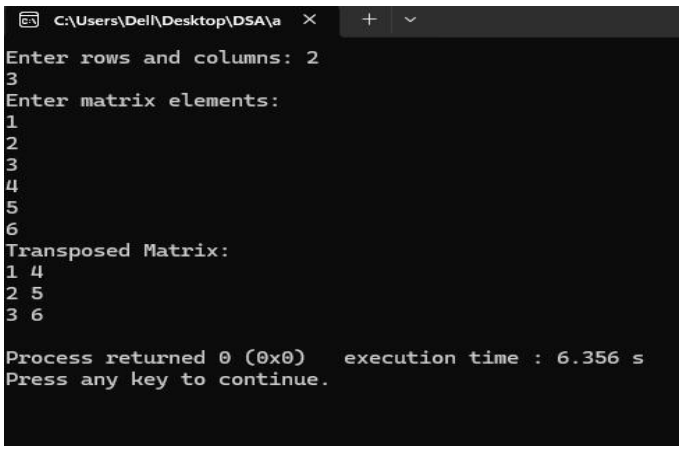
Experiment No: 04
Experiment Name: Finding Transpose of a Matrix

Transposed Matrix: The transpose of a matrix is a new matrix formed by interchanging the rows and columns of the original matrix.

Source Code:

```
#include <stdio.h>
int main() {
int rows,cols, i, j;
printf("Enter rows and columns: ");
scanf("%d %d", &rows, &cols);
int matrix[rows][cols], transpose[cols][rows];
printf("Enter matrix elements:\n");
for (i=0; i<rows; i++) {
for (j=0; j<cols; j++) {
scanf("%d", &matrix[i][j]);
}
}
for (i=0; i<rows; i++) {
for (j=0; j<cols; j++) {
transpose[j][i] = matrix[i][j];
}
}
printf("Transposed Matrix:\n");
for(i=0;i<cols; i++) {
for(j=0;j<rows; j++) {
printf("%d ", transpose[i][j]);
}
printf("\n");
}
return 0;
}
```

Output:



Discussion: In today's lab we got knew about the transpose matrix. The transpose of a matrix is a fundamental concept in linear algebra and programming, where the rows and columns of a matrix are swapped to create a new matrix. In C, the transpose helps to practice nested loops, array indexing, and logical thinking. It also highlights the importance of memory management and efficient coding for multi-dimensional data structures.