/*matrix full op*/

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#include<stdio.h>
#include<stdlib.h>
void add(int a[][5],int b[][5],int sum[][5],int row1,int col1,int row2,int col2);
void subtract(int a[][5],int b[][5],int sub[][5],int row1,int col1,int row2,int col2);
void multiplay(int a[][5],int b[][5],int res[][5],int row1,int col1,int row2,int col2);
void transpose(int a[][5],int trans_mat[][5],int row1,int col1);
int main()
{
	int row1,col1,row2,col2,ch;
	int a[5][5],b[5][5],sum[5][5],sub[5][5],res[5][5],trans_mat[5][5];
	printf("enter the no of row of 1st mat\n");
	scanf("%d",&row1);
	printf("enter the no of col of 1st mat\n");
	scanf("%d",&col1);
	printf("enter the no of row of 2nd mat\n");
	scanf("%d",&row2);
	printf("enter the no of col of 2nd mat\n");
	scanf("%d",&col2);
	while(ch!=5)
	{
		printf("main menu\n");
		printf("1.addition\n2.subtraction\n3.multiplication\n4.transpose\n5.exit\n");
		printf("enter your ch\n");
		scanf("%d",&ch);
		switch(ch)
		{
			case 1:add(a,b,sum,row1,col1,row2,col2);
			break;
			case 2:subtract(a,b,sub,row1,col1,row2,col2);
			break;
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                        case 3:multiplay(a,b,res,row1,col1,row2,col2);
                        break;
                        case 4:transpose(a,trans_mat,row1,col1);
                        break;
                        case 5:exit(0);
                        default:
                                printf("invalid ch\n");
                }
        }
}
void add(int a[][5],int b[][5],int sum[][5],int row1,int col1,int row2,int col2)
{
        int i,j,row_sum,col_sum;
        if(row1==row2 && col1==col2)
        {
                row_sum=row1;
                col_sum=col1;
                printf("enter the values of 1st matrix\n");
                for(i=0;i<row1;i++)
                {
                        for(j=0;j<col1;j++)
                        {
                                scanf("%d",&a[i][j]);
                        }
                }
                printf("enter the values of 2nd matrix\n");
                for(i=0;i<row2;i++)
                {
                        for(j=0;j<col2;j++)
                        {
                                scanf("%d",&b[i][j]);
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                }
        }
        for(i=0;i<row_sum;i++)
        {
                for(j=0;j<col_sum;j++)
                {
                        sum[i][j]=a[i][j]+b[i][j];
                }
        }
        printf("after addition the result is\n");
        for(i=0;i<row_sum;i++)
        {
                printf("\n");
                for(j=0;j<col_sum;j++)
                printf("%d\t",sum[i][j]);
        }
    }
    while(row1!=row2||col1!=col2)
    {
        printf("add not possible\n");
    }
}
void subtract(int a[][5],int b[][5],int sub[][5],int row1,int col1,int row2,int col2)
{
    int i,j,row_sub,col_sub;
    if(row1==row2 && col1==col2)
    {
        row_sub=row1;
        col_sub=col1;
        printf("enter the values of 1st matrix\n");
        for(i=0;i<row1;i++)
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        {
                for(j=0;j<col1;j++)
                {
                        scanf("%d",&a[i][j]);
                }
        }
        printf("enter the values of 2nd matrix\n");
        for(i=0;i<row2;i++)
        {
                for(j=0;j<col2;j++)
                {
                        scanf("%d",&b[i][j]);
                }
        }
        for(i=0;i<row_sub;i++)
        {
                for(j=0;j<col_sub;j++)
                {
                        sub[i][j]=a[i][j]-b[i][j];
                }
        }
        printf("after subtraction the result is\n");
        for(i=0;i<row_sub;i++)
        {
                printf("\n");
                for(j=0;j<col_sub;j++)
                printf("%d\t",sub[i][j]);
        }
}
while(row1!=row2||col1!=col2)
{
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                printf("subtract not possible\n");
        }
}
void multiplay(int a[][5],int b[][5],int res[][5],int row1,int col1,int row2,int col2)
{
        int i,j,k,res_row,res_col;
        if(col1==row2)
        {
                res_row=row1;
                res_col=col2;
                printf("enter the values of 1st matrix\n");
                for(i=0;i<row1;i++)
                {
                        for(j=0;j<col1;j++)
                        {
                                scanf("%d",&a[i][j]);
                        }
                }
                printf("enter the values of 2nd matrix\n");
                for(i=0;i<row2;i++)
                {
                        for(j=0;j<col2;j++)
                        {
                                scanf("%d",&b[i][j]);
                        }
                }
                for(i=0;i<res_row;i++)
                {
                        for(j=0;j<res_col;j++)
                        {
                                res[i][j]=0;
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                        for(k=0;k<res_col;k++)
                        {
                                res[i][j]=res[i][j]+(a[i][k]*b[k][j]);
                        }
                }
        }
        printf("after multiplication the result is\n");
        for(i=0;i<res_row;i++)
        {
                printf("\n");
                for(j=0;j<res_col;j++)
                printf("%d\t",res[i][j]);
        }
    }
    while(col1!=row2)
    {
        printf("multiplay not possible\n");
    }
}
void transpose(int a[][5],int trans_mat[][5],int row1,int col1)
{
    int i,j;
    printf("enter the values of 1st matrix\n");
        for(i=0;i<row1;i++)
        {
                for(j=0;j<col1;j++)
                {
                        scanf("%d",&a[i][j]);
                }
        }
        for(i=0;i<row1;i++)
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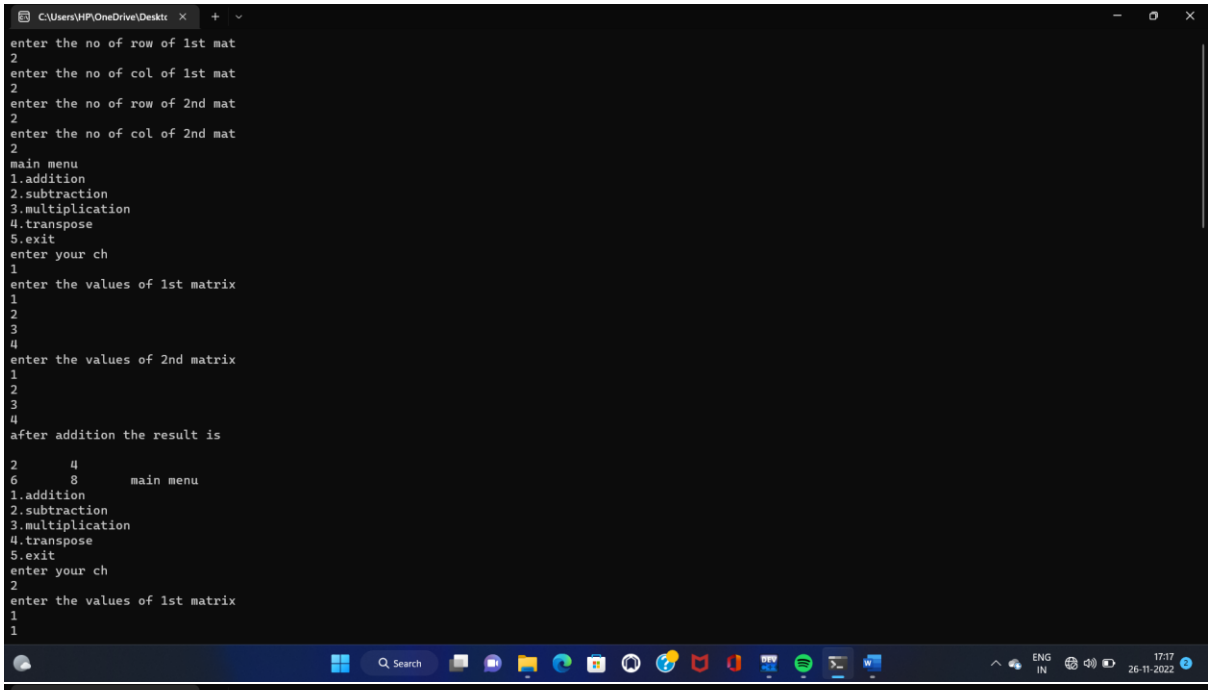
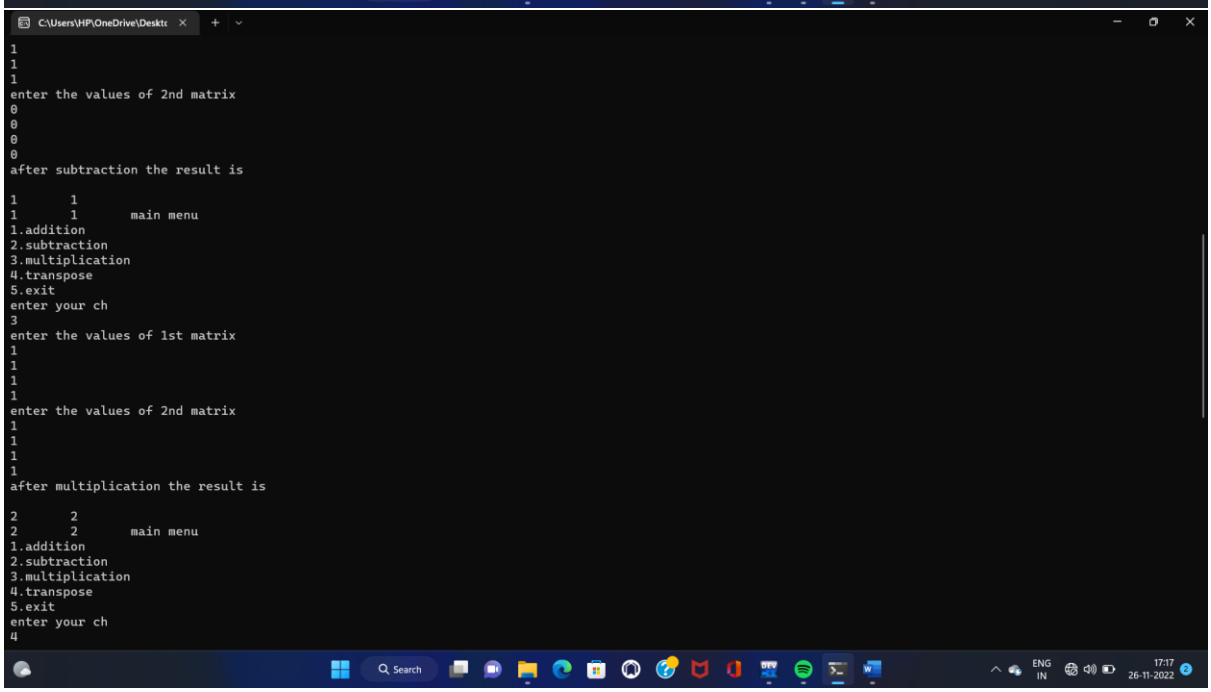
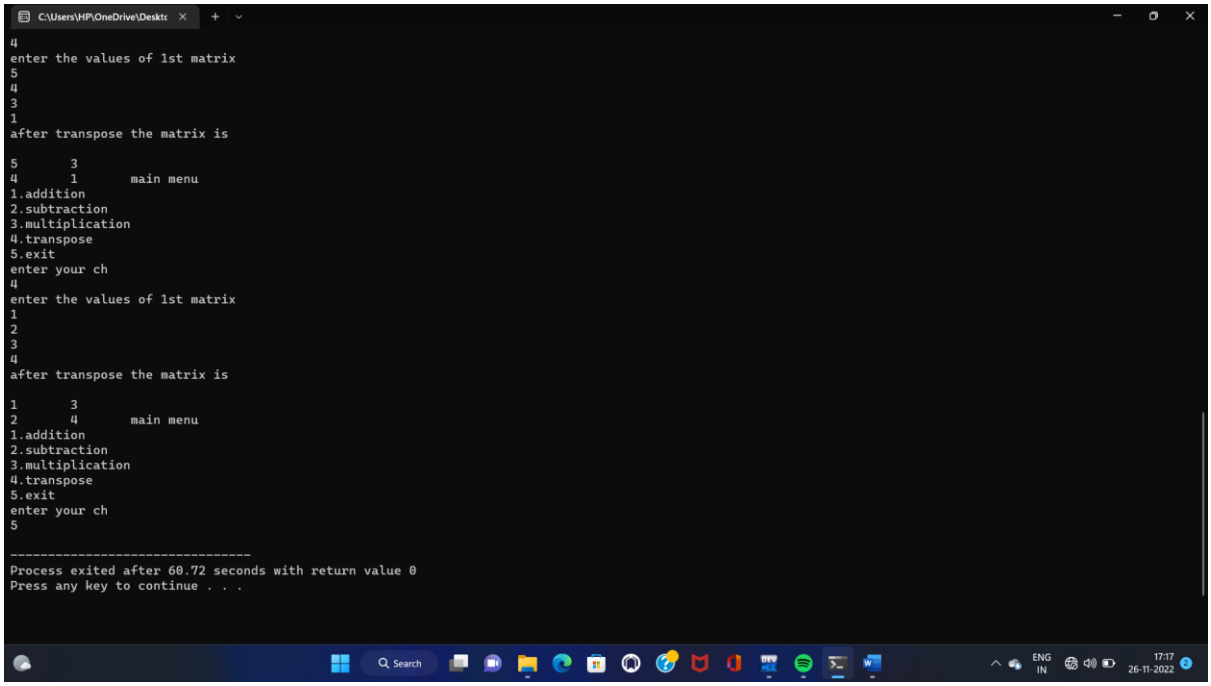
		{
			for(j=0;j<col1;j++)
			{
				trans_mat[j][i]=a[i][j];
			}
		}
		printf("after transpose the matrix is\n");
		for(i=0;i<row1;i++)
		{
			printf("\n");
			for(j=0;j<col1;j++)
			printf("%d\t",trans_mat[i][j]);
		}
}
```


C:\Users\HP\OneDrive\Deskto
enter the no of row of 1st mat
2
enter the no of col of 1st mat
2
enter the no of row of 2nd mat
2
enter the no of col of 2nd mat
2
main menu
1.addition
2.subtraction
3.multiplication
4.transpose
5.exit
enter your ch
1
enter the values of 1st matrix
1
2
3
4
enter the values of 2nd matrix
1
2
3
4
after addition the result is
2 4
6 8 main menu
1.addition
2.subtraction
3.multiplication
4.transpose
5.exit
enter your ch
2
enter the values of 1st matrix
1
1
Search
ENG
IN
17:17
26-11-2022


C:\Users\HP\OneDrive\Deskto
1
1
1
enter the values of 2nd matrix
0
0
0
0
after subtraction the result is
1 1
1 1 main menu
1.addition
2.subtraction
3.multiplication
4.transpose
5.exit
enter your ch
3
enter the values of 1st matrix
1
1
1
1
enter the values of 2nd matrix
1
1
1
1
after multiplication the result is
2 2
2 2 main menu
1.addition
2.subtraction
3.multiplication
4.transpose
5.exit
enter your ch
4
Search
ENG
IN
17:17
26-11-2022


C:\Users\HP\OneDrive\Deskto
4
enter the values of 1st matrix
5
4
3
1
after transpose the matrix is
5 3
4 1 main menu
1.addition
2.subtraction
3.multiplication
4.transpose
5.exit
enter your ch
4
enter the values of 1st matrix
1
2
3
4
after transpose the matrix is
1 3
2 4 main menu
1.addition
2.subtraction
3.multiplication
4.transpose
5.exit
enter your ch
5
Process exited after 60.72 seconds with return value 0
Press any key to continue . . .
Search
ENG
IN
17:17
26-11-2022