



# Basics of API Testing

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# Agenda of API Testing



## API TESTING

API and API Testing



## TOOL SELECTION

Right tool for API Testing



## WORKFLOW

How API works ?



## API Methods

Different API Methods



## ADVANTAGES

Advantages of API Testing



## DEMO

Live Demo

# What is API?

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API stands for Application Programming Interface.

API is an software to software interface, not a user interface.

With APIs, applications talk to each other without any user knowledge or intervention.

Implemented by writing function calls in the program.



# What is API Testing?

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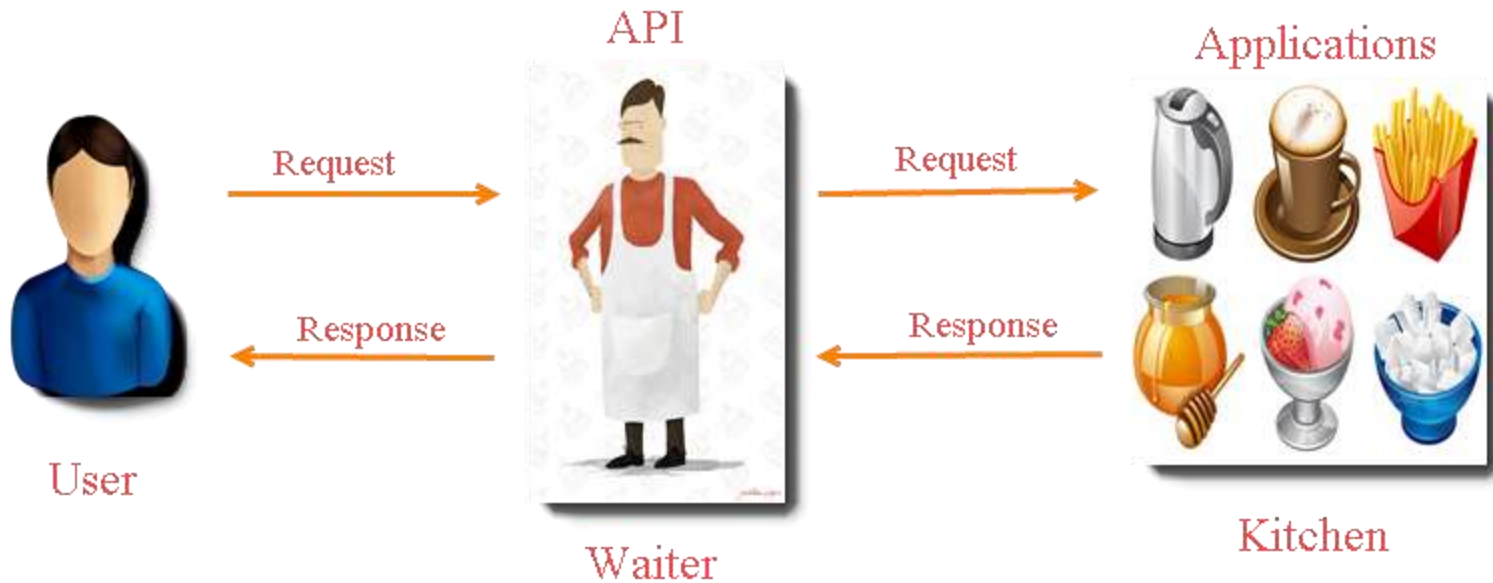
API testing uses software to send calls to the API and get the output.

API testing treats the component under test as a black box.

The goal of API testing is to verify correct performance and error handling of the component prior to its integration into an application.

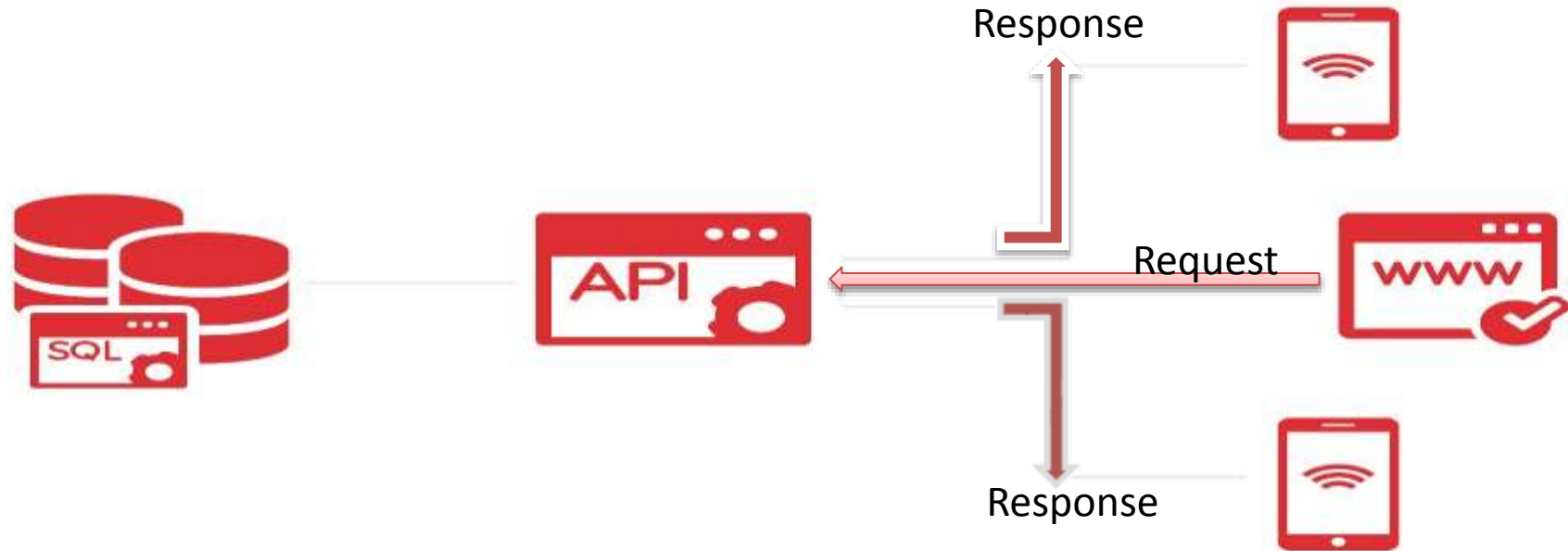


# API Workflow



# API Workflow

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# REST API

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**REST** – stands for Representational State Transfer.

- It is a set of functions to which the developers perform requests and receive responses. In REST API interaction is made via HTTP protocol.
- REST also allows computers to talk to each other over a network.
- It involves using HTTP methods to send and receive messages, and does not require a strict message definition, unlike Web services.
- REST messages often take the form of XML, or JavaScript Object Notation (JSON).

# HTTP Methods

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## 4 Commonly Used Methods:-

**GET** : - Provides a read only access to a resource.

**POST** :- Used to update an existing resource or create a new resource.

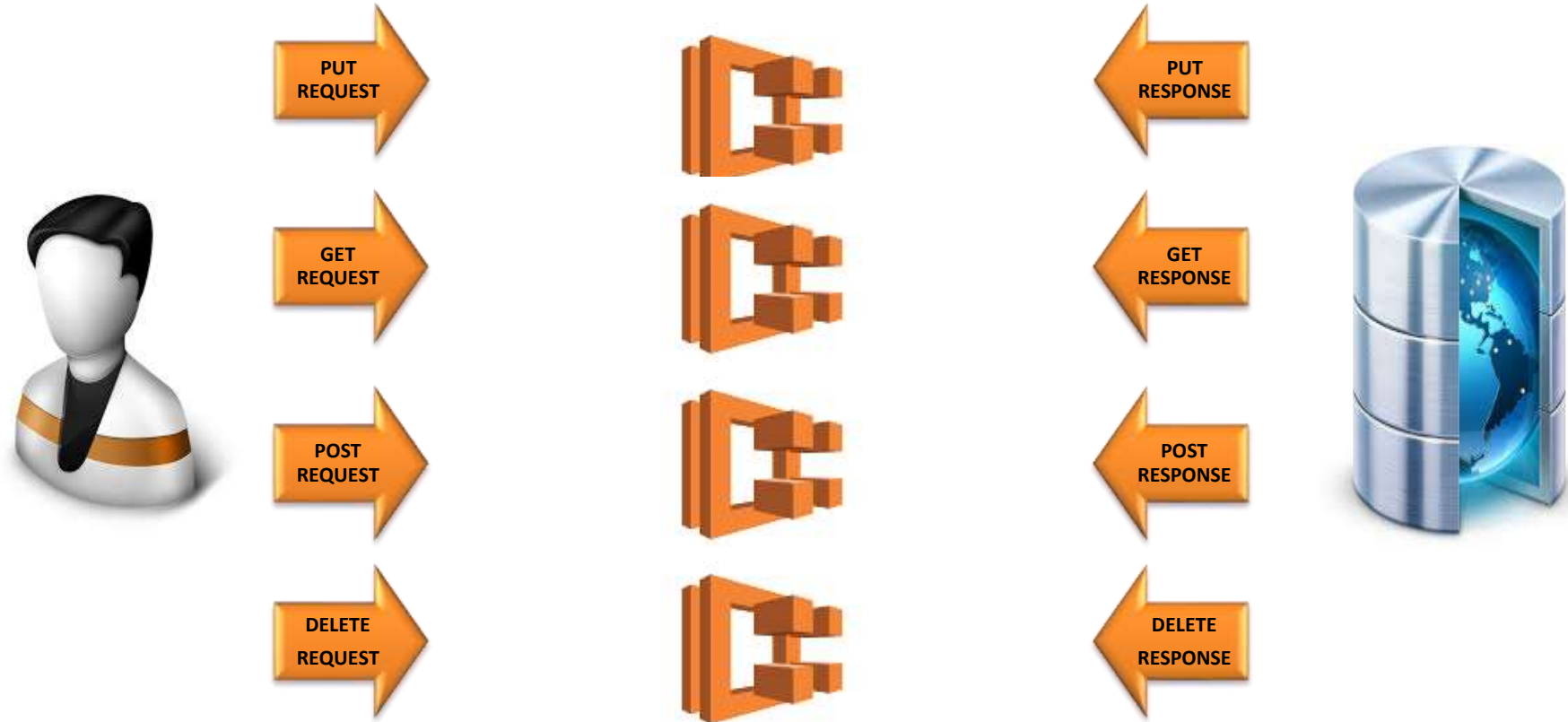
**PUT** :- Used to create a new resource.

**DELETE** :- Used to Remove a resource.

RESOUCE	GET	PUT	POST	DELETE
URL	Retrieve the member	Create / Replace a new resource	Create new entry	Used to remove a resource



# What is API Testing ?



# REST API Inputs



GET	POST	PUT	DELETE
Method - GET	Method - POST	Method - PUT	Method - DELETE
URL	URL	URL	URL
Custom-Header	Custom-Header	Custom-Header	Custom-Header
	Input JSON		

# GET Methods

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## Request

GET

[https://uat-beam-  
ms.livfame.com/v1/event/de  
tail?beamId=7767](https://uat-beam-ms.livfame.com/v1/event/detail?beamId=7767)

## Response

Status : 200 OK

```
{  
  message: "Beam Detail fetched successfully"  
  data:  
    {  
      name          : "name goes here"  
      eventStatus   : "COMPLETED"  
      startTime      : "10 Oct 2015"  
      14:25:00"  
      viewCount      : "2354"  
      likeCount       : 88  
      disLikeCount    : 99  
      commentCount    : 5  
      duration        : 1490  
      performerId     : 10244  
    }  
  status: 1  
}
```

# POST Methods

## Request

### POST

URL : [http://qa-api.livfame.com/api/v11\\_1](http://qa-api.livfame.com/api/v11_1)

```
{  
  "email"      : "kkashyap1707@gmail.com",  
  "password"   : "admin",  
  "medium"     : "MANUAL",  
  "apiVersion" : "1.0",  
  "appKey"     : "myAppKey",  
  "actionName" : "login"  
}
```

## Response

Status : 200 OK

```
{  
  "status": 1,  
  "message": "Login successfully",  
  "data": {  
    "access_token": "rcd676up5kit3akd93a",  
    "email": "admn.famelive@gmail.com",  
    "roles": "[ROLE_USER]",  
    "userId": "1",  
    "isAccountVerified": true,  
    "timeZoneName": "GMT +05:30 - New Delhi",  
    "timeZoneld": 8,  
    "fameName": "admin.famelive",  
    "imageName": "zsdasdaw",  
    "userChannel": "a468784e6e2a9874619e7f",  
  },  
  "code": 10001  
}
```

# PUT Methods

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## Request

GET

[https://uat-beam-  
ms.livfame.com/v1/event/detai  
l?beamId=7767](https://uat-beam-ms.livfame.com/v1/event/detail?beamId=7767)

## Response

Status : 200 OK

```
{  
  message: "Beam Detail fetched successfully"  
  data: {  
    name: "name goes here"  
    eventStatus: "COMPLETED"  
    startTime: "10 Oct 2015 14:25:00"  
    viewCount: "2354"  
    likeCount: 88  
    disLikeCount: 99  
    commentCount: 5  
    duration: 1490  
    performerId: 10244  
  }  
  status: 1  
}
```

# DELETE Methods

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## Request

GET

[https://uat-beam-  
ms.livfame.com/v1/event/detai  
l?beamId=7767](https://uat-beam-ms.livfame.com/v1/event/detail?beamId=7767)

## Response

Status : 200 OK

```
{  
  message: "Beam Detail fetched successfully"  
  data:  
    {  
      name: "name goes here"  
      eventStatus: "COMPLETED"  
      startTime: "10 Oct 2015 14:25:00"  
      viewCount: "2354"  
      likeCount: 88  
      disLikeCount: 99  
      commentCount: 5  
      duration: 1490  
      performerId: 10244  
    }  
  status: 1  
}
```

# HTTP Response Codes

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## Some HTTP response codes, which are often used with REST:-

**200 OK:** - Code indicates that the request was successful.

**201 Created:-** Code indicates that request was successful and a resource was created. It is used to confirm success of a PUT or POST request.

**400 Bad Request :-** It happens especially with POST and PUT requests, when the data does not pass validation, or is in the wrong format.

**404 Not Found:-** response indicates that the required resource could not be found.

**401 Unauthorized:-** error indicates that you need to perform authentication before accessing the resource.

**405 Method Not Allowed:-** HTTP method used is not supported for this resource.

**409 Conflict:-** Conflict request to create the same resource twice.


**500 Internal Server Error:-** Occurs due to some error on Server side.



# Common Types of Tests in API Testing

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## Common API Bugs:-

- Verify if API doesn't return any response.
  - Based on input request, return request should be checked.
  - Verification of the API whether it triggers some other event or calls another API
  - Verification of the API whether it is updating any data structure
  - Delayed in API Response time
  - Response Data is not structured
  - Difficulty in connecting and getting response from API
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# Advantages of API Testing

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## Advantages of API Testing:-

- Time Effective
- Language Independent
- Test Core Functionality
- Reduce Testing cost
- Reduced Risks



# Challenges of API Testing

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## Challenges of API Testing:-

- Main challenges in API testing is **Parameter Combination, Parameter Selection, and Call Sequencing**
- There is no GUI available **to test the application which makes** difficult to give input values
- Parameters selection and categorization required to be known to the testers
- Exception handling function **needs to be tested**



# Basic Inputs

URL : [http://qa-api.livfame.com/api/v11\\_1](http://qa-api.livfame.com/api/v11_1)

URL Parameter Key	Value
Content-Type	application/json
Header	Value

form-data

x-www-form-urlencoded

raw

JSON

POST

GET

POST

PUT

PATCH

DELETE

COPY

HEAD

OPTIONS

LINK

UNLINK

PURGE

## Header

## Method

form-data

x-www-form-urlencoded

raw

JSON

```
{
  "apiVersion": "1.0",
  "actionName": "login",
  "email": "myname@anthony",
  "password": "123456",
  "medium": "MANUAL",
  "appKey": "myAppKey"
}
```

Send

Preview

Add to collection

## Input JSON

STATUS

200 OK

TIME

389 ms

Preview

JSON

XML

```
1 {
2   "status": 1,
3   "message": "Login successfully"
}
```



## Output Response

# Questions

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-  Our Office
-  Client Location

**Email us at:**

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