Homework 39

Course «C Programming Language»

Topic: Multi-dimensional arrays

Homework

Exercise 1.
Write a program that creates two-dimensional array and fills it in the following way: the user enters a number (for example, 3), the first element of the array takes a value of this number, the subsequent element of the array takes a value of this number multiplied by 2 (that is, 6 for our example), the third element of the array takes a value of the previous element, multiplied by 2 (that is, 6 * 2 = 12 in our example). Display an array that has been created.

Exercise 2:
Write a program that creates two-dimensional array and fills it in the following way: the user enters a number (for example, 3), the first element of the array takes a value of this number, the subsequent element of the array takes a value of this number multiplied + 1 (that is, 4 for our example), the third element of the array takes a value of the previous element + 1 (that is, 5 in our example). Display an array that has been created.

Exercise 3:
Create two-dimensional array. Fill it with random numbers and display on the screen. The user chooses a number of shifts and position (left, right, up, down). Run the array shift and show on screen the result. The shift is circular. For example, if we have the following array,

1 2 0 4 5 3

4 5 3 9 0 1

the user has chosen a shift to the right by 2 digits, we get

5 3 1 2 0 4

0 1 4 5 3 9

Exercise 4:
In two-dimensional array of integers calculate:

- the sum of all elements of the array;
- the arithmetic mean of all elements of the array;
- minimum element;
- maximum element.

Exercise 5:
In two-dimensional array of integers calculate the sum of elements: in each string; in each column; simultaneously in all strings and all columns. Do this as follows:

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 3   5   6   7 | 21

12   1   1   1 | 15

 0   7  12   1 | 20

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15   3  19   9 | 56
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Exercise 6:
Write a program that declares an array of 5x10 and an array of 5x5. The first array is filled with random numbers between 0 and 50. The second array is filled in the following way: the first element of the second array is equal to sum of the first and second elements of the first array; the second element of the second array is equal to sum of the third and fourth elements of the first array.

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Course «C Programming Language»

Topic: Functions

Homework

Exercise 1.
Write a function that takes two parameters: a power base and a power exponent, and finds power of a number on the base of the data obtained.

Exercise 2.
Write a function that takes as parameters two integers and returns the sum of numbers in a range between them.

Exercise 3.
Perfect number is a positive number which sum of all positive divisors excluding that number is equal to that number. Write a search function of numbers in the input range.

Exercise 4.
Write a function that displays on the screen a playing card that has been referred to it.

Exercise 5.
Write a function that determines whether a six-digit number is "a lucky number" or not.

Exercise 6.
Write a function that takes two dates (that is, the function takes six parameters) and calculates the difference in days between two dates. To solve this problem you should also write a function that determines whether the year is a leap or not.

Exercise 7.
Write a function that determines the arithmetic mean of elements of the passed array.

Exercise 8.
Write a function that determines a number of positive, negative and zero elements of the passed array.