

Let's assume you just joined the [TeamCity](#) team. Your goal is to introduce automated testing to improve the quality of the product and the development process.

At first, you will need to come up with a list of the most important scenarios that should be covered. You will present those scenarios to the team.

Please think about those scenarios and provide a written description for **5-7** of them in a form you find fitting.

We will appreciate if you can share your ideas and the process of decision making.

Please implement the **3** most important scenarios (or 1 if you choose to start with the performance task listed below). Use Kotlin as a programming language if possible (we prefer Kotlin, but Java is also fine). Provide instructions on how to run tests locally and see a report on their execution.

Also we have one more test task which is not obligatory but will be counted as a huge advantage even half-done (the more the better :).

You're given an application that looks for prime numbers. The only argument is the max integer that applications tests. By default, it's set to 100 in the Run Configuration

(<https://www.jetbrains.com/help/idea/creating-and-editing-run-debug-configurations.html>) -

"Prime Calculator". You may and should experiment with the value.

Your task is to find the problematic code parts that affect performance using the YourKit CPU and memory profiler (<https://www.yourkit.com/java/profiler/>), your knowledge and Google :)

You may change the code if you want to experiment and/or optimize.

The expected result:

- A YourKit CPU snapshot that shows that problem(s) exist
- A list of performance issues related to a particular code part
- (optional) Suggestions about how to fix them. You may attach a couple of CPU snapshots if you're performing some optimizations to demonstrate the speedup.

The project can be found at <https://github.com/MaXal/PerformanceInvestigation>.

It's a ready-to-run project that you may open in IntelliJ IDEA Community.

Please take your time to get to know YourKit, basics of Java threading and to understand the application. The quality should go before the speed of the task execution.