General info
Grouping: 2 students working in a pair
Entry requirement: Knowledge of hybrid frameworks, made a choice what framework to use.
Time indication: +- 13 hours per student * 5 weeks (65 hours per student)
Timeframe: Week 4, 5, 6, 7, 8
Learning Objectives:

(SW/ONT/3)	The student can create a technical design, using existing components and best practices.
(SW/M&C/1)	The student can write (automated) UI tests using modern test frameworks while relating these tests to requirements to prove your app is functional.
(SW/REA/3)	The student are able to build a hybrid application using a modern framework, matching the created functional and technical design.

For the final assignment you will need to build a hybrid application. The requirements, functionality and what framework to use will be decided (and documented!) by you and your duo-partner. Further information, including some pre-set requirements, will be discussed below. It is good to note that this assignment matches both Backend Development (BD) and Frontend Development (FD) in regard to planning, deadlines and nature of the assignment. This means that it might be a good idea to match the case you come up with with both BD and FD. If you feel like this is not possible, it is also fine to come up with another case. You are responsible for a case with enough complexity to meet the requirements. If you can't come up with something, please discuss this with your lecturer as soon as possible.

Goal
The goal of this assignment is to create a functioning application that runs on at least Android and iOS. You will also create the necessary documentation to accompany your application. To make sure your app is of a high quality for both technical and functional aspects, it is required to use linters and create (automated) tests.

Planning and organization
You've made your final decision regarding hybrid frameworks in week 3. This means you have a good idea of what the framework is capable of and how to design your app on the technical front. You've also worked on UX and design principles at FD, so use the wireframes and designs you made there for your hybrid application. Make sure you start with designing your application and setting up a development environment both of you can work with comfortably. The deadline is in week 9, at 9:00 in the morning, together with the rest of the deliverables. The retake is in the next quartile.

Requirements for your hybrid application
You are allowed to implement a hybrid application based on your own idea. This means that you have a lot a freedom, but with freedom comes responsibility and you are responsible for creating an app that is complex enough for 5 ECTS. Furthermore, your app should at least meet the following requirements:

- Your app **must** be built in the framework of your choosing from Assignment 1, and that framework is approved by your teacher.
- Your app **must** meet the coding standards set by the used framework.
- Your app **must** run on both iOS and Android.
- Your app **must** be documented well so that new developers can join in easily.
- Your app **must** persist data, such as settings, etc.
- Your app **must** use an online REST resource (protip: This could be your own API you build in BD!).
- The linter of your app uses **must** pass without errors or warnings.
- Your app **must** give proper feedback when a user-made error has been made (for example, wrong user input).

- Your app **must** do online resource (error) code validation / handling.
- Your app **must** include tests to prove it's functional, and **could** include automated tests for both unit tests and UI (regression) tests.
- Your app **must** be ready for deployment. This means no hardcoded URLs, usernames, passwords, etc.
- Your app **should** use different build environments to differentiate builds (production, test, development, etc.).
- Your app **should** use native functionality, such as the Camera or GPS.
- Your project **could** use CI/CD to automate building and testing of your application.

Please note: We expect a ready-for-prime-time, professional hybrid application here, so no quick and dirty "hacky" solutions, but an application that you can deploy or deliver to a client. This also means the app should build without any errors for both iOS and Android. We know it's hard to test on an iOS device if you do not own a MacOS device, so testing on iOS is optional.

Requirements for the documentation
Your documentation must contain the following parts:

Functional documentation
- A context description and a list of (functional) requirements.
- A technical design (including class-diagram or other appropriate diagram(s)) of your application.
- Justification of implementation choices you've made (including alternatives).
- How is your application structured?
- Description of third-party libraries used. If there are alternatives, describe them and also describe why you chose the library you did.
- List of available UI tests and how they guarantee functional quality, including their results.
- List of available (unit) tests and how they guarantee technical quality, including their results.

Installation guide (README.md)
- What prerequisites need to be installed before trying to run startup commands etc?
- How can we run your Hybrid Application? (Please note: How can we fix a connection to the backend? Is it online somewhere? Do we need to start it?)

Submission and deadline details. You need to hand in the following on Blackboard.
- The GIT repo (zipped) with your code / project with at least
  - The code of your hybrid application
  - The automated tests, if present.
  - The README.md mentioned above.
- A PDF Document with functional documentation and testing (see above).
- An APK version of your app.
- **If you do a second attempt, list the changes as well in an easy to understand change log.**

The deadline is listed on Blackboard under Assignments. The retake is in the next quartile.