

# Rest API Fundamentals

**All that you  
need to know!**

# API Concept



**API** allows interactions between systems by following a set of standards and **protocols** in order to share **features**, **information** and **data**.

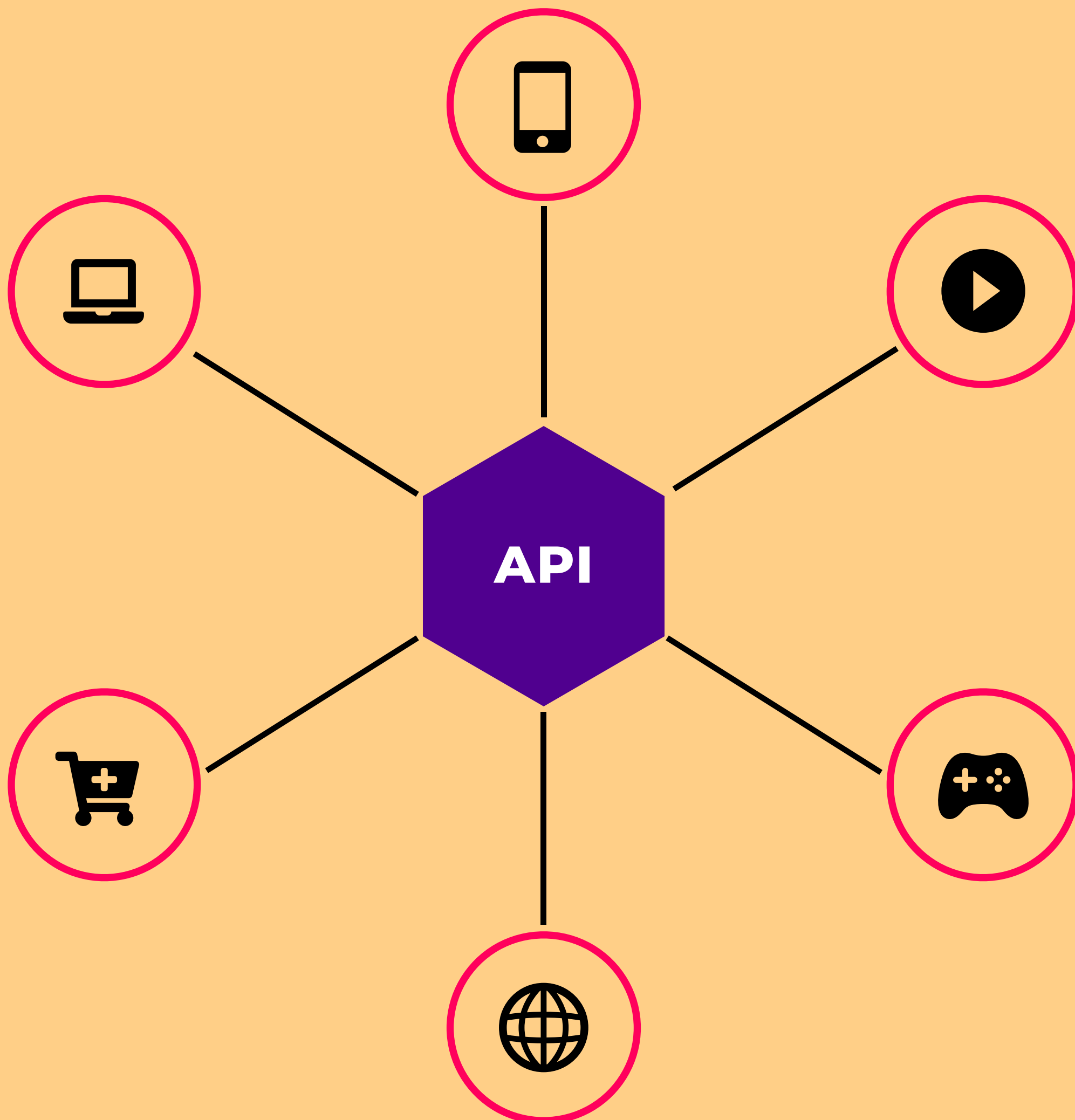
Full form of API



A - Application  
P - Programming  
I - Interface

API acts as an interface between different applications.

Diagram



# REST API

REST

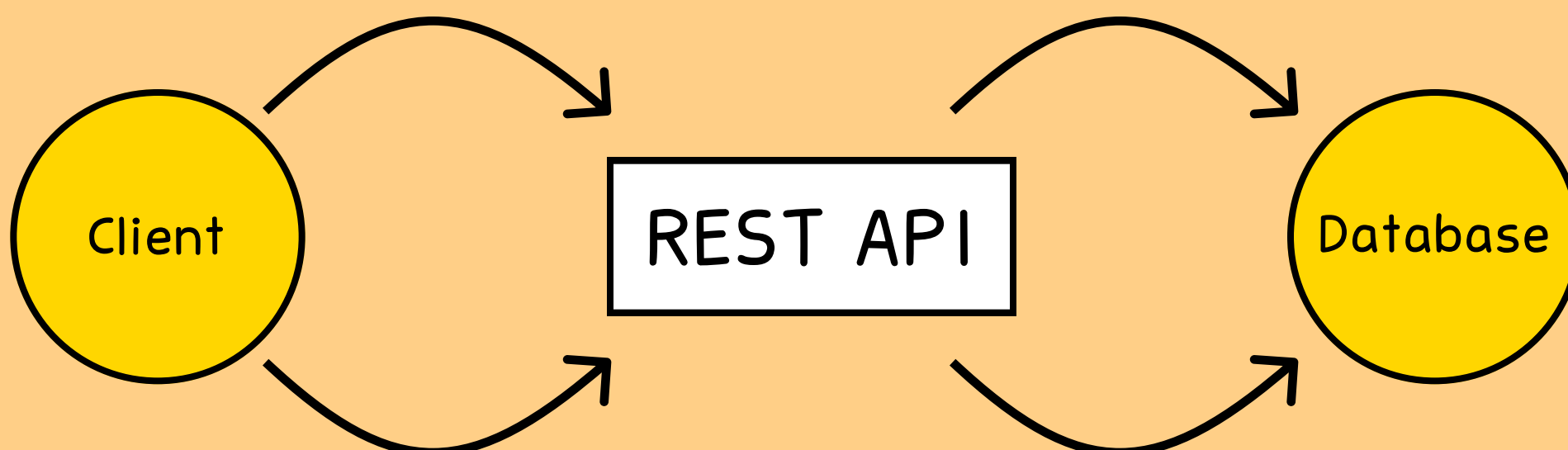
Representational  
State Transfer

It is an **architecture style** to develop web applications.

Uses **HTTP protocol** as a communication interface.

It transfers data through **HTTP methods**.

Diagram



# Request Anatomy

## URL

Uniform Resource Locator

It is the **address** to not just identify a resource, but also to specify **how to access** it.

In an API, the URL can be named as **Base URL**, which means that is the base address that will be used in every request.

**Example :** <http://api.example.com>

# URI

Uniform Resource Identifier

It is used in the **URL** to specify which resource the **client** would like to access in a **request**.

**Example :** `http://api.example.com/products?name=laptop&available=true`

URI

(highlighted in purple)

Here, the **client** communicates to the **server** that the **request** is to retrieve products with name equals laptop, and available equals true.

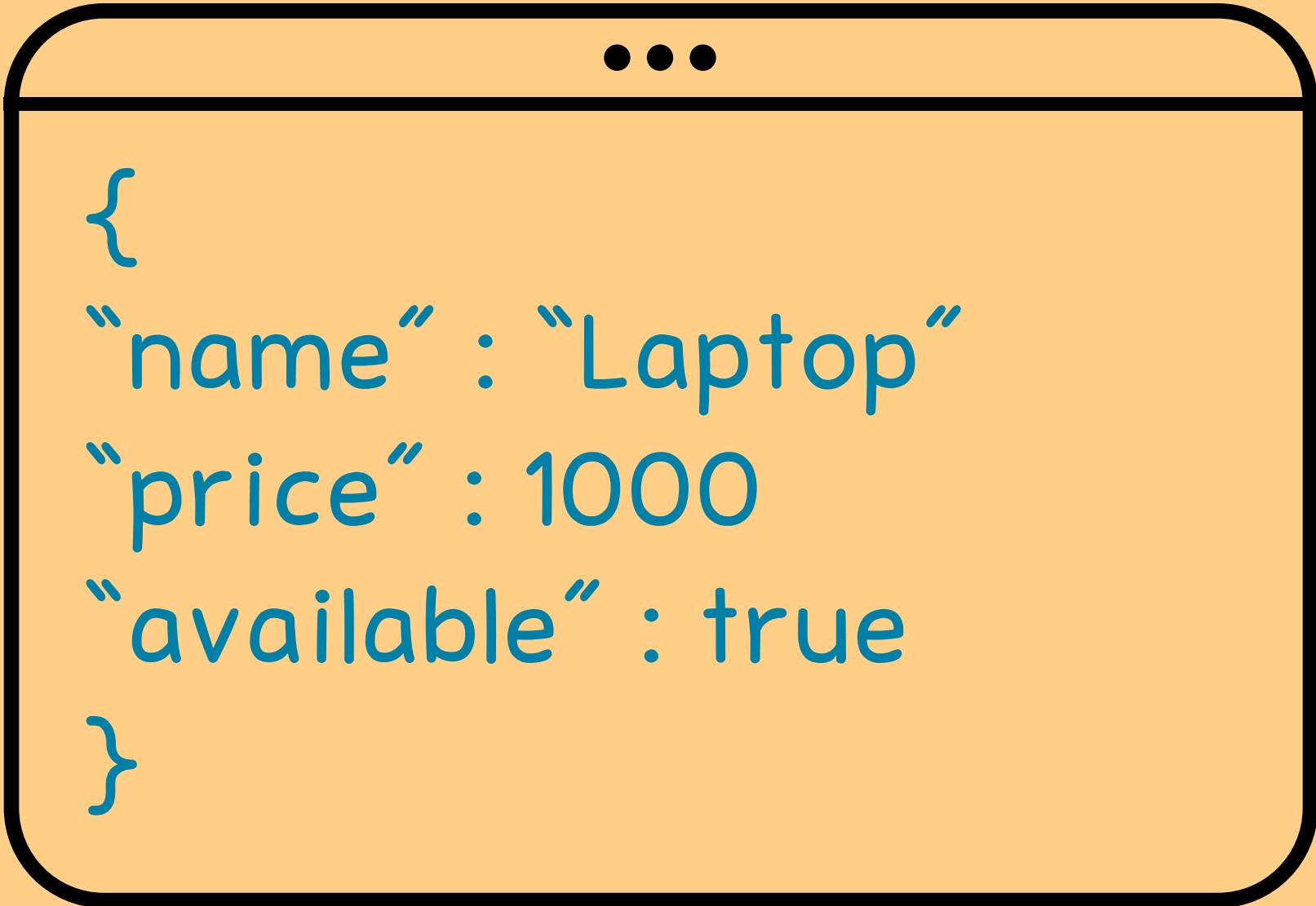
Every URL is an URI, but not all URIs are URLs.

# Body Params

Body of the **request** which contains all the data that the **server** needs to successfully process the request.

Only used in requests that must send information, such as create or update.

Example



```
{  
  "name" : "Laptop"  
  "price" : 1000  
  "available" : true  
}
```

# Parameters

Information that can be sent in a request by the client in order to influence the response by the server.

## Types

### Path Parameter

A variable in the URI path that helps in pointing towards specific resource.

`https://food.com/restaurant/1/total-orders`

1 is the path parameter (variable) which points to restaurant no 1's total orders.

### Query Parameter

A variable in URI path that helps in querying / filtering through a list of resources.

`https://food.com/products?name=cake`

name=cake is the query parameter (variable) which retrieves products with the name "cake".



# Headers

It allows sending extra information in a request, such as **authentication tokens** and **content types**.

Example



...

Authorization : Bearer token  
Accept : application/json

The diagram shows a rounded rectangular box representing a request header. At the top center, there are three dots (...). Below the dots, the text 'Authorization : Bearer token' and 'Accept : application/json' is displayed in blue. A purple arrow points from the word 'Example' to the left side of the box. A black arrow points from the right side of the box down towards the bottom right text box.

In this given example, the client is **sending extra data** informing not just it's credentials to access a resource, but also a desired **response format**.

# REST API Methods


5 Methods

1 GET 

Receive information about an API resource.

2 POST 

Create an API resource

3 PUT 

Update an API resource

4 DELETE 

Delete an API resource

5 PATCH 

Modifies an API resource

# Http Status Codes

With every request made to the server, we get **response code /http status codes** in return.

Status Codes



**2XX** : Success

**3XX** : Redirection

**4XX** : Problem with the client

**5XX** : Problem with the server