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C334_IT

Research about the following and give one example of each

1. **Session**
   A session represents a discrete, bounded period of interactive communication between a user's client (browser) and a server. Since the base HTTP protocol is stateless, a session is the mechanism used to maintain state—that is, to allow the server to recognize and track a specific user's activities and data across multiple successive requests.
- Example: When you add items to a shopping cart on an e-commerce site. You click "Add to Cart" on three different products. The server uses your session to track which three products belong to your specific, temporary shopping cart, even as you navigate to different pages on the site.

2. **Cookie**
   A cookie is a small piece of data stored by the web server on the user's browser, which the browser subsequently sends back to the server with every relevant request. Primarily used for session management, personalization, and tracking, the cookie often contains a unique Session ID that links the current request back to the user's maintained state on the server.
- Example: Remembering that you are logged in to a website like Gmail or Facebook. After you enter your username and password, the server sends a session cookie to your browser. The next time you visit any page on the site, your browser automatically sends this cookie back. The server reads the Session ID inside the cookie and knows you are the authenticated user, letting you bypass the login screen.

3. **Authentication**
   Authentication is the security process of verifying the claimed identity of an entity (user, device, or application). It is the requisite first step before authorization (determining what the entity is permitted to do). This process generally relies on the presentation of credentials, such as a password, biometric data, or a digital certificate.
- Example: A common business application requires users to verify their identity via a company-issued security key in addition to their password. This process, known as multi-factor authentication, establishes identity certainty by requiring proof from multiple categories of credentials.

4. **RESTful**
   RESTful is an architectural style used to design distributed web services. Systems adhering to Representational State Transfer (REST) are characterized by their statelessness and reliance on standard HTTP methods (GET, POST, PUT, DELETE) to perform CRUD (Create,

Read, Update, Delete) operations on resources. A RESTful API provides a standardized, scalable, and lightweight interface for machine-to-machine communication.

- Example: A cloud storage service provides a RESTful interface for developers. A request to retrieve a specific document involves the HTTP GET method sent to a unique URL (e.g., /files/documents/id-456), which functions as the resource identifier.

5. **API**

   An API (Application Programming Interface) is a defined set of protocols, routines, and tools for building software applications. It acts as a contract between two pieces of software, specifying the standardized way one program can request services or exchange data with another, abstracting away the underlying complexity of the second program.

- Example: A developer uses a Payment Gateway API (e.g., Stripe or PayPal) to integrate secure credit card processing into an e-commerce platform. The platform sends transaction details to the API, and the API handles the complex, regulated communication with banks and credit card networks, returning only a simple success or failure confirmation.

References

Barney, N., Shacklett, M. E., & Rosencrance, L. (2023, November 1). *authentication*. Search Security. https://www.techtarget.com/searchsecurity/definition/authentication

Goodwin, M. (2025, November 17). API. *What is an API (application programming interface)?* https://www.ibm.com/think/topics/api

Hazeladmin. (2025, January 28). *Web session*. Hazelcast. https://hazelcast.com/foundations/caching/web-session/

What are internet cookies and what do they do? | *Kaspersky*. (2025, July 9). /. https://www.kaspersky.com/resource-center/definitions/cookies

What is RESTful API? - RESTful API Explained - AWS. (n.d.). Amazon Web Services, Inc. https://aws.amazon.com/what-is/restful-api/