix:
-21  27  -12
-9  -12  42
49  -8  -27
Inverse of a Matrix:
-21/165  27/165  -12/165
-9/165  -12/165  42/165
49/165  -8/165  -27/165
```

Figure 9: Output for choice 8

```
Enter your choice:9
Enter number of rows:3
Enter number of col:3
Enter elements of matrix:
Enter element of (1 , 1):1
Enter element of (1 , 2):1
Enter element of (1 , 3):0
Enter element of (2 , 1):0
Enter element of (2 , 2):1
Enter element of (2 , 3):0
Enter element of (3 , 1):0
Enter element of (3 , 2):0
Enter element of (3 , 3):1
1  1  0
0  1  0
0  0  1
Not an identity matrix
It is an identity matrix
```

Figure 10: Output for choice 9