**作业5（矩阵乘法）**

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**代码：**

#include <stdio.h>

#include <stdlib.h>

void InputMatrix(double \*A,int m,int n);

void PrintMatrix(double \*A,int m,int n);

void MulMatrix(int m,int n,int k,double \*A,double \*B,double \*C);

int main()

{

double \*A=NULL,\*B=NULL,\*C=NULL;

int m21,n21,p21,q21,ret;

printf("Please input the dimension of the matrix(4 numbers separated by a space):");

ret=scanf("%d %d %d %d",&m21,&n21,&p21,&q21);

if (ret!=4||n21!=p21)

{

printf("ERROR!");

return 0;

}

A=(double\*)calloc(m21\*n21,sizeof(double));

B=(double\*)calloc(p21\*q21,sizeof(double));

C=(double\*)calloc(m21\*q21,sizeof(double));

printf("Input the first matrix:\n");

InputMatrix(A,m21,n21);

printf("Input the second matrix:\n");

InputMatrix(B,p21,q21);

MulMatrix(m21,n21,q21,A,B,C);

printf("The origin matrix A is:\n");

PrintMatrix(A,m21,n21);

printf("The origin matrix B is:\n");

PrintMatrix(B,p21,q21);

printf("The result is:\n");

PrintMatrix(C,m21,q21);

free(A);

free(B);

free(C);

return 0;

}

void InputMatrix(double \*A,int m,int n)

{

int i,j;

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

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

scanf("%lf",&A[i\*n+j]);

}

void PrintMatrix(double \*A,int m,int n)

{

int i,j;

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

{

for(j=0;j<n;j++) printf("%.3lf\t",A[i\*n+j]);

printf("\n");

}

}

void MulMatrix(int m,int n,int k,double \*A,double \*B,double \*C)

{

int i,j,s;

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

{

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

{

for (s=0;s<n;s++) C[i\*k+j]+=A[i\*n+s]\*B[s\*k+j];

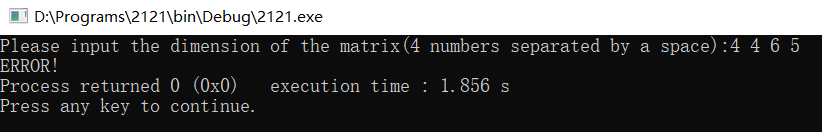
}

}

}

**截图：**

情况1：前一个矩阵的列数不等于后一个矩阵的行数，输出ERROR!并退出程序



情况2：合法情况，输出矩阵

