机考测试报告

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【测试代码】

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#include <stdio.h>

#include <stdlib.h>

#define SIZE 16

#define MIN 1

#define MAX 99

//set an array of random integers

void setRandomArray( int \*x, const int size );

//sort the array with select-sorting method

void sortArraySelect( int \*x, const int size );

//display sum relations in array

void displaySumRelation( int \*x, const int size, int \*foundNum );

int main( void )

{

srand(time(NULL));

int foundNum = 0;

int array[SIZE] = {0};

setRandomArray( array, SIZE );

sortArraySelect( array, SIZE );

displaySumRelation( array, SIZE , &foundNum );

printf("\nFind %d in total.",foundNum);

return 0;

}

void setRandomArray( int \*x, const int size )

{

int i;

printf("Generated array:\n");

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

{

\*(x + i) = MIN + rand() % MAX;

printf("%4d",\*(x + i));

}

printf("\n");

return;

}

void sortArraySelect( int \*x, const int size )

{

int i,j;

int min\_index;

int min\_value;

for( i = 0 ; i < size - 1 ; i ++)

{

min\_index = i;

for( j = i ; j < size ; j ++)//find the index of the min-value

{

if( \*(x + j) < \*(x + min\_index) )

{

min\_index = j;

}

}

if( min\_index != i )//exchange it with i

{

min\_value = \*(x + min\_index);

\*(x + min\_index) = \*(x + i);

\*(x + i) = min\_value;

}

}

printf("Sorted Arrat:\n");

for( i = 0 ; i < size ; i ++)//print the sorted array

{

printf("%4d",\*(x + i));

}

printf("\n");

return;

}

void displaySumRelation( int \*x, const int size, int \*foundNum )

{

int i,j,k;

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

{

for( j = i + 1 ; j < SIZE ; j ++)

{

int sum = \*(x + i) + \*(x + j);//get sum of each two numbers in array;

for( k = 0 ; k < SIZE ; k ++)//check whether the sum is in the array

{

if( \*(x + k) == sum )

{

(\*foundNum) ++;

printf("Find[%d]:{%d,%d,%d}\n",\*foundNum,\*(x + k),\*(x + i),\*(x + j));

}

}

}

}

return;

}

【测试过程】

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| --- | --- | --- | --- | --- |
| 序号 | 测试任务 | 测试方法 | 测试结果 | 测试结论 |
| 1 | 测试setRandomArray函数，考察其能否产生长度为16的随机数组 | 执行程序，观测结果 |  | 测试通过 |
| 2 | 测试sortArraySelect函数，考察其能否将产生的随机数组按照升序排列 | 执行程序，观测结果 |  | 测试通过 |
| 3 | 测试displaySumRelation函数，考察其能否找到数组中两数之和的关系 | 执行程序，观测结果 |  | 测试通过 |
| 4 |  |  |  |  |

【测试结论】

该题所有要求都完成