So, what is automated testing?

Is it a replacement for manual testing? Do I really need it? How should I do it? Should I write my tests first, which we call test-driven development or TDD, or should I write the application code first? Mosh, I don't know what to test!

These are frequently asked questions about Automated Testing, and in this course, I'm gonna answer all these questions one by one!

So let's start with the first question:

What is automated testing?

Â Automated testing is the practice of writing code to

test our code, and then run those tests in an automated

fashion.

So, with automated testing, our source code consists of application code, which we also call production code AND test code.

So here is an example, imagine you have this function somewhere in your code. It's a basic calculate function that takes an input and depending on some conditions, it returns different values.

If you want to test this function manually, you have to launch your application in the browser, perhaps you have to login, or maybe you have to do a few clicks here and there to get to a page to where this function is used.

Then, you will have to fill out a form, submit it, and see the result of this function on the screen. And then you have to repeat all these steps each time using different values in your form.

As you can see, this is very time consuming. This work flow to test this function may take several minutes every time.

Now to make matters worse, this is not the only function

in your application. In a real application you have tens or hundreds of functions like this. As your application grows, in size and complexity, the time required to manually test all the different bits and pieces increases exponentially.

So, that's why we use automated testing. With automated testing, you write code and directly call this function with different inputs and verify that this function returns the right output.

Now, you can re-run these tests every time you change your code, every time you commit your code to a repository and before deploying your application. With this approach, you can test all the execution paths in this function in less than a second! You can write several hundred or thousands of automated tests for various parts of your application, and run them all in just a few seconds. But there are more benefits to automated testing, and that's the topic for the next lecture.