

Part 1: Short Answer Questions

1. What is client-side and server-side in web development, and what is the main difference between the two?

Answer: Client-side and server-side are two terms used to describe the different parts of a web application. Client-side refers to the user's computer, while server-side refers to the web server. The main difference between the two is that client-side code is executed on the user's computer, while server-side code is executed on the web server.

Client-side code is typically used to create the user interface and to handle user interaction. For example, client-side code might be used to display a list of items, to allow the user to select an item, and to submit the selection to the server.

Server-side code is typically used to store data, to process data, and to generate dynamic content. For example, server-side code might be used to store a user's login information, to process a credit card payment, or to generate a personalized web page.

Client-side and server-side code work together to create a complete web application. The client-side code provides a user-friendly interface, while the server-side code handles the data and processing.

2. What is an HTTP request and what are the different types of HTTP requests?

Answer: An HTTP request is a message sent by a client (usually a web browser) to a server to initiate a specific action. There are several types of HTTP requests:

- GET: Retrieves data from a server.
- POST: Sends data to a server to create or update a resource.
- PUT: Sends data to a server to update a resource.
- DELETE: Sends a request to delete a specified resource.
- HEAD: Retrieves only the header information of a resource.
- OPTIONS: Retrieves the supported communication options for a resource.
- PATCH: Sends partial data to update a resource.

3. What is JSON and what is it commonly used for in web development?

Answer: JSON (JavaScript Object Notation) is a lightweight data interchange format. It is commonly used in web development for transmitting data between a server and a client. JSON provides a simple and human-readable syntax for representing structured data. It is often used in API communication, where the server sends JSON data to the client, and the client can parse and utilize the data easily.

4. What is a middleware in web development, and give an example of how it can be used.

Answer: In web development, middleware is software that sits between the server and the application, providing additional functionality and facilitating communication. It intercepts requests and responses, allowing developers to add custom logic and modify data as it passes through. For example, in Express.js (a popular Node.js framework), middleware can be used to handle tasks such as authentication, logging, or parsing request bodies.

5. What is a controller in web development, and what is its role in the MVC architecture?

Answer: In web development, a controller is a component of the MVC (Model-View-Controller) architecture. It acts as an intermediary between the user interface (view) and the data (model). The controller receives input from the user, processes it, and interacts with the model to retrieve or update data. It then passes the data back to the view for display. The controller is responsible for coordinating the flow of data and logic within the application.