API :- Appln Programming Interface

Q1) HTTP methods Description ✓

① GET : The GET HTTP method is used to fetch / retrieve resource from server.

② POST : Used to create new resource.

③ PUT : Used to modify or update the existing resource, if resource is not available then it creates the resource

④ PATCH : Used to modify or update the existing resource, if resource is not available then it displays error message

⑤ DELETE : Used to remove or erase the resource from the server permanently

⑥ HEAD : The HEAD HTTP method works as similar to GET, instead of fetching the response from the server, it verifies the existence of resource in the server.

Q.2) How you validate JSON response? ✓

① In postman tool click on test tab

② In Right side we can view Javascript Snippets.

③ The following options are available to validate the JSON response.

① Status code : code is 200

② Response Body : JSON value check

Q3) How to send the request and get the response?

→ In Postman, in body section select Raw and file content type as JSON and we have to create the JSON request, suppose if the request need for signin then it can be as follows:

```
{
  "email": "premlakhot108@gmail.com";
  "password": "Arati@05 ;
}
```

Once after creating the request provide the authorization and Run the request.

1XX - Information
2XX - Successful
3XX - Redirection
4XX - client error
5XX - Server error.

Q4) How To create collections and ✓ How to run the collections ?

→ In postman for each request, there is a save option and we can save each request in a collection. [collection is a container, it has multiple requests]

How to run the collections :-

In postman, there is a "Runner" option once we clicked on that option, it displays collection Runner Window, there select the specific collection name and run the collection.

Q5) Status codes in API Testing

2xx : successful

① 200 OK : The request ~~has been~~ is OK (This is the standard response for Successful HTTP request)

② 201 created : The req. has been fulfilled and a new resource created.

③ 202 Accepted : The req. has been accepted for processing, but the processing has not been completed.

④ 204 No Content : The req. has been successfully processed, but isn't returning any content.

4xx : Client error

① 400 Bad Request : The req. can't be fulfilled due to bad syntax.

② 401 Unauthorized : The req. was legal request but the server is refusing to respond to it.

③ 404 Not found : The requested page couldn't be found but ~~server is refusing to respond to it~~ may be available again in future

④ 408 Request Timeout : The server timed out, waiting for the request.

5xx : server error.

① 501 Internal server error : A generic error msg given when no more specific msg is suitable.

② 502 Bad Gateway : The server was acting as a gateway or proxy and received an invalid response from the upstream server

③ 503 service unavailable : The server is currently unavailable.

④ 505 HTTP version not supported : The server does not support the HTTP protocol version used in request

Q6) JSON schema : JSON schema is a contract for JSON document that defines the expected datatypes and format of each field in the response

Why is JSON Schema valin required ?

Because-

① We monitor API responses & ensure that the format that we are getting is same as the expected one.

② We get alert whenever there is any breaking change in JSON response.

③ We use JSON schema to construct a model of API response & it makes easier to validate that API is ~~not~~ returning the valid data.

How To generate JSON schema for postman ? :-

① Navigate to the URL : https://jsonschema.net/app/schemas/0

② paste the JSON response on left hand side and click on submit button.

③ It generates JSON schema on right hand side

④ Copy the JSON schema and paste it into the postman tests tab.

⑤ We have to write the below code to validate the JSON schema.

Q7) How to create Environment variable?

→ ① click on eye icon

② click on edit option

③ Copy URL, Give variable name as URL copy an initial value

④ Save the environment variable {{URL}}/api1/users/id

(Eye icon)

Environment quick look.

Q8) What do you mean by API Testing?

→ It is an a s/w testing type that validate application programming interface

Q9) Common API Bugs

→ ① Verify if API does not support any response.

② Based on the i/p request return result should be checked.

③ Verification of API whether it is updating any data structure

④ Delayed in API response time.

⑤ Response data is not structured.

⑥ Difficult in connecting & getting API res

Q10) Advantages of API

① Time effective

② Language independent

③ Testing the core functionalities

④ Reduce cost of testing

⑤ Reduce risks.

Q11) Challenges of API Testing

① API testing parameterization is difficult

② Parameter selection & chatagerization

③ Exception handling functions.

Q12) What do you mean by Authondication Token ?

It identifies the user

Q13) API keys

Identifies the calling project

Q14) What do you mean by Authorization ?

Authorization is the process of verifying who are you ?

Q15) What do you mean by Authentication ?

It is the process of verifying what you have access to.

Q16) Advantages of API keys

① To block anonymous traffic

② You want to control no. of calls made to your API

③ You want to identify usage pattern.

Q17) What do you mean by Header Cookies ?

→ Header represents metadata association with API request and response.

Q18) Process of API Testing.

Step 1 : The user story contains each service functionality, parameters required for each service and expected results, by referring the requirement document, I am writing the testcases (manual TC). The same TC, once appln is deployed into a QA environment, by using postman tool I have to execute them.

Step 2 : Meanwhile I am requesting the dev. team for updated service document. The dev. will provide the respective document along with .yaml file. That file contains key and value pair that describes required parameter for each actions (services).

Step 3 : If any change in the parameter or services, I will update the existing testcases.

Step 4 : Once after successful execution of all services, by using postman tool the same testcases I have to convert into automation by using RestAssured.

Step 5 : Once after completion of writing automation test scripts, I will create a pull request. In pull request I add reviewers and test results. Once reviewers have approved, we are merging the new changes.

Scenerio :- To verify Rest service for create Requisition endpoint – post method given. I execute create requisition endpoint

|EndpointURL|

|https://enigmatic-meadow-39517.herokuapp.com/api/v1/users/|

When I submit the post request for createrequisition then I should get 201 success status code along with response body

We haven't written testcases in Jira. but In excel sheet only we are writing Testcases

Q19) How you will do api testing? How you automate api postman? How you validate api HT DB tables?

→ In my appln I have multiple scenerios by using HTTP methods POST, PUT, PATCH and DELETE for the some of the scenerios.

P2P : Through API, we need to perform create requisition → assign lineitems for the requisition → move to purchase order → create receipts

The above scenerio is end to end scenerio. Here based on the API, I am performing createRequisition, creation of non-catalog-items as line-items and move to purchase order based on approval flow and receiving the receipts.

The same execution flow I have to validate with DB tables. So, By using JDBC connection, I was fetching the respective data from the DB tables that acts as a actual result. by compairing expected results, I was performing the validation.

Here validation can be performed Status-level, Response-body-level, header-level.

NOTE : JSON file.

In JSON request, we have an expected results. The actual results from json response from database tables

11) We need to provide build-version; app testcase-ID, attachment. attachment can be a screenshot or video or logs

12) Finally I click on create button to log the defect.

It generates defect-id. We can get defect details as natification email.

Q20) How you will write TestScript?

→ By using RestAssured.baseURI I will assign the Restful service.

By using RestAssured class, I will access a given method.

- httpRequest = RestAssured.given : It returns request specification object, that object I am calling as a httprequest.
- If particular request requires parameters, by using JSON object, I will add the parameters as follows :-

```
JSONObject params = new JSONObject();
params.put("Requisition_title", "Demo Requisition");
```

- Once after creating the JSON object the same object I am passing as a parameter to a body method.

```
httpRequest.body(params.toJSONString());
```

- By using httpRequest we can execute required http method. It returns response object.

```
response = httpRequest.post();
```

- By using status validation or response body validation we are validating the response.

Q21) In JIRA How will you log the defect?

→ https://product-jira.medius.com.

- Once after I got the defect, I make sure whether it is defect or not, once after I got the confirmation that it is defect, I will open the chrome browser, navigate the jira URL i.e. https://product-jira.medius.com.
- It displays dashboard based on single sign on (SSO).
- Based on the windows authondication, it displays the dashboard page

1) Click on the create button to log a new defect.
2) It displays create issue page. there we have to select the following options
   i) project name.
   2) issue_type : It is always defect only
   3) Summary : Here we have to provide the summary of defect. Usually, it should be as not able to create requisition using catalog items, application
   4) Components : Based on the selection of the components it populates the respective developer name.
   5) Description :

Steps to Reproduce –

1. Navigate to the appln URL
2. Login into the appln by using valid credentials
3. Navigate to create option
4. select the Requisition link.
5. Search for catalog items to create line items.
6. In catalog search result page, select the any one catalog item.
7. The selected catalog item should populate in the line item section.
8. Provide Requisition name, Quantity and Click on "submit" Button.

Expected Result : Appln should create Requisition In submitted status

Actual Result : Appln provides NP

6) Select the severity of the defect.
7) Select the priority of the defect. In my current project we have to select P3 by default.
8) Based on selection of component, the investigator i.e. dev name will populate
9) Most of the time it is development manager name
   We can edit & provide our respective feature developer.
10) Verifier - By default it displays my name because I am logging the defect I can edit and create and provide QA name only when, if I can logging the defect behalf of the some other QA

Q22) List out few Authentication Techniques used in API's?

→ ① Session / cookie based Authentication
② Basic authentication - UN & PSW
③ Digest —"—
④ OAuth

Q23) Why API testing is determined as the most suitable form for Autn Testing

→ Bcz It is a lighter weight testing By using postman and It's more stable than UI testing

Q24) What is Rest API?

→ REST Stands for Representation State Transfer. It is a set of functions helping developers in performing requests and receive responses. Interaction is made through HTTP protocol in REST API.

Q25) What exactly needs to verify in API?

→ In API Testing, we send a request to API with the known data & then analysis the response.
① We will verify the accuracy of data.
② Will see the HTTP status code.
③ We will see the response time.
④ Error codes in case API returns any error
⑤ Authorization would be check.
⑥ Non-functional testing such as performance testing, security testing

Q26) What are Path Parameters and query para for below API request URL?

http://rahulshettyacademy.com/orders/112234?location=IND

Endpoint | Resource | Path identified by slash | Para before question mark | Query para | Path para

Q27) What are the core components of an HTTP request?

→ ① HTTP Request methods like: PUT, POST, DELETE
② Base Uniform Resource Identifier (URI)
③ Resources and parameters
④ Request Header, which carries metadata (as a key-value pairs) for the HTTP request message
⑤ Request Body, which indicates the message content or resource representation

Q28) What could be the HTTP ... for below API Scenario? Ans if it is GET or POST

Scenario: An API which has Endpoint, parameters, Headers, cookies and Payload

→ It is POST Bcz it is accepting payload where GET can't accept any payload.

Q29) Diff^n Betn API and UI Testing

→ UI Testing means testing of the GUI. The focus of UI testing is on the look and feel of the appln.
- In UI testing the main focus is on how users can interact with app elements such as images, fonts, layout etc are checked
API Testing - allows the comm^n betn two sw systems. API Testing works on backend also known as backend testing.

Q30) What protocol is used by RESTful Web services?

→ RESTful Web services uses the HTTP protocol. They use the HTTP protocol as a medium of comm^n betn client & server

Q31) What are Soap Webservices?

→ SOAP stands for Simple object Access protocol. It is an XML based messaging protocol. It helps in exchanging informa^n among computers.

Q32) How do you represent resource in REST?

→ Using HTTP methods.

Q33) Can you use POST req. instead of PUT to create a request?

→ Yes we can. Because POST is super set of all other HTTP method except GET

Q34) Can you use GET request instead of PUT to create a resource?

→ No, GET req allows only read only rights. It enables you to retrieve data from a server but not create a resource. PUT & POST methods should be used to create a resource
POST should be used when client sends the page to the server and then server lets the client know where it put it
PUT should be used when the client specifies the location of the page.

Q35) What do you understand by Payload in Restful Web service?

→ Payload / Body is the secured input data which is sent to API to process the req Payload is generally represented in JSON format in Rest API's

Q36) How do you differentiate Path & Query parameters in API Request Endpoint?

→ slash (/) - Path
question mark (?) - query

Q37) What is Rest Assured?

→ It is java library which can automate Rest API's. It's open source.

Q38) How would we define API details in Rest Assured Automation?

→ We shall define all the req. details and send it to server in GIVEN, THEN, WHEN methods.

Q39) What is JSON Serialization and Deserialization in Rest Assured?

Serialization in Rest Assured context is a process of converting a java object into Request body (payload).
Rest Assured also supports deserialization by converting response body back to java obj.

Q40) List out few common Json parsing Techniques used in Rest Assured Automa^n

→ JSON Path
Deserialization of JSON using POJO classes

Q41) How would you send attachme... to API using Rest Assured Test?

→ Using Multipart method.

Q42) HTML and XML

HTML	XML
1) Hypertext Markup Language.	1) Extensible markup language.
2) Used to develop the webpages.	2) Used to store and transfer the data.
3) Tags are predefined	3) Tags are user defin...
4) It starts with root tag html.	4) Starts with prolog <?xml version="1.0" encoding="UTF-8"?>
5) The html file is saved as .html	5) XML file is saved as .xml.

Q43) What are the Snippets in Postman

→ Snippets are small scripts used in postman. which are used to verify an API. These are predeveloped scripts th... can be utilized directly. Thus it helps to save a good amount of time
- Snippets can be used in Pre-request script and Tests tabs in Postman. Naviga... to the Tests tab and the SNIPPETS sec... Should be available to the right of scr... click on any snippet to use it in a script
- On clicking the link Get a variable, the below scripts gets populated in the Test... tab which can be used in our own scri...
pm.variables.get("variable_key");
- Navigate to the Pre-Request Script tab and the SNIPPETS section should be avai... to the right of the screen. click on an... snippet to use it in a script.
- On clicking the link Get an environme... variable, the below scripts gets populate... in the Pre-request script tab which... can be used in our own script.
pm.environment.get("variable_key");