Web Application Development

Course Description

This course aims to empower students to program simple web applications using established technologies. First, they will gain important insights into the typical structure of current web application architectures. Based on this knowledge, students will learn the hypertext markup language (HTML) to develop simple web pages. Next, they will familiarize themselves with the most important and common elements of the cascading stylesheet (CSS) standard to layout the content written in HTML. To implement simple dynamic web pages, students will learn how to use JavaScript and exemplary supporting frameworks. This is combined with the use of relevant tools for the development and source code management of web pages. Finally, they will learn the basics of web page testing and security.

Contents

1. Architectural Foundations
   1. Structure and History of the Internet
   2. Internet Protocols and URIs
   3. Web Application Architecture
   4. Current Trends
2. Tools of Web Development
   1. Development Tools
   2. Version Management
   3. Package Manager
   4. Upload/Deployment
3. Static Web Page Development
   1. Fundamentals of HTML5
   2. Fundamentals of CSS
4. Advanced Design Techniques
   1. Responsive Web Design
   2. Page Layout
   3. Media Queries
   4. CSS Frameworks (Bootstrap)
5. Web Page Development with JavaScript
   1. JavaScript history, ES5/ES6
   2. JavaScript Fundamentals
   3. Use of JSON
   4. Common JavaScript Frameworks
6. Web Application Testing and Security
   1. Testing of Web Applications
   2. Basic Security Concepts and Principles