**Question 5**

#include<stdio.h>

int MATRIX\_ARRAY[3][3],MATRIX\_ARRAY1[3][3], PRODMATRIX\_ARRAY[3][3],SUMMATRIX\_ARRAY[3][3],TRANSPOSE[3][3],i,j;

void read()

{

printf("Enter the 1st matrix:\n");

for(i=0;i<3;i++)

{

for(j=0;j<3;j++)

{

scanf("%d",&MATRIX\_ARRAY[i][j]);

}

}

printf("Enter the 2nd matrix:\n");

for(i=0;i<3;i++)

{

for(j=0;j<3;j++)

{

scanf("%d",&MATRIX\_ARRAY1[i][j]);

}

}

}

void display()

{

printf("First Matrix:\n");

for(i=0;i<3;i++)

{

for(j=0;j<3;j++)

{

printf("%d\t",MATRIX\_ARRAY[i][j]);

}

printf("\n");

}

printf("Second Matrix:\n");

for(i=0;i<3;i++)

{

for(j=0;j<3;j++)

{

printf("%d\t",MATRIX\_ARRAY1[i][j]);

}

printf("\n");

}

}

void matrix\_addition()

{

printf("The sum of matrix:\n");

for(i=0;i<3;i++)

{

for(j=0;j<3;j++)

{

SUMMATRIX\_ARRAY[i][j]=MATRIX\_ARRAY[i][j]+MATRIX\_ARRAY1[i][j];

printf("%d\t",SUMMATRIX\_ARRAY[i][j]);

}

printf("\n");

}

}

void matrix\_multiplication()

{

int k;

printf("Multiplication Matrix\n");

for(i=0;i<3;i++)

{

for(j=0;j<3;j++)

{

PRODMATRIX\_ARRAY[i][j]=0;

for(k=0;k<3;k++)

{

PRODMATRIX\_ARRAY[i][j]+=MATRIX\_ARRAY[i][k]\*MATRIX\_ARRAY1[k][j];

}

}

}

//for printing result

for(i=0;i<3;i++)

{

for(j=0;j<3;j++)

{

printf("%d\t",PRODMATRIX\_ARRAY[i][j]);

}

printf("\n");

}

}

void transpose()

{

printf("Transpose Matrix :\n");

for(i=0;i<3;i++)

{

for(j=0;j<3;j++)

{

TRANSPOSE[i][j]=MATRIX\_ARRAY[j][i];

}

}

for(i=0;i<3;i++)

{

for(j=0;j<3;j++)

{

printf("%d\t",TRANSPOSE[i][j]);

}

printf("\n");

}

}

void determinant1()

{

int determinant;

determinant = MATRIX\_ARRAY[0][0] \* ((MATRIX\_ARRAY[1][1]\*MATRIX\_ARRAY[2][2]) - (MATRIX\_ARRAY[2][1]\*MATRIX\_ARRAY[1][2])) -MATRIX\_ARRAY[0][1] \* (MATRIX\_ARRAY[1][0]

\* MATRIX\_ARRAY[2][2] - MATRIX\_ARRAY[2][0] \* MATRIX\_ARRAY[1][2]) + MATRIX\_ARRAY[0][2] \* (MATRIX\_ARRAY[1][0] \* MATRIX\_ARRAY[2][1] - MATRIX\_ARRAY[2][0] \* MATRIX\_ARRAY[1][1]);

printf("\nDeterminant of 1st matrix: %d\n", determinant);

}

void determinant2()

{

int determinant2;

determinant2 = MATRIX\_ARRAY1[0][0] \* ((MATRIX\_ARRAY1[1][1]\*MATRIX\_ARRAY1[2][2]) - (MATRIX\_ARRAY1[2][1]\*MATRIX\_ARRAY1[1][2])) -MATRIX\_ARRAY1[0][1] \* (MATRIX\_ARRAY1[1][0]

\* MATRIX\_ARRAY1[2][2] - MATRIX\_ARRAY1[2][0] \* MATRIX\_ARRAY1[1][2]) + MATRIX\_ARRAY1[0][2] \* (MATRIX\_ARRAY1[1][0] \* MATRIX\_ARRAY1[2][1] - MATRIX\_ARRAY1[2][0] \* MATRIX\_ARRAY1[1][1]);

printf("\nDeterminant of 2nd matrix: %d\n", determinant2);

}

void main()

{

printf("\n\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\n");

printf("\n+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++\n");

printf("\n+++++++++++++| TWO DIMENSIONAL ARRAYS |++++++++++++++++++++++++\n");

printf("\n+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++\n");

printf("\n\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\n");

read();

display();

printf("Matrix Addition\n");

matrix\_addition();

transpose();

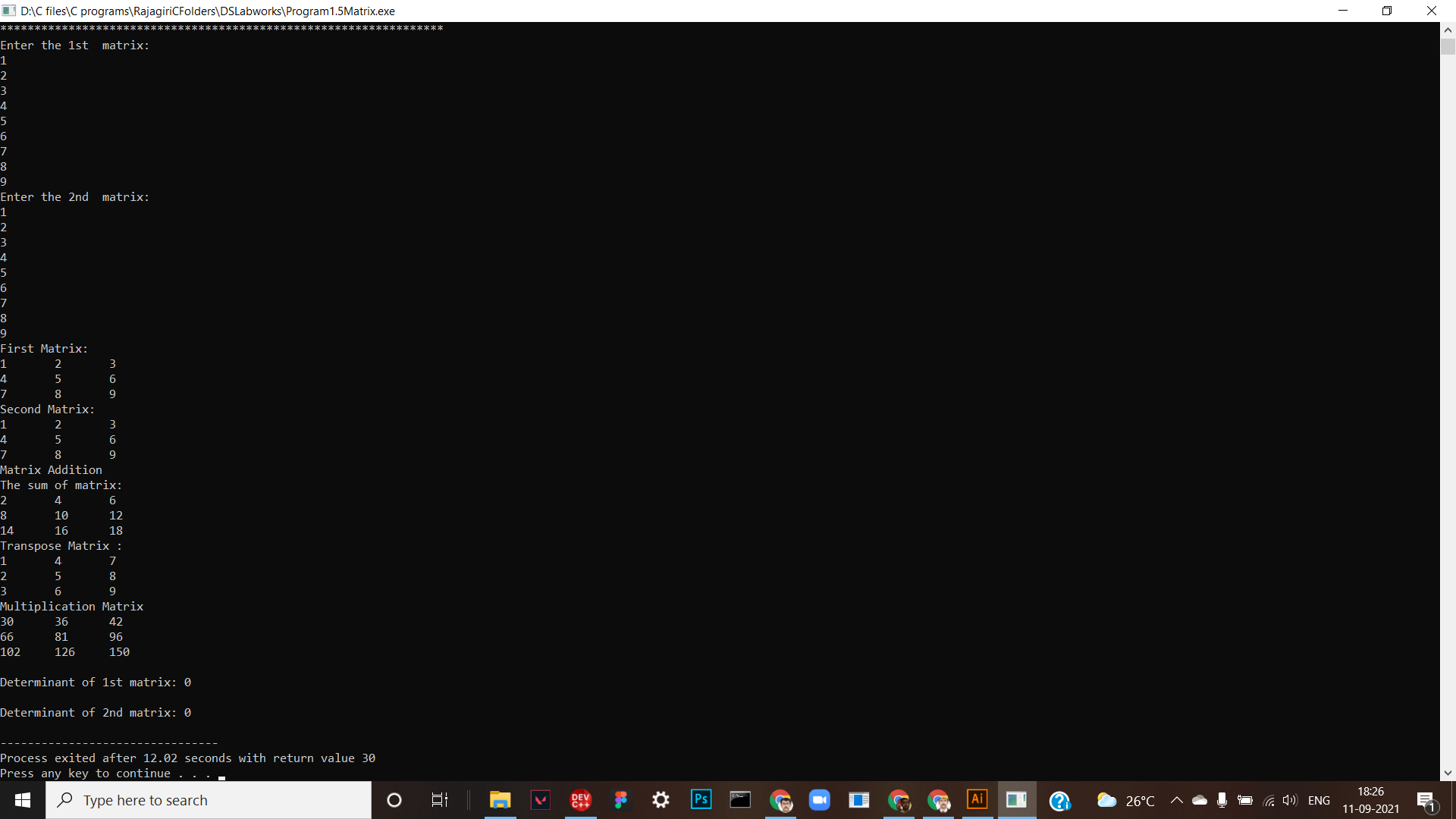
matrix\_multiplication();

determinant1();

determinant2();

}

**Output**

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