WEB PROGRAMMING INFORMATION

Jalolov Tursunbek Sadriddinovich
Assistant of Asian International University
Mahdiyeva Manzura Muhiddinovna
is a student of Asia International University

Anatasia: *Web programming involves developing websites and web applications using various technologies and programming languages. It is divided into two main parts: the frontend, which is responsible for user interface and interaction, and the server logic, and the backend, which is responsible for data processing and security. The article discusses basic technologies such as HTML, CSS, and JavaScript for the front end, as well as server-side programming languages, databases, and modern frameworks for the back end. Special attention is paid to the security, performance and flexibility aspects of web applications.*

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Web programming is the process of creating interactive and dynamic websites or web applications that interact with users over the Internet. This course covers many different aspects, from user interface (UI) development to complex database operations on the server. Web development is divided into two main areas: **frontend** (client side) and **backend** (server side).

- **Frontend** contains everything a user sees in a browser, including design elements, animations, buttons, and interaction with a web page. The main technologies here are HTML, CSS and JavaScript.
- **Backend** includes server logic and working with databases. It is responsible for processing user requests, data management, security and scalability of the application. The backend is built using languages such as Python, Ruby, Java, PHP, as well as JavaScript with Node.js.

Modern web applications have become more complex than their early counterparts where pages were static HTML content. Developers are now creating interactive systems that support complex logic, secure data exchange, and high performance.

The main part

1. Front-end web programming

The frontend is the part of the web application that interacts with the user. Key frontend technologies include:

- **HTML (HyperText Markup Language)** is the basis of any web page, describing the content structure using tags to create headings, paragraphs, images and other elements.
- **CSS (Cascading Style Sheets)** is the technology responsible for the appearance of a web page. Using CSS, you can style elements, control the layout, colors, animation, and responsiveness of a web page.

- **JavaScript** is a programming language that makes web pages interactive. JavaScript is used to create dynamic elements such as dropdown menus, modals, image sliders, and even complex client-side web applications.

Modern front-end developers also use frameworks and libraries such as:

- **React** is a library for creating component-based user interfaces. React is widely used due to its efficiency and support from large developer communities.
- **Vue.js** is a framework characterized by ease of learning and flexibility. It is popular among beginners and experienced developers.
- **Angular** is a powerful framework from Google for building Single Page Applications (SPAs).

2. Backend web programming

The backend part of web applications includes logic that controls data processing, as well as interaction with databases and server infrastructure. The main technologies used in the creation of the backend:

- **Node.js** is a server-side JavaScript runtime that allows you to use the same language (JavaScript) for front-end and back-end.
- **Python** is one of the most popular languages for server-side programming. When combined with frameworks like Django and Flask, Python enables rapid web application development with a focus on security and performance.
- **PHP** is a language traditionally used for server-side processing. Its popularity has declined somewhat in recent years, but it is still widely used, especially in combination with the Laravel framework.
- **Java** is a language that will become the standard for enterprise solutions due to its stability and support for a large number of libraries and frameworks (such as Spring).

3. Working with databases and information

Databases play a key role in storing and managing web application data. Web developers use relational databases, such as:

- **MySQL** is a popular database management system widely used in web development.
- **PostgreSQL** is a more advanced relational database that offers many advanced features and supports working with large amounts of data.

Along with relational databases, **NoSQL** databases such as MongoDB and Cassandra, designed for handling unstructured data and scalable applications, are becoming increasingly popular.

4. Web Application Security

An important part of web development is security. Key points that web developers should pay attention to are:

- **Authentication and Authorization**: Creating secure mechanisms for accessing data. Use OAuth2 or JSON Web Tokens (JWT) technologies to provide secure authentication.

- **Attack Protection**: Prevents common attacks such as SQL injection, cross-site scripting (XSS) and forgery (CSRF) attacks.

- **Data Encryption**: Uses HTTPS for secure data transfer as well as encryption of passwords and confidential information in the database.

5. Generality and scalability

Web application performance is an important aspect of web development, especially for highly loaded systems. Developers use:

- **Caching**: Implement caching technologies such as Redis and Memcached to reduce server response time and speed up data loading.

- **Scaling**: Web applications can scale horizontally (by adding servers) or vertically (by increasing the capacity of existing servers). This is especially important for cloud solutions.

Summary

Web programming continues to evolve, offering new tools and technologies to create interactive and scalable web applications. Frontend and backend are two integral parts of this process. Modern web developers need to be proficient in various technologies such as client-side HTML, CSS, JavaScript, and server-side development languages such as Python, Node.js, and PHP to build robust back-end systems. The main tasks of a web developer include ensuring the security, performance and responsiveness of the application, which requires careful planning and the use of modern tools. In the future, web programming is expected to continue to evolve following the changing needs of users and innovations in technology.

LIST OF USED LITERATURE:

1. MDN Web Hujjatlari. HTML asoslari. https://developer.mozilla.org/en-US/docs/Web/HTML

2. CSS-Tricks. Flexbox uchun to'liq qo'llanma. https://css-tricks.com/snippets/css/a-guide-to-flexbox/

3. React Documentation. https://reactjs.org/docs/getting-started.html

4. Django loyihasi. https://www.djangoproject.com/

5. Node.js hujjatlari. https://nodejs.org/en/docs/