AAD / Backend Development

Kick off

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APPLIED SCIENCES

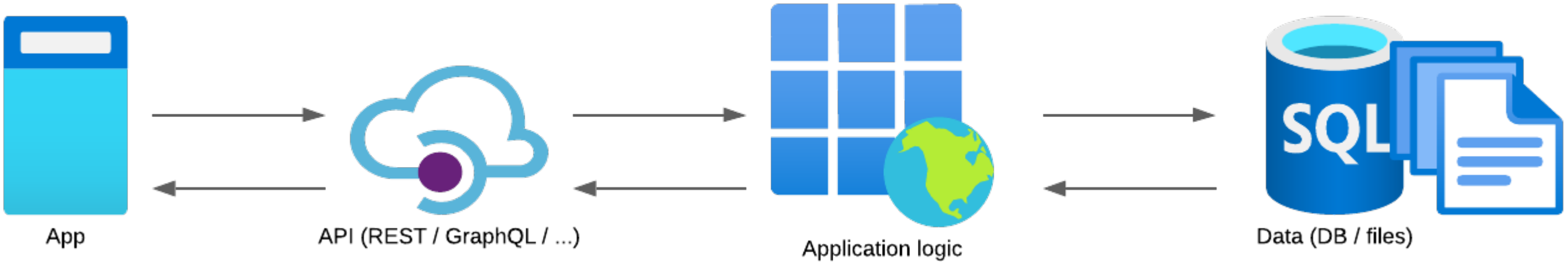
About this course

- You have learned how to create simple APIs in previous courses
- But real life is complex:
  - Users do strange things. Errors occur.
  - Networks go down
  - Updates need to be done
  - Third party APIs are weird

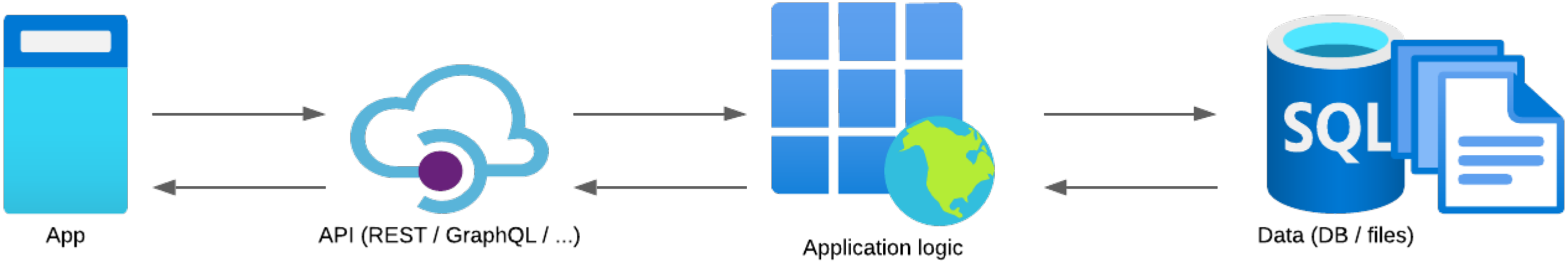
This course: **developing a real-life API** that is robust, deployable, and maintainable

Advanced tracks:
- Robustness and Availability
- Quality Management and Deployability
- External Data
- Security

What is backend development



BD: the choice is yours

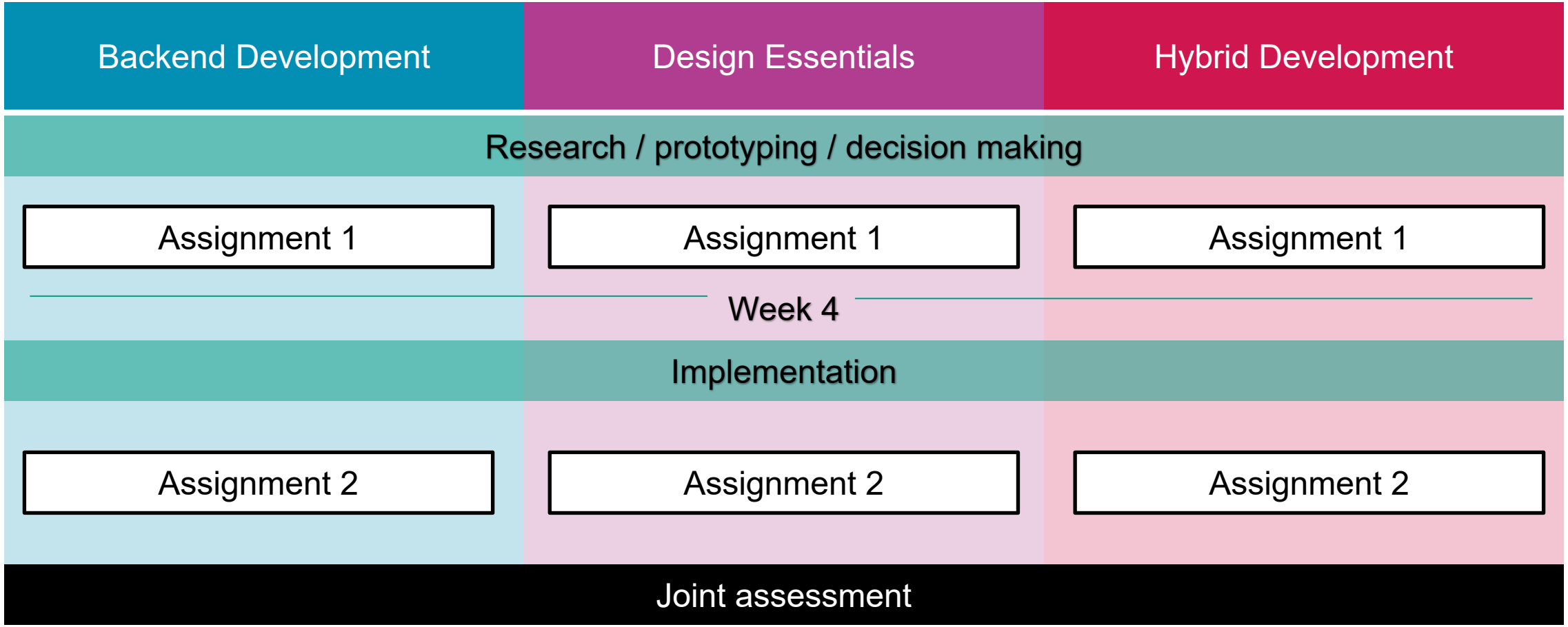


REST
GraphQL (Facebook)
SPARQL
FALCOR (Netflix)
SOAP
RPC
…

ASP.NET Core (C#)
Django/FastAPI (Python)
Spring Boot (Java)
NodeJS (Typescript)
…

Postgres
MS SQL
MariaDB
RavenDB
MongoDB
…

AAD and Backend Development

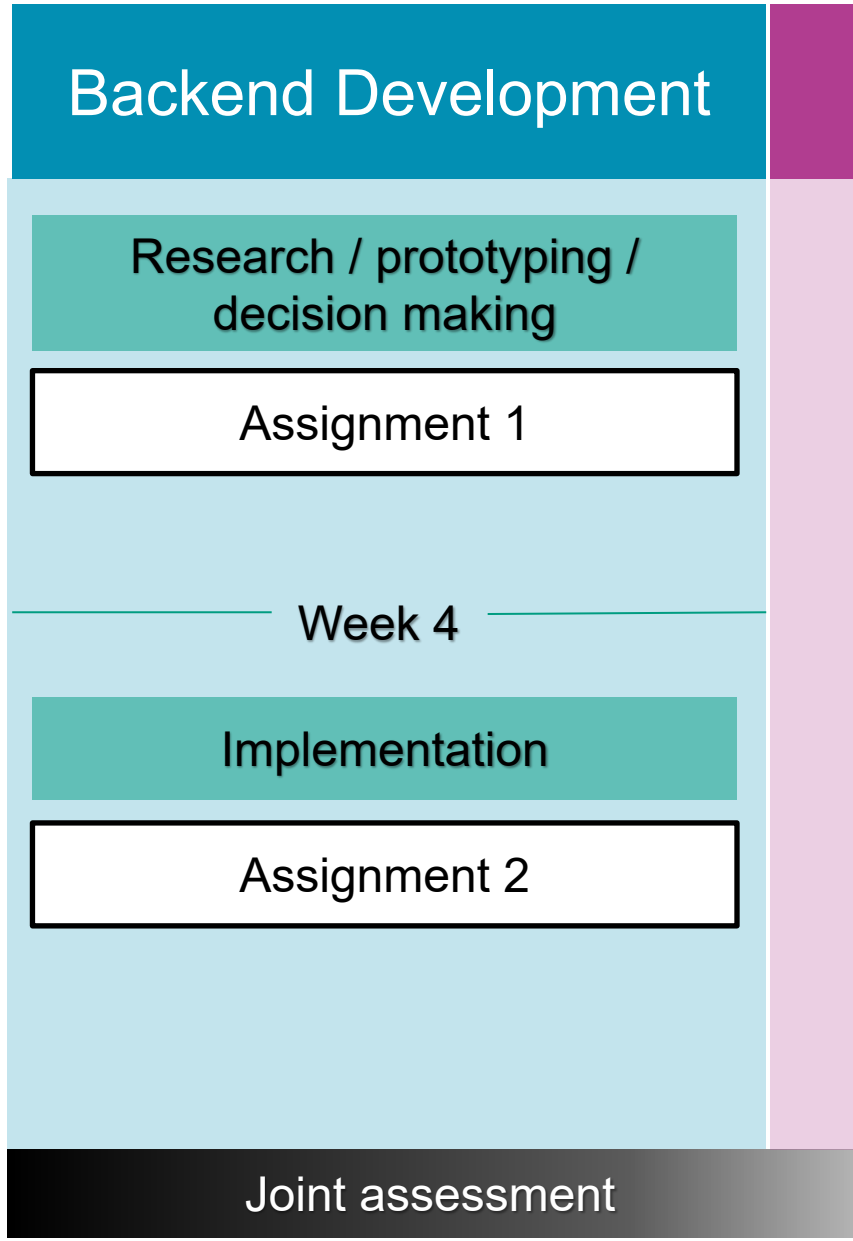


BD assignments

Assignment 1
- Select an *advanced track (AT)*
- Find an idea for your application
- Research backend techniques that fit the idea and AT

Official deadline is week 9; but when submitted at start week 4, you get feedback and can resubmit at week 9.

Assignment 2
- Create the backend application, including advanced track
- Create technical documentation
- Dockerize the application
- Create a show-and-tell document about your app and AT



Advanced tracks

Robustness and availability

High availability, data integrity, logging and monitoring

External data

Use external data source (for example government data or open data); resilience to data being slow or offline

Quality management & deployability

Strict and automated code policies; CI/CD (including DB), testing, multiple environments

Security

HTTPS (TLS), encryption of data (according to OWASP), strict and automated code policies

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BD assignment 1 – research, prototyping, decision making

Phase 0
- Create a structured list of criteria for the three subjects: API, framework and DB.
- Create a long list of frameworks / techniques

Phase 1
- For each subject, compare at least three frameworks / techniques
- Choose two combinations based on the comparison

Phase 2
- Implement a prototype of your application in the two combinations

Phase 3
- Document it and draw a conclusion for the combination of techniques for assignment 2

NOW WHAT

Group:
- Form **pairs**

Initialize:
- Find an **app idea**
- Select an **advanced track** from the document on Blackboard that fits the idea
- Initialize a **repository** @ https://repo.hboictlab.nl/ under 4.12 AAD / BD.
- Discuss the ideas with your teacher (or do that next week)

Register:
- Subscribe for a **group on blackboard** (if you did not already do this for 1 of the other modules)

Start:
- Read the description of **BD assignment 1** on Blackboard and begin working on it