

Web Programming

Theory Part

1. What is the Internet?

The Internet is a global network that connects millions of computers. It uses protocols (rules) to facilitate communication.

2. What is the Web?

The World Wide Web (WWW) is a system of interlinked documents and applications accessible through a web browser. The Internet is the network, while the Web is the information system hosted on it.

3. What is a web application?

A web application is a software application that runs on a web server and is accessed through a browser.

Examples: Gmail, Facebook, Student Information System.

4. What is a client?

A client is a device (browser, mobile app) that sends HTTP requests to a server.

5. What is a server?

A server is a machine that hosts a website or web application and processes client requests.

6. What is the URL?

URL (Uniform Resource Locator) is a web address that identifies a resource on the internet.

Example: `https://www.example.com/page.html`

7. What is an IP address?

An IP address is a unique identifier for a device on the internet.

Types: IPv4 (e.g., 192.168.1.1), IPv6.

8. What is DNS?

DNS (Domain Name System) converts domain names (e.g., google.com) into IP addresses. Without DNS, we would have to remember numerical IPs.

9. What is SSL?

SSL (Secure Sockets Layer) encrypts the connection between a web browser and a server, ensuring private and secure communication.

Note: SSL has been replaced by TLS, but the name SSL is still used commonly.

10. Difference between HTTP and HTTPS?

- HTTP (HyperText Transfer Protocol): Not encrypted.
- HTTPS: HTTP + SSL/TLS encryption = secure connection.

11. What are ports? What is a port for HTTP? Which port is used with HTTPS?

A port is a virtual endpoint for network communication.

- Port 80 is used for HTTP.
- Port 443 is used for HTTPS.

12. What are HTTP methods?

- GET – Request data
- POST – Send data
- PUT – Update data
- DELETE – Remove data

13. What is a local server?

A local server runs on your own computer (e.g., XAMPP). Used for development before deploying online.

14. What is the deployed server?

A deployed server is a remote server where your website is hosted and made accessible over the internet.

15. What is the address of localhost?

The localhost address is 127.0.0.1, used for local development and testing.

16. What is a GitHub branch?

A branch is a separate copy of the code where you can safely work on new features without affecting the main project.

17. What is a pull request?

A **pull request** is a request to merge changes from one branch into another, usually reviewed before acceptance.

18. What is a README file?

A README.md file is the main documentation file in a project. It explains what the project does and how to use it. Written in Markdown format.

19. What is the difference between static and dynamic websites?

- Static website: Content does not change unless edited manually.
- Dynamic website: Content is generated dynamically using backend logic.

20. What is frontend? Where is frontend running?

Frontend is the part of the application that users interact with (HTML, CSS, JavaScript). It runs in the browser.

21. What is the backend? Where is the backend running?

Backend is the part that handles logic, data processing, and database communication. It runs on the server.

22. What is the Presentation Tier?

The Presentation Tier (or Routes Layer) is responsible for handling HTTP requests and directing them to the correct service.

It represents the user interface and is the first point of contact in a web application.

23. What is the Business Logic Tier?

The Business Logic Tier (Service Layer) contains the core logic of the application. It performs data validation, calculations, and interacts with the DAO layer.

24. What is the Data Access Object (DAO) Tier?

The DAO Tier handles direct interaction with the database. It manages database connections, queries, and transactions using technologies like PDO (PHP Data Objects).

25. What is a Framework?

A framework is a pre-built structure that provides tools, libraries, and best practices for faster and more organized development.

It includes built-in features like routing, middleware, and security, allowing developers to focus on application logic.

Examples:

- Full-stack: Laravel, Symfony
- Micro-framework: FlightPHP, Slim

26. What is a Composer?

Composer is a dependency manager for PHP.

It allows you to install, manage, and update libraries your project depends on.

It uses a file called `composer.json` to define project dependencies. Composer automatically creates a `vendor/` directory with installed packages.

27. What is JSON Web Token (JWT)?

JSON Web Token (JWT) is a secure, compact way to transmit information between parties as a JSON object, commonly used for authentication and authorization.

28. What is middleware?

Middleware is a layer of code that processes HTTP requests or responses before reaching the final route or controller.

29. What is Ajax?

Ajax is a technique that allows web pages to send and receive data from a server asynchronously without reloading the entire page.

30. What are key features of Ajax?

Key features of Ajax include background communication with the server, partial page updates, and support for data formats like JSON.

31. What is beforeSend in Ajax request?

beforeSend is a jQuery Ajax hook used to modify the request before it is sent, often to add headers like authentication tokens.