# Coding exercise - Prime tables

## How to tackle the problem

This should not take you more than an hour or two. But the aim is NOT to see how much you can code in a given time, so feel free to spend as much time as you want to highlight your level of coding.

You must put your code onto GitHub, otherwise we won’t consider it. We will review it from there.

We’re looking for a high standard of coding, including:

* A test-first approach to development
* Production ready code
* Small commits to source control so that we can see how you’ve developed the code.

Please include a README file that says:

* How to run it
* What you’re pleased with
* What you would do with it if you had more time

For the input and output you can use the console, a web page, or something else. We mainly use C# and Javascript internally, but you can use whatever programming language you like for this exercise.

## The requirements

Write an application that takes input from a user and outputs a multiplication table of the **first 10 prime numbers**. Please write an algorithm to solve the prime number generation - do not use a library method to generate your primes.

The user should input a whole number N, where is N is at least 1. The application should output an N+1 x N+1 grid of numbers.

The first row and the first column should both contain the first N prime numbers (2, 3, 5, 7, 11, ...) and every other cell should be the product of the first number in that row and that column.

For example, the 2nd prime number is 3 and the 3rd prime number is 5. So the number in the 4th row and 3rd column should be 15 (because that’s 3 x 5 = 15).

Example output when N = 3

|  |  |  |  |
| --- | --- | --- | --- |
|  | 2 | 3 | 5 |
| 2 | 4 | 6 | 10 |
| 3 | 6 | 9 | 15 |
| 5 | 10 | 15 | 25 |

- Give some thought to performance and complexity.

- Note that some thought should be given to the prime algorithm being able to generate very large primes

- Deliver code that is scaleable and easily maintainable.

That’s it.