

Biomedical Wearable Technologies
for Healthcare and Wellbeing

Setup the environment

A.Y. 2021-2022

Giacomo Cappon



We need some tools in our belt

- Developing mobile apps requires some tools
- As programmers, we need to setup our **development environment** in order to be able to write code, compile it, test its behaviour, and deploy it to the final user machine (in this case, a phone).
- To do so, we need to:
 - Use some software to write the actual code
 - Choose a framework and the respective programming language
 - Have specific libraries in place to support the phone operating system
 - Have some tools to be able to work as a team
- This document will give an overview of the development environment we are going to use during this course and will tell what to do to prepare it.

The environment: Overview



IDE

(To write code,
compile, and test)



Flutter + Dart

(The framework and its
programming language)



Android Studio

(For Android
support)



XCode

(For iOS
support)



VCS

(For version
control and to
enable teamwork)

The environment: IDE

- The first component of the environment is the IDE (Integrated Development Environment).
- The IDE is where we actually will write the code: it is a text editor with some flavour (high-level functionalities).
- The IDE of choice in this course is Visual Studio Code (VS Code)



The environment: Framework and compiler

- The second component of the environment is, of course, the framework (and the programming language) we are going to use to develop mobile apps.
- We will use Flutter: a brand-new framework by Google based on the Dart programming language.
- Why Flutter? Because it allows us to **write a single code base and compile to either iOS or Android**. This means that:
 - We will build one app that will look the same in both iOS and Android
 - We will not be constrained by the operating system (OS)
 - Developing time is halven
- To install Flutter and Dart

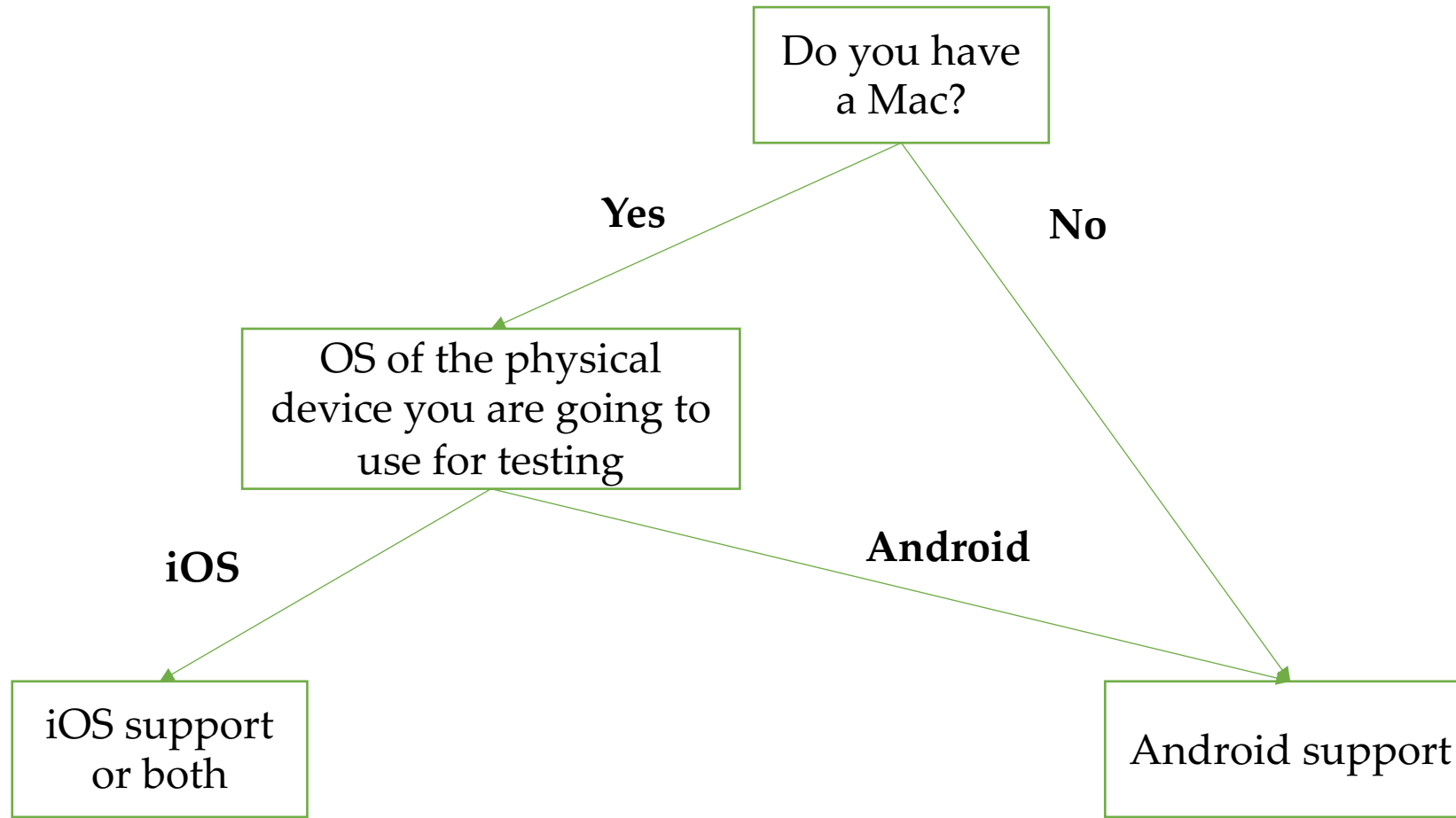


The environment: OS support

- The third component of the environment are the OS-specific (iOS or Android) libraries to install in order to let Flutter do its magic and compile.
- Both the iOS and the Android libraries will install the compiler for Flutter and a virtual phone simulator to allow you to test the mobile app without actually having a physical device.
- Since Flutter is OS-agnostic, you have a choice here:
 - Install iOS support
 - Install Android support
 - Install both
- A good way to choose the best option is: ok, I will have a virtual device, but at some point I would like to deploy my app to an actual phone. So, which physical device I am going to use?
- Note that if you have an iPhone but you do not have a Mac, you need to go for Android (XCode is not available for PC)



iOS or Android support?



The environment: VCS

- The final component of the environment is the Version Control System (VCS)
- As you will learn in the first lab lesson, the VCS is a software that allows to maintain and manage the various version of the code you are going to write and it will be fundamental to work as a team.
- In this course, we will use GIT, the most famous VCS.



The environment: VCS

- First check if it is already installed (~99% probability)
 - Open the Terminal > Type "git --version"

A screenshot of a macOS Terminal window. The title bar at the top shows three colored window control buttons (red, yellow, green) on the left, and a blue folder icon followed by the text "cappe — -zsh — 72x6" on the right. The terminal area has a black background with green text. The first line shows the prompt "[cappe@MacBook-Pro-di-Giacomo ~ %]" followed by the command "git --version". The second line shows the output "git version 2.28.0". The third line shows the prompt "cappe@MacBook-Pro-di-Giacomo ~ %" followed by a green cursor block.

```
[cappe@MacBook-Pro-di-Giacomo ~ % git --version  
git version 2.28.0  
cappe@MacBook-Pro-di-Giacomo ~ %
```

- If an error appears you will need to install it (step 4 of slide 10).

Install everything

➤ Do the following steps, in this order:

- **Step 1:** Install Flutter and Dart

- Go to > <https://flutter.dev/docs/get-started/install>
- Follow the instructions...

- **Step 2:** Install OS support

- Same link as Step 1, just go ahead with the instructions until the end

- **Step 3:** Install VS Code and integrate it with Flutter and Dart

- Go to > <https://docs.flutter.dev/get-started/editor?tab=vscode>
- Follow the instructions...

- **Step 4:** Install GIT

- Go to > <https://git-scm.com/book/en/v2/Getting-Started-Installing-Git>
- Follow the instructions...

- **Step 5:** Test that everything is working

- Go to > <https://docs.flutter.dev/get-started/test-drive?tab=vscode>
- Follow the instructions...