Programming Exercise Instructions

In order to help us assess your programming skills, we ask you to submit some sample code for us to evaluate. You have 72 hours to complete this assignment.

Please write your code in Objective-C, Swift, or C/C++. Write your code to the same standard you would use for production code. Performance is important, but not all-consuming. Clarity of code – thus facilitating review and maintenance – is also very important.

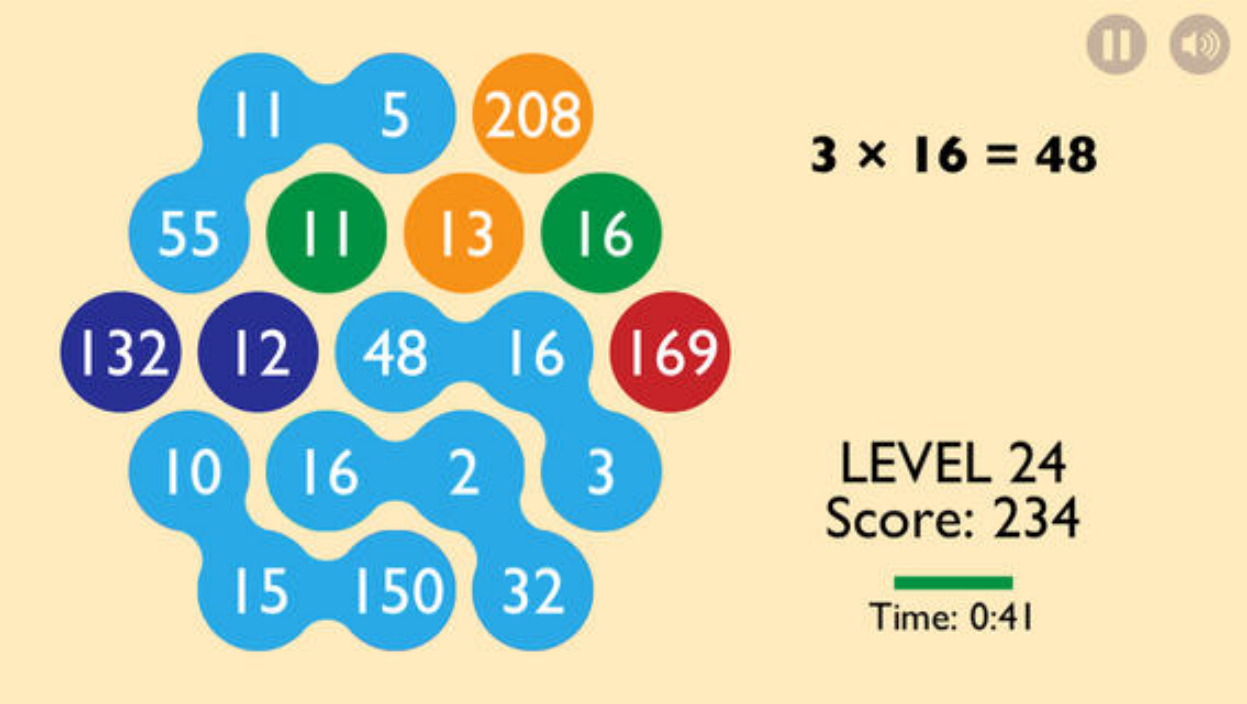
Good programming practice builds on the work of others, so looking at other references to understand algorithms is perfectly acceptable. However, copying a solution verbatim from anywhere is not in the spirit of the exercise. If you choose to use any published code as part of your solution, make sure that any appropriate copyrights and other legal notices are included.

You should include with your solution:

- A description of the process you followed in solving the problem
- What reference sources you used, if any
- How much time you spent on the exercise

The exercise can be found on the next page.

Exercise



Here is a screenshot from an iOS app. There is a hexagonal grid of 19 circles with the following properties:

A. The grid can be divided into tiles of 3 adjacent circles (with 1 circle left over).
B. Each tile of 3 circles contains the 3 numbers x, y, and z (in any order), where x times y equals z.

1. Design data structures to represent the grid.

2. Write a method that determines whether two circles are adjacent.

3. Write a method that outputs a randomized array of 19 numbers that has the above properties A and B.