Distributed Systems (2023-2024) Assignment 2: Microservices

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Today's agenda

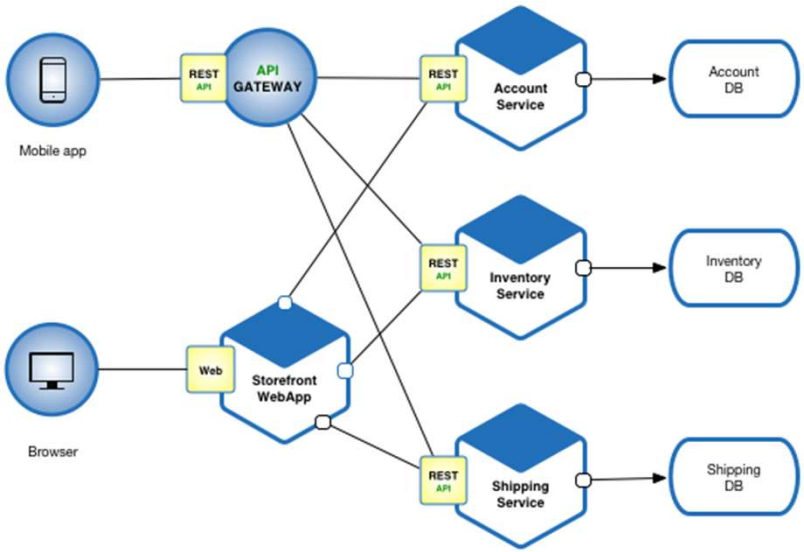
- Introduce Assignment 2
- A tutorial on Docker
- Time for questions or to already get started on the assignment

Course Layout

- **Theoretical exam (50%)**
- **Two assignments : Webservices & Microservices (50%)**
  - Introductory session
  - Self-contained
  - Assignment 2 > Assignment 1 (60% - 40%)
- **Pass both parts for a passing grade**

Assignment 2 : Microservices

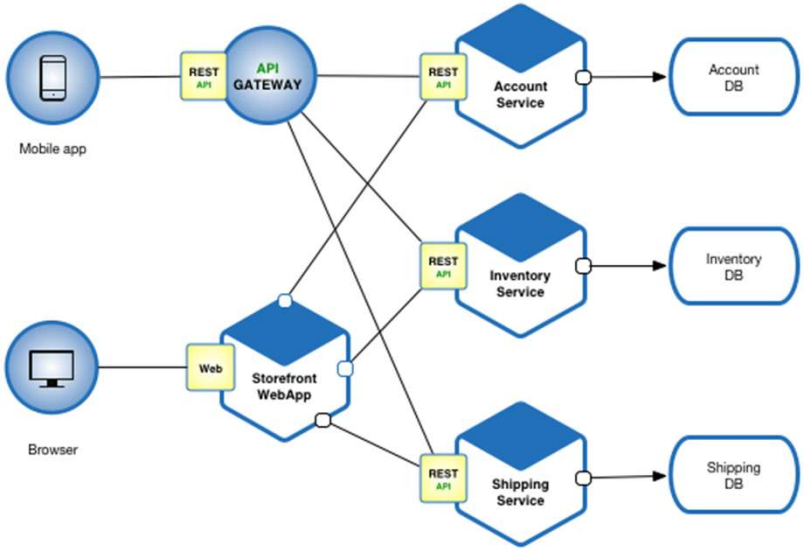
- **Goal :**
  - **Decompose** a scenario **in microservices**
  - **Implement** the microservice architecture using Docker / Podman



Example of a microservice architecture
https://microservices.io/patterns/microservices.html

Assignment 2 : Microservices

- **Important factors of your architecture**
  - You should make **graceful failure** possible
  - Does **resource demand scale** equally for all microservices with increasing users, or do some require more resources faster?
  - What are the **data storage needs** for each microservice?
  - You should use **REST** for all **communication between microservices**!



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Assignment 2 : Microservices

- **Good to know :**
  - Toy problem, so **don't focus on real-world problems**
    - i.e., **no** security, SQL injections, load balancing … **required**
  - You will be provided a UI script, take a look at it before implementing
  - Don't reinvent the wheel, check Dockerhub for useful images

Assignment 2 : Microservices

- **Tools :**
  - python3 (using Flask & Flask-RESTful)
  - Docker & Docker-compose / Podman & Podman-compose
  - *Any* database dialect
- **Deliverables:**
  - Report of the decomposed scenario (in PDF format).
  - Report the endpoints of implemented features (similar to Assignment 1).
  - Docker architecture implementing selected features.

Submission

- Deadline: 17 May 2024 - 23:59.
- Create zip as “DS-Assignment2-Snumber-LastName.zip” including solution files.
  - i.e., DS-Assignment2-s0164228- Vandersmissen.zip
- The report should be in the PDF format (add your name).
- Submit through Blackboard.
- Copying or showing solutions among students is not allowed.
- Each student works individually.
- You should explain and comment each part of your code.

Questions?

- Email us at:
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