MATRIX MULTIPLICATION BY DYNAMIC ALLOCATION

#include <stdio.h>

#include <stdlib.h>

int main()

{

int \*\*a,\*\*b,\*\*c,\*\*a1,\*\*b1,i,j,k,m1,n1,m2,n2;

printf("Order of matrix 1");

scanf("%d%d",&m1,&n1);

printf("Order of matrix 2");

scanf("%d%d",&m2,&n2);

a=(int\*\*)malloc(m1\*sizeof(int\*));

for(i=0;i<n1;i++)

a[i]=(int\*)malloc(n1\*sizeof(int));

a1=(int\*\*)malloc(m1\*sizeof(int\*));

for(i=0;i<n1;i++)

a1[i]=(int\*)malloc(n1\*sizeof(int));

b=(int\*\*)malloc(m2\*sizeof(int\*));

for(i=0;i<n2;i++)

b[i]=(int\*)malloc(n2\*sizeof(int));

b1=(int\*\*)malloc(m2\*sizeof(int\*));

for(i=0;i<n2;i++)

b1[i]=(int\*)malloc(n2\*sizeof(int));

c=(int\*\*)malloc(m1\*sizeof(int\*));

for(i=0;i<n2;i++)

c[i]=(int\*)malloc(n2\*sizeof(int));

printf("Enter elements of matrix 1");

for(i=0;i<m1;i++)

for(j=0;j<n1;j++)

{

scanf("%d",&a[i][j]);

a1[j][i]=a[i][j];

}

printf("Enter elements of matrix 2");

for(i=0;i<m2;i++)

for(j=0;j<n2;j++)

{

scanf("%d",&b[i][j]);

b1[j][i]=b[i][j];

}

for(i=0;i<m1;i++)

for(j=0;j<n2;j++)

c[i][j]=a[i][j]+b[i][j];

printf("Addition is\n");

for(i=0;i<m1;i++)

{

for(j=0;j<n2;j++)

printf("%d ",c[i][j]);

printf("\n");

}

for(i=0;i<m1;i++)

{

for(j=0;j<n2;j++)

{

c[i][j]=0;

for(k=0;k<n1;k++)

c[i][j]+=a[i][k]\*b[k][j];

}

}

printf("Product is:\n");

for(i=0;i<m1;i++)

{

for(j=0;j<n2;j++)

printf("%d ",c[i][j]);

printf("\n");

}

printf("Transpose of matrix 1 is:\n");

for(i=0;i<n1;i++)

{

for(j=0;j<m1;j++)

printf("%d ",a1[i][j]);

printf("\n");

}

printf("Transpose of matrix 2 is:\n");

for(i=0;i<n2;i++)

{

for(j=0;j<m2;j++)

printf("%d ",b1[i][j]);

printf("\n");

}

}