



CRACK API INTERVIEWS WITH THESE 100 REAL- TIME Q&A

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BASICS OF API TESTING

What is an API?

- An API (Application Programming Interface) allows communication between software components. It defines rules and protocols for accessing a web-based software application.

What is API Testing?

- It is a type of software testing that validates APIs directly to ensure they return correct responses for various requests and inputs.

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What are the types of APIs?

- Open APIs (Public)
- Partner APIs (Restricted)
- Internal APIs (Private)
- Composite APIs (Combine multiple APIs)

What protocols are used in API testing?

- HTTP, HTTPS, SOAP, REST, GraphQL, WebSocket, JMS, etc.



BASICS OF API TESTING

What are RESTful APIs?

- APIs that follow REST (Representational State Transfer) principles using standard HTTP methods like GET, POST, PUT, DELETE.

What are HTTP methods?

- GET - Retrieve data
- POST - Create data
- PUT - Update data
- DELETE - Delete data
- PATCH - Partially update data

What is an HTTP status code?

It shows the result of the request:

- 200: OK
- 201: Created
- 400: Bad Request
- 401: Unauthorized
- 404: Not Found
- 500: Server Error



BASICS OF API TESTING

What are headers in API?

- Metadata passed in API requests/responses (e.g., Content-Type, Authorization).

What is payload in an API?

- The data body sent in POST/PUT requests.

What tools are used for API testing?

- Postman
- REST Assured
- SoapUI
- JMeter
- Newman
- Swagger

What is schema validation?

- Ensuring the API response follows a defined structure (JSON Schema, XML Schema).



BASICS OF API TESTING

What is a base URI in API testing?

- The root address of the API. Example:
`https://api.example.com/`.

What is an endpoint in API testing?

- A specific URL that performs a function (e.g.,
`/login`, `/users`).

What is query parameter vs path parameter?

- Path: `/users/{id}`
- Query: `/users?id=123`
- What is JSON and why is it used?
- JavaScript Object Notation — used for sending structured data due to its readability and compatibility.

What is response time in API testing?

Time taken by the server to respond to a request.



BASICS OF API TESTING

What is rate limiting?

- Restriction on number of API calls allowed in a specific timeframe.

What is API throttling?

- Controlling traffic to avoid overloading the server.

What are negative test cases in API testing?

- Invalid method
- Missing headers
- Invalid input
- Unauthorized access



POSTMAN & COLLECTIONS

What is Postman?

- A GUI-based tool used to test APIs with support for automation and scripting.

What is a Postman Collection?

- A group of saved requests that can be executed manually or via automation.

What is the Collection Runner?

- Tool to run multiple API requests in a sequence with data files (CSV/JSON).

What is an environment in Postman?

- A set of key-value pairs (e.g., baseUrl) used for dynamic test setup.

What are global variables in Postman?

- Variables accessible from any workspace or collection.



POSTMAN & COLLECTIONS

How to write test scripts in Postman?

- Using JavaScript in the Tests tab:
- Example:

```
pm.test("Status code is 200", function () {  
    pm.response.to.have.status(200);  
});
```

How to use pre-request scripts in Postman?

- Run JavaScript before sending a request (e.g., generate token).

How to test response body in Postman?

- Sample Javascript code:

```
pm.test("Name is John", function () {  
    var jsonData = pm.response.json();  
    pm.expect(jsonData.name).to.eql("John");  
});
```



POSTMAN & COLLECTIONS

How to set dynamic variables in Postman?

- Sample Javascript code:

```
pm.environment.set("userId", jsonData.id);
```

How to pass data from CSV in Postman?

- Use {{variableName}} inside the request and link the CSV in Collection Runner.

What is Newman?

- CLI companion of Postman used to run collections via command line.

How to run Newman command?

- Sample bash code:

```
newman run collection.json -e environment.json
```

Can we integrate Postman/Newman with CI tools?

- Yes, using Jenkins, GitLab CI, Azure DevOps pipelines.



POSTMAN & COLLECTIONS

What is a monitor in Postman?

- A scheduled collection run used to monitor API performance and correctness.

How to validate response time in Postman?

- Sample Javascript code:

```
pm.test("Response time < 1000ms", function ()  
{  
  pm.expect(pm.response.responseTime).to.be.below(  
    1000);  
});
```

Can we chain API calls in Postman?

- Yes, by storing response data into variables and using them in subsequent requests.

How to handle authentication in Postman?

- Options:
- Bearer Token
- OAuth 2.0
- Basic Auth
- API Keys



POSTMAN & COLLECTIONS

What is dynamic data testing in Postman?

- Using random values (e.g., email, ID) using faker.js or Postman's dynamic variables.

Can Postman validate JSON schema?

- Yes, using the tv4 or ajv library in test scripts.

What is Postman sandbox?

- The JavaScript execution environment where Postman scripts run.



REAL-TIME SCENARIOS, ERRORS & VALIDATIONS

How do you validate response data in API testing?

- Check status code
- Validate headers
- Check response body content
- Verify schema
- Response time check

What is the difference between 401 and 403?

- 401 Unauthorized: Authentication failed
- 403 Forbidden: Authenticated but access denied

How do you handle token expiration in API tests?

- Use Pre-request Script to refresh token before each request
- Store updated token in environment variables

What is a mock server in API testing?

- A fake server that mimics real API responses for testing when backend is not ready.



REAL-TIME SCENARIOS, ERRORS & VALIDATIONS

What is the difference between PUT and PATCH?

- PUT replaces the entire resource
- PATCH modifies only specific fields

What is contract testing?

- Testing whether the API request and response structure follows the agreed contract (e.g., OpenAPI/Swagger).

What is the use of Swagger?

- API documentation
- Try out endpoints directly
- Generate client/server code
- Validate request/response schema

What are the main components in a REST request?

- Method (GET, POST, etc.)
- URL (with parameters)
- Headers
- Body (Payload)



REAL-TIME SCENARIOS, ERRORS & VALIDATIONS

How do you validate API pagination?

- Check limit, offset or page in response
- Ensure no duplicates
- Validate total count

How to test file upload API?

- Use form-data in Postman or use a curl command:

```
curl -F "file=@sample.pdf"  
http://api.example.com/upload
```

How to test API rate limiting?

- Send rapid requests
- Expect 429 Too Many Requests
- Validate retry-after header

What is response caching in APIs?

- Server caches the response
- Helps reduce load
- Controlled via headers like Cache-Control



REAL-TIME SCENARIOS, ERRORS & VALIDATIONS

What is CORS in APIs?

- Cross-Origin Resource Sharing — controls resource sharing across different domains.

What is the difference between synchronous and asynchronous API?

- Synchronous: Immediate response (e.g., REST)
- Asynchronous: Processed in background (e.g., Webhooks)

What is an API gateway?

- Manages API traffic, authentication, routing, rate limiting, caching.

How to validate date and time fields in APIs?

- Use regex or schema validation to check format (e.g., ISO 8601 yyyy-mm-ddTHH:MM:SSZ)



REAL-TIME SCENARIOS, ERRORS & VALIDATIONS

How to ensure API security during testing?

- Use OAuth2
- Validate access roles
- Test for SQL injection, XSS
- Avoid exposing sensitive data

What is idempotency in APIs?

- Multiple identical requests result in the same outcome (e.g., PUT should be idempotent).

What is an API key and how is it different from Bearer Token?

- API Key: Static string for identification
- Bearer Token: Dynamic token for authorization (via OAuth2)

How do you validate API logs and traces?

- Use API logging tools or server logs to check request/response, errors, latency, etc.



AUTOMATION TOOLS & FRAMEWORKS

What is REST Assured?

- A Java library used for testing REST APIs with a fluent java syntax:

```
given().get("/users").then().statusCode(200);
```

What is the structure of a REST Assured test?

- given(): Setup
- when(): Action
- then(): Validation

How to test headers using REST Assured?

- Java sample:

```
given().header("Authorization", "Bearer token")
```

What is a BDD framework in API testing?

- Behavior-Driven Development using Gherkin syntax (Given, When, Then) with Cucumber or Karate.



AUTOMATION TOOLS & FRAMEWORKS

What is Karate DSL?

- An API testing tool that uses Gherkin syntax.

Example(gherkin):

Given url 'https://api.com/users'

When method GET

Then status 200

What is the use of assertions in API automation?

- To validate status, body values, headers, response time, etc.

What is schema validation in REST Assured?

- Java Sample:

```
response.then().body(matchesJsonSchemaInClasspath("schema.json"));
```

What are data-driven tests in API automation?

- Running tests with multiple data sets using external files like Excel, CSV, or JSON.



AUTOMATION TOOLS & FRAMEWORKS

What is the difference between manual and automated API testing?

- Manual: GUI tools like Postman
- Automated: Scripts executed repeatedly via CI/CD pipelines

What are some common assertions in API automation?

- Status code = 200
- JSON field = expected value
- Response contains array/object
- Response time < threshold

What tools are used for API performance testing?

- JMeter
- Gatling
- Locust
- k6



AUTOMATION TOOLS & FRAMEWORKS

What is parallel execution in API testing?

- Running multiple API tests simultaneously to reduce execution time.

How do you generate reports in API automation?

- Allure Reports
- ExtentReports
- Cucumber HTML Report
- JUnit/TestNG default reports

How do you mock APIs during automation?

- Use WireMock, MockServer, or Postman Mock Server to simulate real responses.

What are flaky tests in API automation?

- Tests that randomly pass/fail due to network delays, unstable responses, or race conditions.

How to handle dynamic values in API responses?

- Extract them using JSONPath or regex and pass into next request.



AUTOMATION TOOLS & FRAMEWORKS

What is JSONPath?

- A syntax to extract specific parts from JSON responses (like XPath for XML).
- Example: `$.data[0].name`

How to run API tests in CI/CD pipeline?

- Integrate using:
- Jenkins
- GitHub Actions
- GitLab CI
- Azure DevOps

How to handle large payloads in testing?

- Use external files or chunk the payload using streaming or paging.


How to version APIs and test them?

- Use versioning in URI (`/v1/users`) or headers. Validate backward compatibility.



ADVANCED & REAL-TIME EXPERIENCE BASED

What is backward compatibility in APIs and how do you test it?

- Backward compatibility ensures that old clients still work when the API is updated.
-  Test by running older test cases against the new API version.

How do you handle chained API requests in testing?

- Extract data (like id, token) from one API response and pass it into the next request as a parameter or header.
- Bash script:
- Login → get token
- Pass token in header to fetch profile

How do you test API dependencies (microservices)?

- Validate that service A fails gracefully if service B is down
- Use mocks for unavailable services
- Ensure retries and fallbacks work



ADVANCED & REAL-TIME EXPERIENCE BASED

What is HATEOAS in REST?

- HATEOAS (Hypermedia as the Engine of Application State) provides links in responses for navigation.
- Json example:

```
{  
  "userId": 1,  
  "links": [  
    { "rel": "self", "href": "/users/1" },  
    { "rel": "orders", "href": "/users/1/orders" }  
  ]  
}
```

What is the difference between JSON and XML in API testing?

- JSON is lightweight, preferred in REST
- XML is verbose but allows schema validation (XSD) and namespaces



ADVANCED & REAL-TIME EXPERIENCE BASED

How do you test GraphQL APIs vs REST APIs?

- GraphQL uses a single endpoint, flexible queries
- Test query, mutation, and schema
- Use tools like Postman, Insomnia, Apollo

How do you manage environments in API testing tools?

- Use environments in Postman or config files in code frameworks. Store base URLs, auth tokens, etc.

What is the role of API documentation in testing?

- Defines endpoints, parameters, and response structure
- Swagger/OpenAPI enables testing and contract validation
- Reduces ambiguity



ADVANCED & REAL-TIME EXPERIENCE BASED

What is latency testing in APIs?

- Measures response time under normal and load conditions. Ensures SLA adherence.
- Bash script:

Start Timer → Send Request → Stop Timer →
Assert Time < 200ms

What is an API sandbox?

- A safe test environment with mock data for testing API integrations without affecting production.

How do you validate retry mechanisms in APIs?

- Simulate a failure (timeout, 5xx) and validate if retries happen as expected using headers/logs.

How do you test for data integrity in APIs?

- Create → GET → Compare values
- Update → Validate values
- Delete → Ensure removal



ADVANCED & REAL-TIME EXPERIENCE BASED

What's the best way to test multi-language APIs?

- Set Accept-Language in headers and validate localized content in the response.

example: Accept-Language: fr-FR

What are some good API testing practices?

- Validate both happy and negative scenarios
- Automate smoke and regression tests
- Use data-driven tests
- Version your test cases

What is an API probe test?

- A lightweight periodic check to verify if APIs are up and responsive (used in monitoring systems).

What's the difference between integration testing and API testing?

- API Testing: Tests a single API's request/response
- Integration Testing: Verifies communication between multiple components or services



ADVANCED & REAL-TIME EXPERIENCE BASED

What is schema drift and how do you detect it?

- A mismatch between expected and actual API schema.

✓ Use contract/schema validation tools (e.g., Swagger Validator).

What is synthetic monitoring for APIs?

- Monitoring APIs using scheduled test calls from different locations to ensure availability and performance.

How do you test APIs that interact with databases?

- Validate DB after POST/PUT
- Compare DB state before and after DELETE
- Use SQL queries for backend validation



ADVANCED & REAL-TIME EXPERIENCE BASED

What are the common API testing challenges you've faced?

✓ Real-world answers could include:

- Unstable environments
- Unavailable services
- Delayed documentation
- Token expiration
- Rate limiting
- Payload complexity





THANK YOU

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