Web Application 2

2023-24

Course objective

- We cover the design and implementation of server-side architectures to support real business cases and applications
  - o The goal of this course is to provide an overview of the technical issues surrounding back-end systems today and to provide a solid and comprehensive perspective of the web's constantly evolving landscape
- Major attention will be devoted to the design and implementation of microservice-based architectures
  - o Considering their implications in terms of both **functional** and **non-functional** requirements

Expected outcomes

- Being able to design and implement a backend web application
  - Starting from **scratch**
  - Using different **technological stacks**
  - Using different **architectural paradigms**
- Learn how to define and assess major non functional properties of a distributed system like
  - **Reliability** – how much the system continues to work *correctly* even in the face of *adversity*
  - **Scalability** – how to deal with the growth of load faced by the system
  - **Maintainability** – the ability of a system to support work of different people (engineering and operations) in a productive way

Course prerequisites

- The HTTP protocol and its evolution
  - v1.1, v2.0, v3.0
- Client-side programming
  - HTML, CSS
  - Javascript
  - React Framework
- Database concepts and technologies
  - Some working knowledge of SQL
- Concurrent and distributed programming
  - Threading, synchronization, networking fundamentals

Overall course assignment

- Create a system that *supports a temporary job placement agency to match job offers with professionals having the required skills*

- The system should be used by several kinds of users
  - o **Professionals**, that may register with the company advertising their skill and availability
  - o **Clients**, that contact the agency looking for skilled professionals
  - o **Recruiters**, that are responsible to review incoming requests and match them with available professionals
  - o **Managers**, that need to have a dynamic picture of the usage of the system in order to assess various KPIs

- Groups are encouraged to propose extensions to these basic requirements

Course grading

- Scoring
    - o Written exam: up to 18 points
    - o Lab sessions: up to 10 points
    - o Final project: up to 5 points
- Work will be done in groups of 4 people
    - o Send me an e-mail message having subject "WA2-24-GroupSetup" with the full name and student ID of the four members
    - o Check the shared worksheet for finding mates and see the current distribution of groups

https://docs.google.com/spreadsheets/d/1ARsKb47XMk1wJkf5cDVjwOotytpgRQ1zQ1i7ZlSZKk8/edit?usp=sharing