Web Technology and Services

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OVERVIEW

Syllabusi dhe detajet tjera

Subject	Web Technology and Services			
	Type	Semester	ECTS	Code
	OBLIGATIVE (O)	6	4	40WTS380

Assessment methods

- Weekly lab tasks - 15%
- Project (Programming assignments) - 30%
- Participation - 5%
- Final Exam - 50%

Introduction

OVERVIEW

- Overview of **Web Technologies**
- Understand the concepts of **CMS and CAD**
- Understand **Web Services**
- Implement Information representation and sharing - **XML, JSON**
- Understanding and Using **REST APIs**
- Understand **Monolithic** & **Microservice** Architecture
- Simplifying Application Deployments with **Docker**
- Understand the Basics of **Semantic Web**

Literature

- Modern PHP, New Features and Good Practices - Josh Lockhart
- Ron Schmelzer et al., "XML and Web Services", Pearson Education.
- Thomas Erl, "Service Oriented Architecture: Concepts, Technology, and Design", Pearson education.
- Antoniou, G. A Semantic Web Primer (Information Systems) 2012, The MIT Press
- RESTful Web Services Cookbook: Solutions for Improving Scalability and Simplicity

PART 1 - Introduction

- WT - Web Technologies
- CMS - Content Management Systems
- CAD - Custom Application Development
- WS - Web Services
- XML - eXtensible Markup Language
- JSON - JavaScript Object Notation
- REST - Representational State Transfer (or RESTful web service)

Introduction

- Monolithic Architecture
- Microservice Architecture
- Docker - Enterprise Application Container Platform
- Semantic Web

Web Technologies

- Content Management Systems
- Server-side Languages
- Client-side Languages
- JavaScript Libraries
- Markup Languages
- Web Hosting
- Web Servers
- Operating Systems
- AWS
- Azure

CMS - Content Management Systems

Manages the creation and modification of digital content. It typically supports multiple users in a collaborative environment.

CAD - Custom Application Development

Custom Web Application Development can utilize a range of technologies, depending on the requirements of the particular application.

XML - eXtensible Markup Language

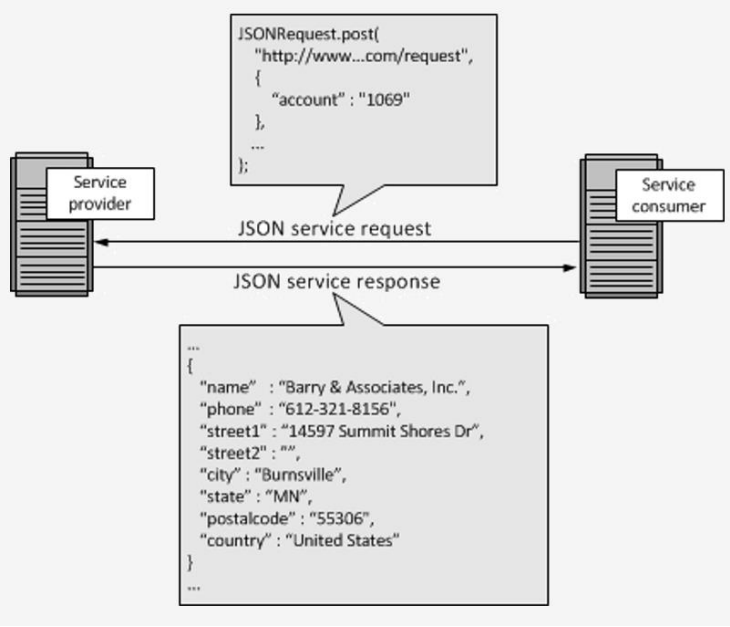
XML was designed to store and transport data.
XML was designed to be both human- and machine-readable.

```
<note>
    <to>Students</to>
    <from>SHKI</from>
    <heading>Exams</heading>
    <body>Don't forget to read books!</body>
</note>
```

JSON - JavaScript Object Notation

JSON is a lightweight data-interchange format.

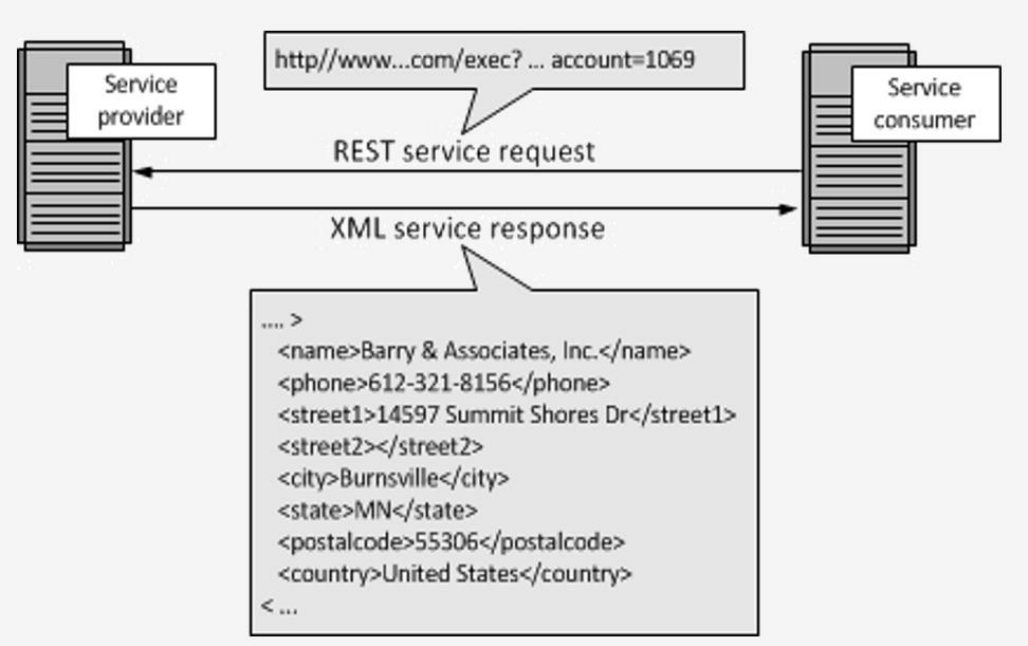
It is easy for humans to read and write. It is easy for machines to parse and generate.



```xml
<?xml version="1.0" encoding="UTF-8"?>
<authentication-context>
  <username>my_username</username>
  <password>my_password</password>
  <validation-factors>
    <validation-factor>
      <name>remote_address</name>
      <value>127.0.0.1</value>
    </validation-factor>
  </validation-factors>
</authentication-context>
```

```json
{
    "username" : "my_username",
    "password" : "my_password",
    "validation-factors" : {
        "validationFactors" : [
            {
                "name" : "remote_address",
                "value" : "127.0.0.1"
            }
        ]
    }
}
```

REST - Representational State Transfer (or RESTful web service)

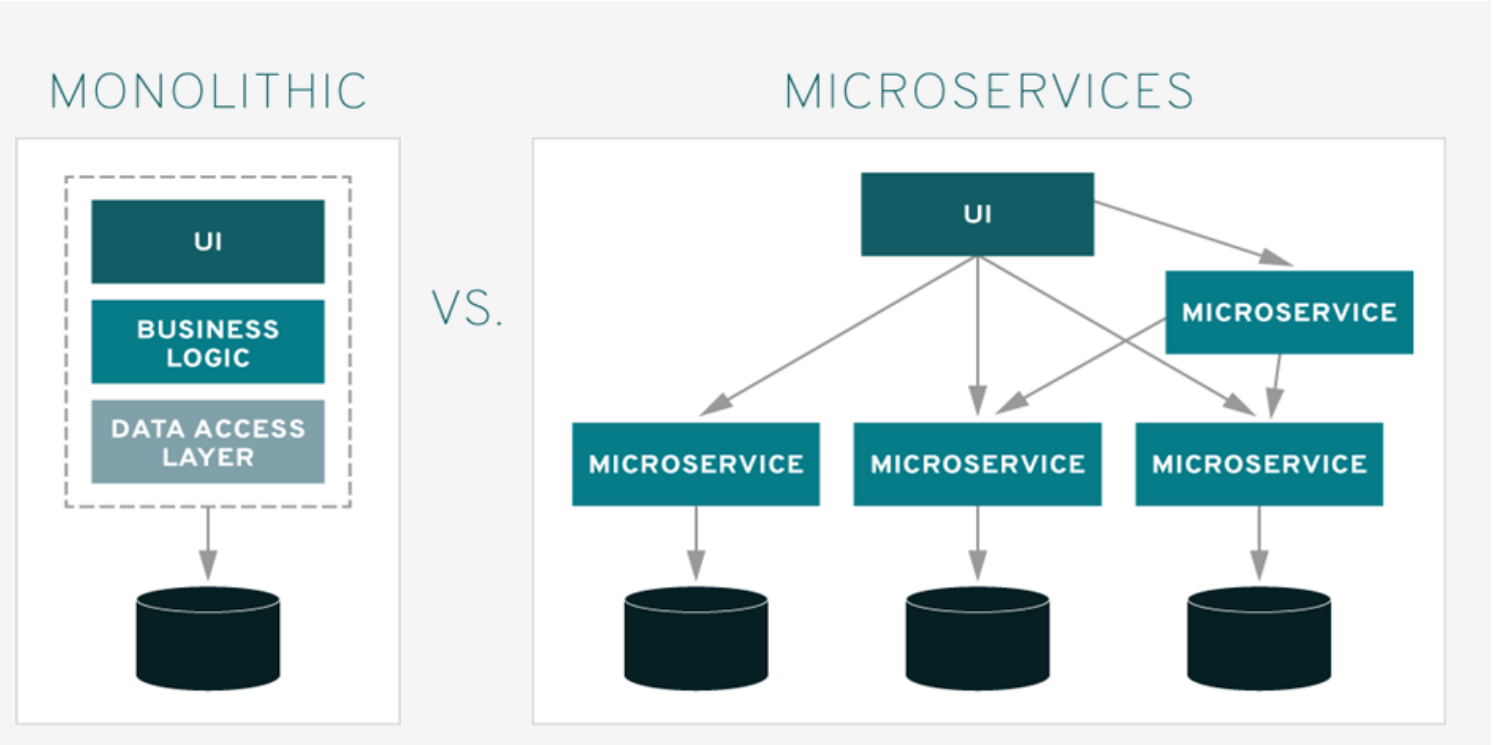


SOAP (Simple Object Access Protocol)

What is SOAP?

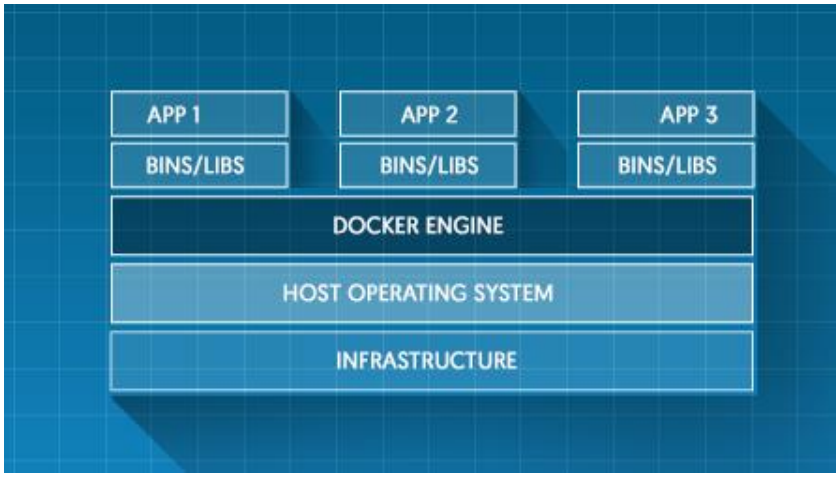
- SOAP stands for Simple Object Access Protocol
- A lightweight XML-based communication protocol
- Designed to communicate via Internet
- Simple and Extensible
- Platform and Language Independent
- It is a W3C standard

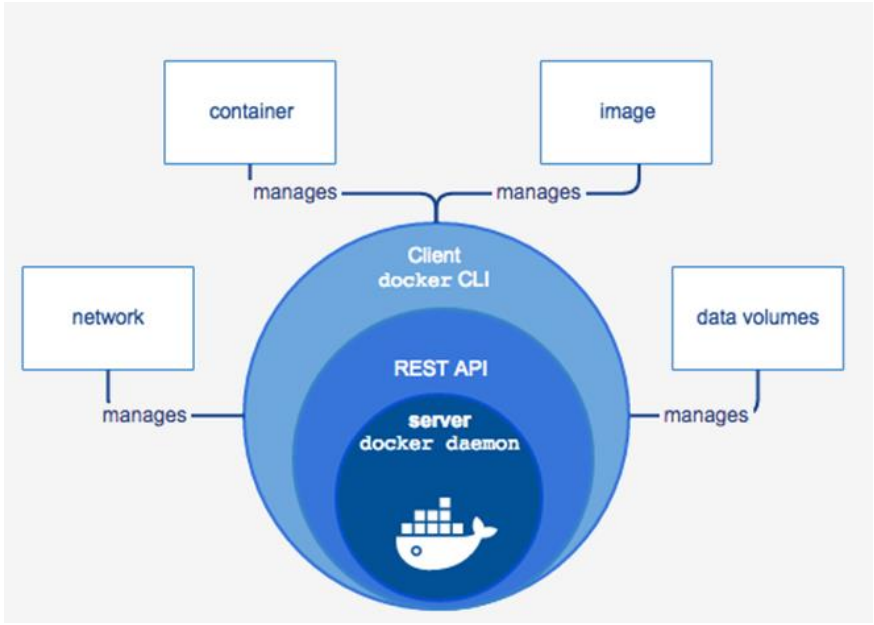
Monolithic & Microservice Architecture



Docker

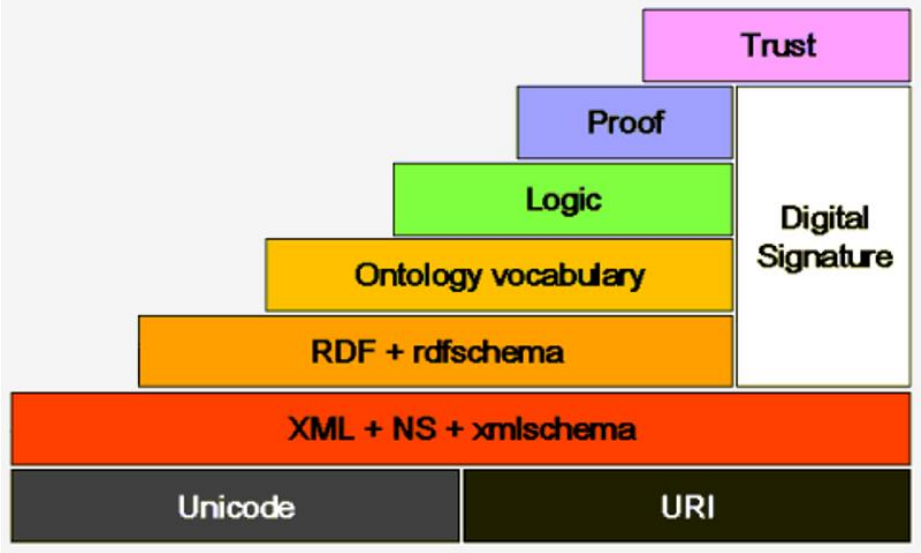
Docker is a computer program that performs operating-system-level virtualization.





Semantic Web

The Semantic Web is an extension of the current web in which information is given well-defined meaning, better enabling computers and people to work in cooperation.



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