UNIVERSITY OF PADOVA
DEPARTMENT OF INFORMATION ENGINEERING

Biomedical Wearable Technologies
for Healthcare and Wellbeing

Setup the environment

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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.

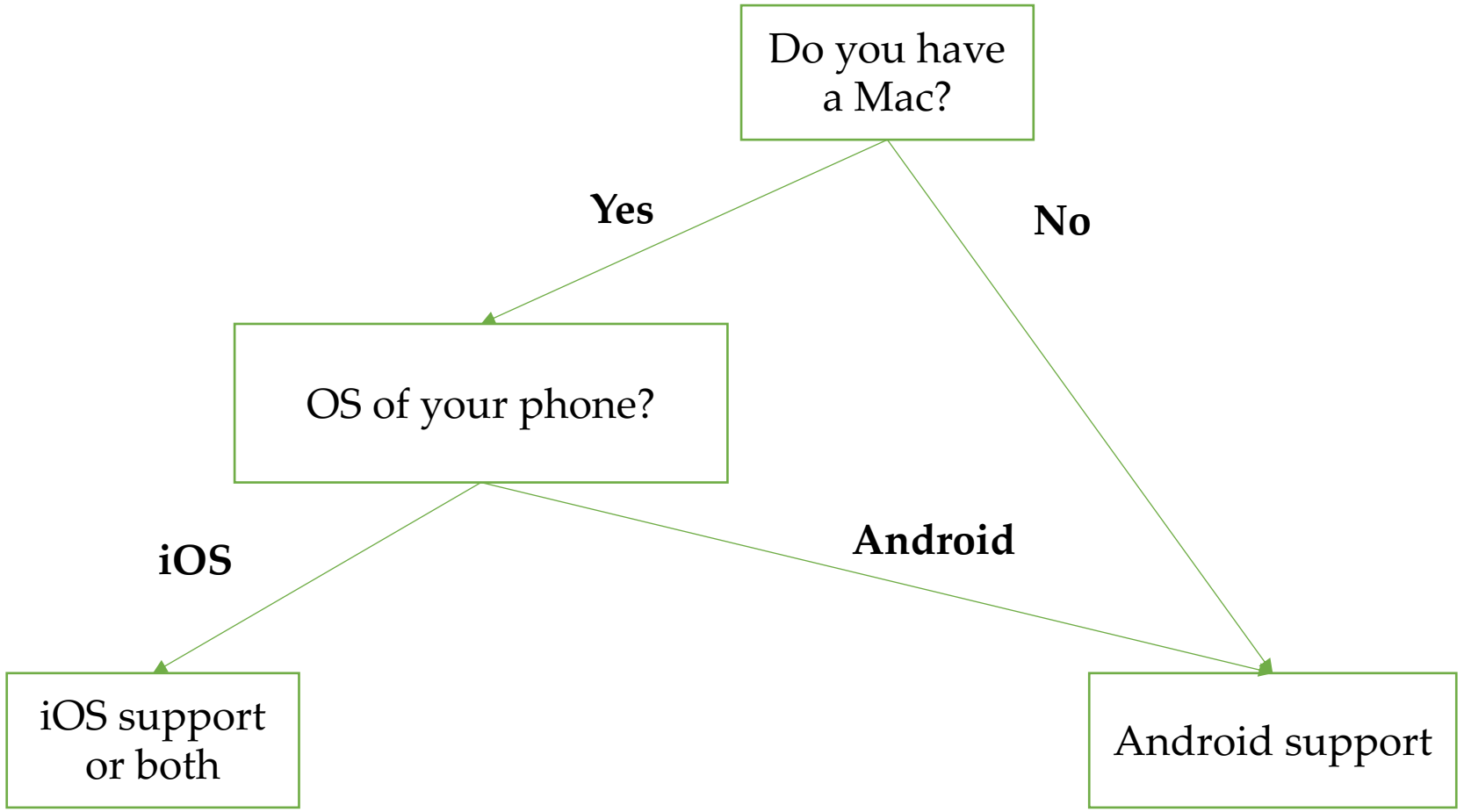
- We will use Flutter: a brand-new framework by Google based on the Dart programming language.

- Why Flutter? Because it allows us to **write a single code to create mobile app for either iOS or Android (but also desktop app for Windows, Mac, and Linux)**. 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 halved

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 (my phone). What is the OS of my phone?
- Note that if you have an iPhone but you do not have a Mac, you need to go for Android since XCode is not available for Windows

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.

Instructions

- Mac Users need to install the following:
  1. XCode
  2. Rosetta (if you have an Apple Silicon)
  3. VS Code
  4. Flutter and Cocoapods
  5. Android Studio (if Android support is necessary)

Slides 10-14

- Windows Users need to install the following:
  1. Git
  2. VS Code
  3. Flutter
  4. Android Studio

Slides 15-18

(Mac) 1. XCode

1. Open the App Store, search “XCode” and install it

(Mac) 2. Rosetta

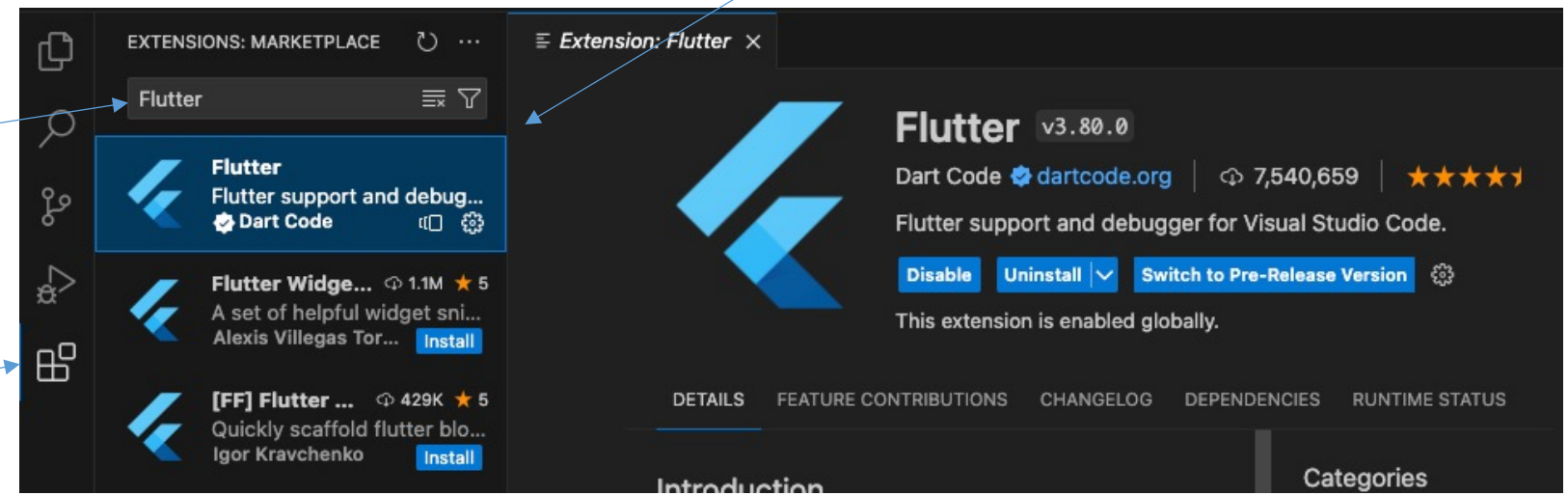
- When installing on an Apple Silicon Mac, install the Rosetta translation environment. Some components require the Rosetta.

1. Open a Terminal and run

```
>>  sudo softwareupdate --install-rosetta --agree-to-license
```

(Mac) 3. VS Code

1. Install VS Code
   - Go to > https://code.visualstudio.com/
   - Download and install VS Code
2. Add the Flutter extension for VS Code
   - Open VS Code
   - Go to the Extension tab
   - Type 'Flutter' in the search bar
   - Install the first entry of the search results



(Mac) 4. Flutter and Cocoapods

1. Go to https://docs.flutter.dev/get-started/install/macos/mobile-ios?tab=vscode#install-the-flutter-sdk

2. Follow the instructions from section ”Install the Flutter SDK” to the end

(Mac) 5. Android Studio

1. Go to https://developer.android.com/studio, download Android Studio and install it
2. Go to https://docs.flutter.dev/get-started/install/macos/mobile-android?tab=vscode#configure-android-development

3. Follow the instructions from section ”Configure Android development” to the end

(Windows) 1. Git

1. Simply go to https://gitforwindows.org/, download Git SCM and install it

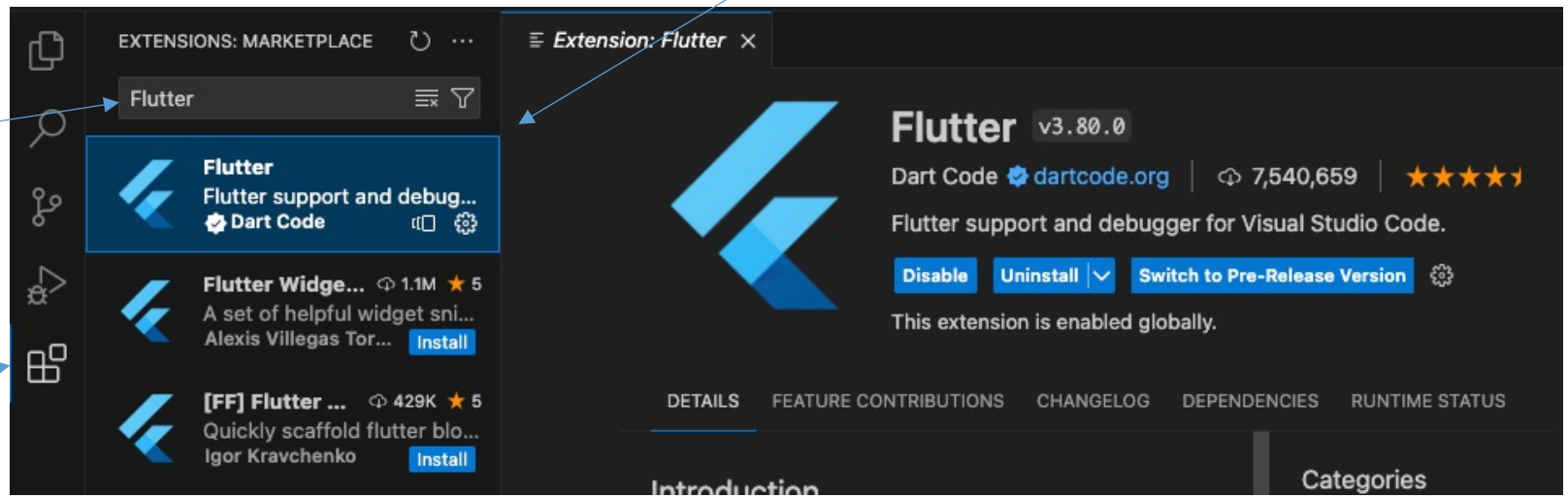
(Windows) 2. VS Code

1. Install VS Code
   - Go to > https://code.visualstudio.com/
   - Download and install VS Code
2. Add the Flutter extension for VS Code
   - Open VS Code
   - Go to the Extension tab
   - Type 'Flutter' in the search bar
   - Install the first entry of the search results

Flutter extension to be installed

Search bar

'Extension' tab



(Windows) 3. Flutter

1. Go to https://docs.flutter.dev/get-started/install/windows/mobile?tab=vscode#install-the-flutter-sdk
2. Follow the instructions of section ”Install the Flutter SDK”

(Windows) 4. Android Studio

1. Go to https://developer.android.com/studio, download Android Studio and install it
2. Go to https://docs.flutter.dev/get-started/install/windows/mobile?tab=vscode#configure-android-development
3. Follow the instructions from section ”Configure Android development” to the end