计算机173 张博翔 201706060334

#include <stdio.h>

#include <stdlib.h>

int fun(int \*,int);

void fun1(int \*, int);

void fun2(int \*, int);

void fun3(int \*, int);

void fun4(int \*, int);

void fun5(int \*, int);

int\* ArrayInit(int n)

{

int t;

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

for(int i = 0; i < n; i++)

{

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

{

a[i][j] = i \* n + j + 1;

}

}

for(int i = 0; i < n; i++)

{

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

{

if(i < j)

{

t = a[i][j];

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

a[j][i] = t;

}

}

}

return (int\*)a;

}

int main()

{

int n = 2, flag = 1;

do

{

if(n <= 1 || n > 6 || flag == 0)

{

printf("输入有误请重新输入！\n");

fflush(stdin);

flag = 1;

}

else

printf("请输入一个大于1小于等于6的正整数我来生成数组：");

if(scanf("%d",&n) != 1)

{

flag = 0;

}

}while(n <= 1 || n > 6 || flag == 0);

int\* a = ArrayInit(n);

for(int i = 0; i < n; i++)

{

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

{

printf("%d\t",a[i\*n+j]);

}

printf("\n");

}

while(fun(a,n))

{

printf("\n\n");

}

}

void fun5(int \*a, int n)

{

int sum = 0;

for(int i = 0; i < n; i++)

{

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

{

if(i <= j)

{

sum += a[i \* n + j];

}

}

}

printf("上三角和为：%d\n",sum);

}

void fun4(int \*a, int n)

{

int sum = 0;

for(int i = 0; i < n; i++)

{

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

{

if(i == j)

{

sum += a[i \* n + j];

}

}

}

printf("主对角线和为：%d\n",sum);

}

void fun3(int \*a, int n)

{

int max = 0, min = 62535, sum = 0;

for(int i = 0; i < n; i++)

{

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

{

sum += a[j \* n + i];

if(a[i \* n + j] > max)

{

max = a[j \* n + i];

}

if(a[i \* n + j] < min)

{

min = a[j \* n + i];

}

}

printf("第%d列：\n",i + 1);

printf("和为：%d,最大值为：%d,最小值为：%d\n",sum,max,min);

sum = 0;

max = 0;

min = 62535;

}

}

void fun2(int \*a, int n)

{

int max = 0, min = 62535, sum = 0;

for(int i = 0; i < n; i++)

{

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

{

sum += a[i \* n + j];

if(a[i \* n + j] > max)

{

max = a[i \* n + j];

}

if(a[i \* n + j] < min)

{

min = a[i \* n + j];

}

}

printf("第%d行：\n",i + 1);

printf("和为：%d,最大值为：%d,最小值为：%d\n",sum,max,min);

sum = 0;

max = 0;

min = 62535;

}

}

void fun1(int \*a,int n)

{

int max = 0;

int min = 62535;

int sum = 0;

for(int i = 0; i < n; i++)

{

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

{

sum += a[i \* n + j];

if(a[i \* n + j] > max)

{

max = a[i \* n + j];

}

if(a[i \* n + j] < min)

{

min = a[i \* n + j];

}

}

}

printf("和为：%d,最大值为：%d,最小值为：%d\n",sum,max,min);

}

int fun(int\* a, int n)

{

int choose;

printf("1、求方阵中的最大值、最小值、所有元素的和？\n");

printf("2、求方阵中每行中的最大值、最小值、和？\n");

printf("3、求方阵中每列中的最大值、最小值、和？\n");

printf("4、求方阵中主对角线元素的和？\n");

printf("5、求方阵中上三角的和？\n");

printf("0、退出\n");

printf("请输入1~5选择：");

scanf("%d",&choose);

switch(choose)

{

case 1:

fun1(a, n);

break;

case 2:

fun2(a, n);

break;

case 3:

fun3(a, n);

break;

case 4:

fun4(a, n);

break;

case 5:

fun5(a, n);

break;

}

return choose;

}





