

API

Web Application Architecture

Front End



Back End



Database



Web Application Architecture

Front End

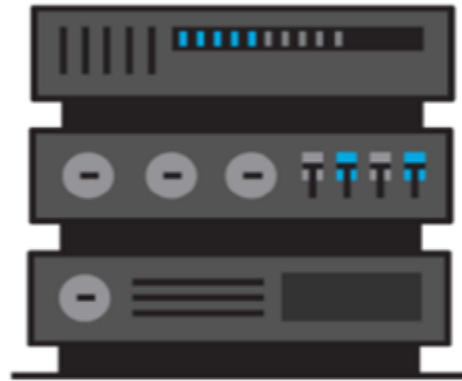


HTML, CSS, JavaScript,
jQuery, LESS, SASS,
Bootstrap, CoffeeScript
and more. Angular.js

Front End Developer
UI UX Designer..



Back End



PHP, Ruby, Python,
C#, Java, Node.js,
Swift and more

BackEnd Developers
Server side developers



Database

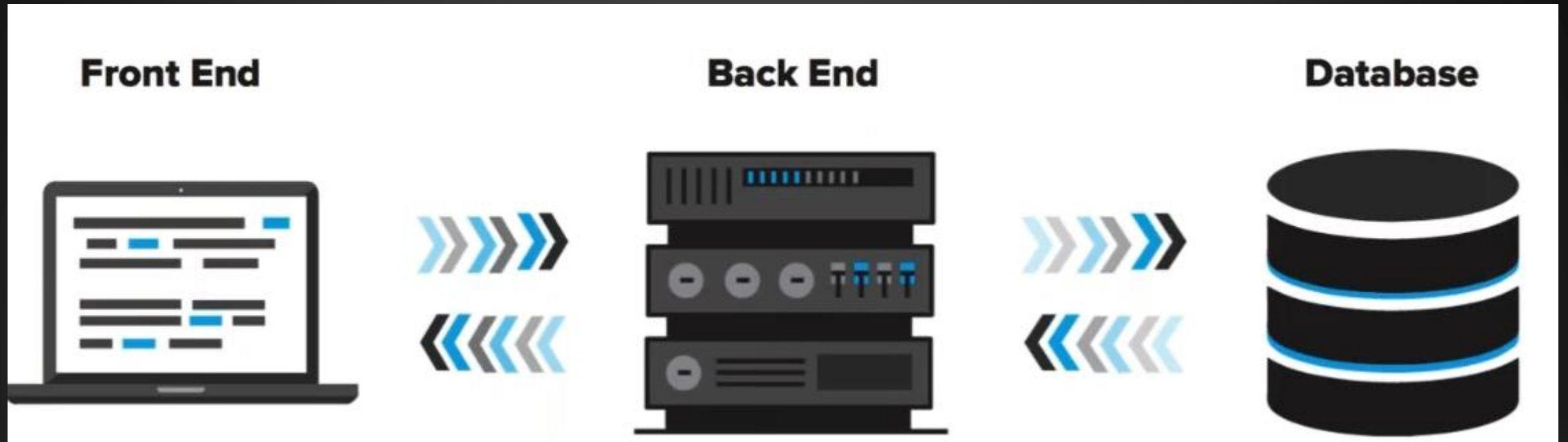


SQL

Database admins
Database developers

Full Stack Developer

FULL STACK AUTOMATION ENGINEER



Manual Testing
Black Box
Testing
Selenium
Protractor

API Testing
API Automation
RestAssured
Postman

Database Tester
Automate
Database
Test using JS
JDBC

UI-DB



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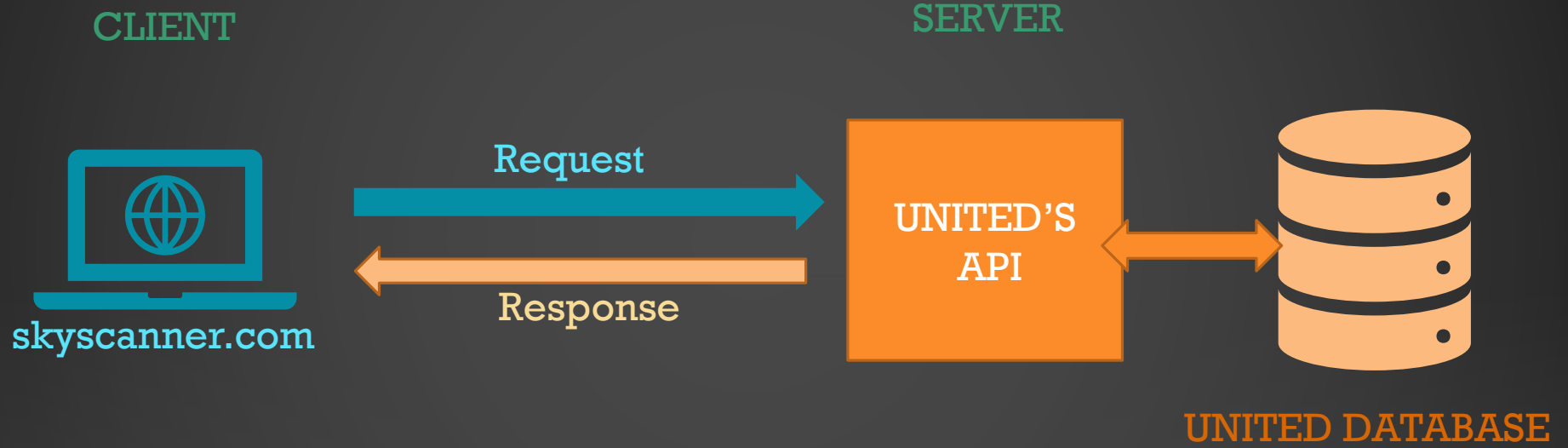


UNITED DATABASE

WHAT IS API ?

- **Application Programming Interface (API)** is a small piece of code that enables different applications and services to communicate and share information with each other.
- API also called Web Service.

API



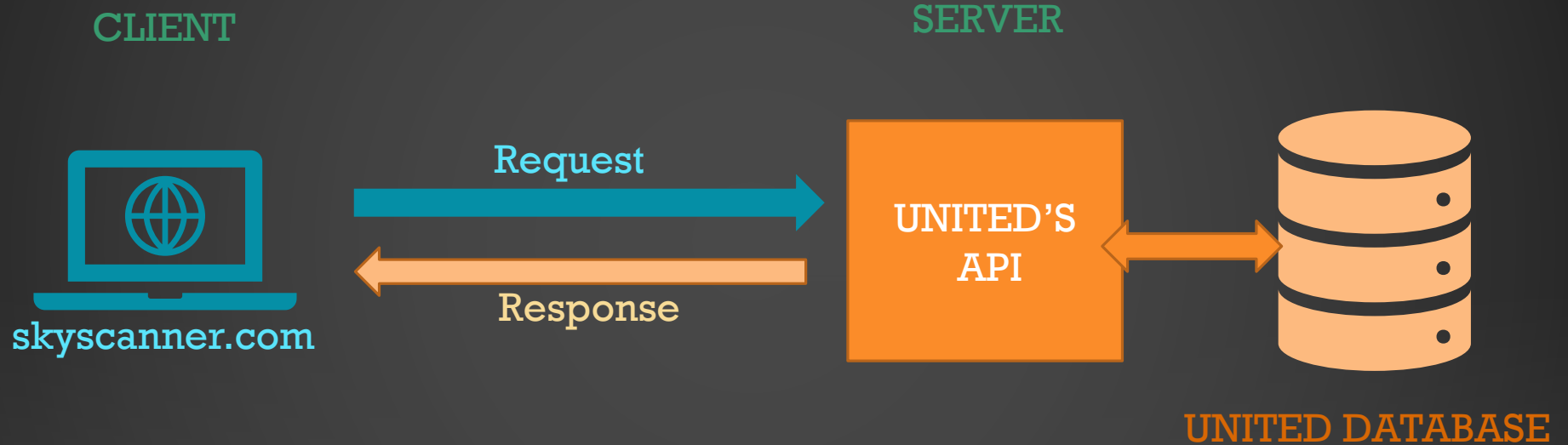
API

- There are 2 types of API
 - SOAP (Simple Object Access Protocol)
 - REST(Representational State of Transfer)

SOAP

- Soap (Simple Object Access Protocol)
- SOAP is for communication between applications
- SOAP is a format for sending messages
- SOAP communicates via internet
- SOAP is platform independent
- SOAP is based on XML

SOAP API



COMMUNICATION HAPPENS IN XML FORMAT

HOW DO WEB SERVICES COMMUNICATE WITH EACH OTHER?

- Request XML

- `<tripreq>`
 - `<source_city>DC</source_city>`
 - `<date>1/1/2016</date>`
- `</tripreq>`

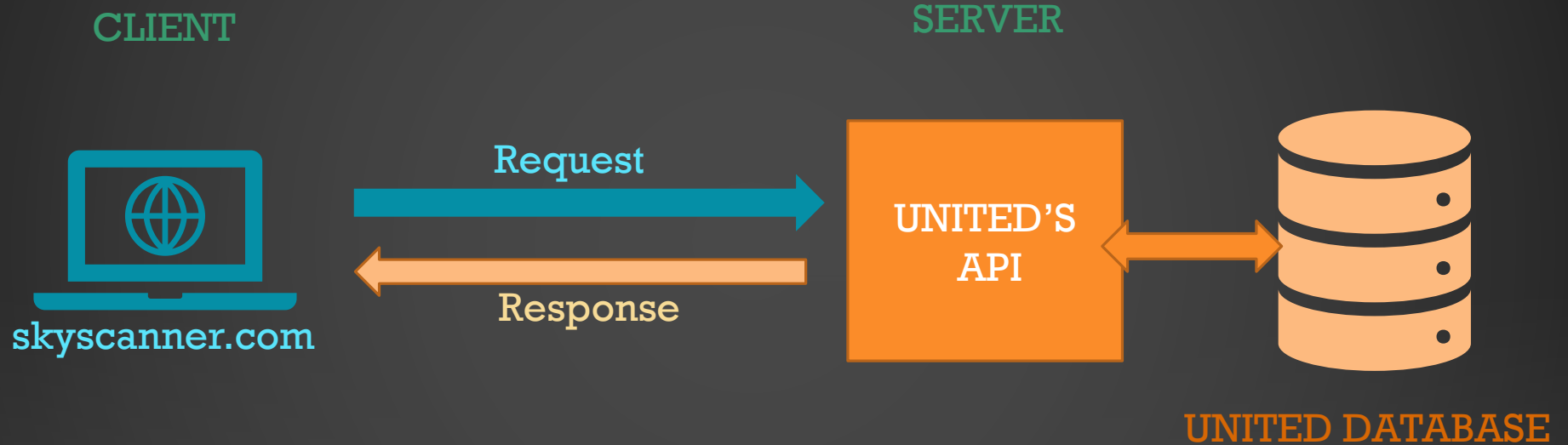
- Response XML

- `<tripresponse>`
 - `<provider_name>United</provider_name>`
 - `<cost>$1000</cost>`
- `</tripresponse>`

REST WEB SERVICES

- REST(Representational State of Transfer) is a lightweight option for developing web services using the HTTP protocol.
 - It can structure data into XML or any other machine readable format, but usually JSON
 - Rest is very data driven, compared to SOAP, which is strongly function driven.

RESTFUL API



COMMUNICATION HAPPENS IN JSON OR XML FORMAT

SOAP VS. REST

- SOAP is not popular anymore
- 80% of the market is using REST
- SOAP is XML Response, REST IS XML and JSON
- REST is purely http protocol

We can hit the link on the browser and see the results.

WHAT IS AN API TESTING?

- API testing is entirely different from GUI testing and mainly concentrates on the business logic layer of the software architecture. This testing won't concentrate on the look and feel of an application.
- Instead of using standard user inputs(keyboard) and outputs, in API Testing, you use software to send calls to the API, get output, and note down the system's response.

WHAT IS AN API TESTING?

API Testing requires an application to interact with API. In order to test an API, you will need to

1. Use Testing Tool to drive the API
2. Write your own code to test the API

WHY API TESTING IS IMPORTANT?

- Faster to test than GUI testing
- Without a UI, it can be tested earlier in the life cycle
- Becoming more popular in the industry

TYPES OF HTTP REQUESTS

- GET – Retrieves the data from a specified source
- POST- Sends new data to a specified source
- PUT- Updates info for a specified source
- DELETE- Removes data from a specified source

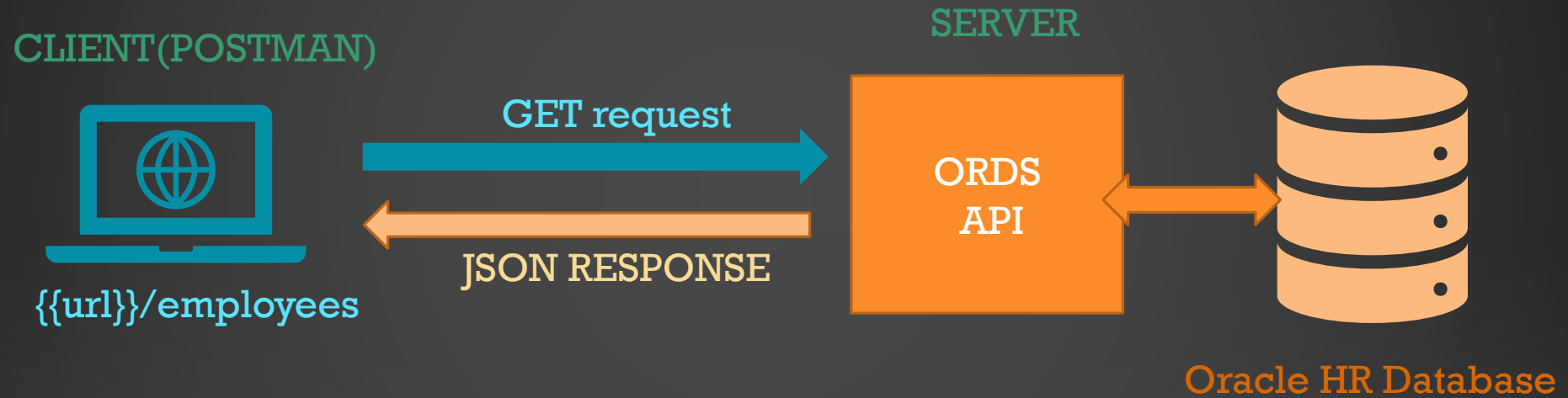
HOW TO SEND A REQUEST ?

- Each REST api has endpoint/URLs/URIs
- Builders of API will create public URLs. and Requests are sent to that url.

POSTMAN

- Is a RESTAPI client tool that helps to test REST API urls.
- It is popular for both developers and testers.
- We can use both manual and automation purposes.
- It uses Chai library to write test cases.

POSTMAN



HTTP STATUS CODE

- 200 -> OK
- 400 -> CLIENT'S ERROR
- 500 -> SERVER/API'S ERROR

HTTP Status Codes		
Level 200 (Success) 200 : OK 201 : Created 203 : Non-Authoritative Information 204 : No Content	Level 400 400 : Bad Request 401 : Unauthorized 403 : Forbidden 404 : Not Found 409 : Conflict	Level 500 500 : Internal Server Error 503 : Service Unavailable 501 : Not Implemented 504 : Gateway Timeout 599 : Network timeout 502 : Bad Gateway

FIRST TEST CASE

- When I send a **GET** request to <http://34.230.53.156:1000/ords/hr/departments>
- Then Response **STATUS CODE** must be **200**
- And I Should see Departments Data in JSON Format

REST ASSURED

- It is a BDD library to automate APIs

```
<dependency>
```

```
  <groupId>io.rest-assured</groupId>
```

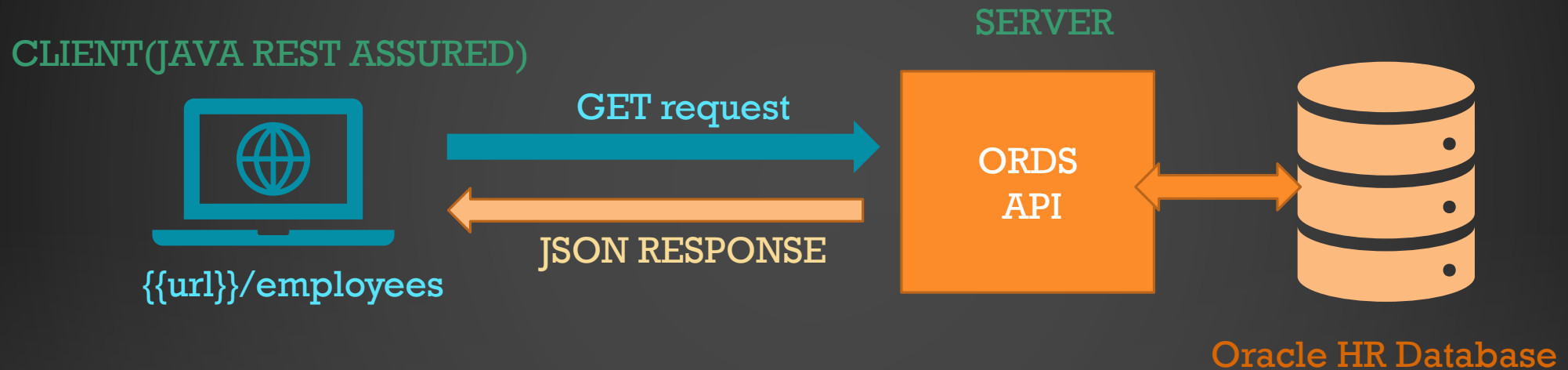
```
  <artifactId>rest-assured</artifactId>
```

```
  <version>3.2.0</version>
```

```
  <scope>test</scope>
```

```
</dependency>
```

REST ASSURED



PARAMETERS

- Parameters are options you can pass with the endpoint (such as specifying the response format or the amount returned) to influence the response
- 2 Types of Parameters
 - Query Parameters
 - Path Parameters

QUERY PARAMETERS

- It is not part of url and passed in **key+value** format
- **?** means and of url

`https://www.google.com/search?q=protractor`



PATH PARAMATER

- is a part of URL and followed by the end of full resource url
- <http://34.223.219.142:1212/ords/hr/employees/{id}>



Path parameter