COURSE GLOSSARY

Introduction to APIs in Python

API key: A simple token issued by an API provider that clients include with requests to identify and authorize the caller, often passed as a header or query parameter

API: A set of rules and definitions that allow two software systems to communicate and exchange or manipulate data

Authentication: The process of proving the identity of a client to an API, commonly implemented via methods like Basic Auth, API keys/tokens, JWTs, or OAuth 2.0

Basic Authentication: A simple authentication scheme that sends a username and password (usually base64-encoded) in an Authorization header, but provides no inherent encryption

ConnectionError: An exception raised by the requests library when a request fails before reaching the server, for example due to network issues or DNS failures

Content negotiation: The process by which a client and server use headers (like Accept and Content-Type) to agree on the data format for the request or response

Content-Type: An HTTP response or request header that specifies the media type (mime type) of the body, for example application/json or text/html

Entity-relationship diagram (ER diagram): A visual representation of the tables (entities), their columns (attributes), and the formal relationships (keys and references) between tables in a database

JOIN (INNER JOIN): An SQL operation that combines rows from two tables by matching values in specified columns, returning only rows with matching keys in both tables

Header: A key-value metadata field included in HTTP requests and responses that conveys information such as content type, authentication, or caching directives

HTTP verb: The action keyword in an HTTP request (e.g., GET, POST, PUT, DELETE) that indicates the intended operation on a resource: GET reads, POST creates, PUT updates/replaces, and DELETE removes

HTTP: HyperText Transfer Protocol, the application-layer protocol used for sending requests and responses between clients and servers on the web

JSON: JavaScript Object Notation, a lightweight, text-based data format for representing structured data that is widely used by web APIs and easily converted to/from native language objects

JWT: JSON Web Token, a signed token format that conveys identity and claims, often time-limited and used to authenticate API requests without sending credentials each time

OAuth 2.0: An authorization framework that enables limited, delegated access to user resources without sharing user credentials, typically via access tokens issued by an authorization server

Path: The portion of a URL that specifies the exact resource or endpoint on the server, analogous to a file path or office unit in a building

Port: A numeric gateway on a server that routes network traffic to a specific service or application, with common defaults like 80 (HTTP) and 443 (HTTPS)

Protocol: A defined set of rules governing how data is transmitted between systems, with HTTP being the primary protocol for Web APIs

Python requests library: A popular, user-friendly Python package for making HTTP requests that simplifies sending headers, query parameters, form data, and JSON and for reading responses

Query parameter: A key/value pair appended to a URL (often after a ?), used to pass additional instructions or filters to an API endpoint

raise_for_status: A requests library method that raises an HTTPError when a response contains an HTTP error status code, enabling exception-based error handling

Rate limiting: A server-side control that restricts how many requests a client can make in a given time window to prevent overload and enforce fair usage

REST: Representational State Transfer, an architectural style for Web APIs that emphasizes simplicity, statelessness, and resource-oriented endpoints

SOAP: Simple Object Access Protocol, a formal XML-based protocol for exchanging structured information in enterprise web services with strict standards

Status code: A three-digit number in an HTTP response that indicates the result of the request, with 2XX for success, 4XX for client errors, and 5XX for server errors

URL: Uniform Resource Locator, a structured address that identifies the location of a resource on the web and contains protocol, domain, port, path, and optional query components

urllib: A standard Python library module for working with URLs and making HTTP requests that is powerful but generally more verbose and lower-level than requests

Web API: An API designed to enable communication between applications over a network (typically the internet) using web protocols like HTTP