



# REST API, *SPRING FRAMEWORK & SPRING BOOT* {REST}

1. REST API
2. Spring Framework
3. Spring Boot



WEB

API



# 1. REST API

## ➤ What is a REST API?

**REST** is an architectural style that uses standard **HTTP methods** (GET, POST, PUT, DELETE) and is commonly used in the **development of web applications**.

An **API** (**A**pplication **P**rogramming **I**nterface) is a **set of rules and protocols that allows software applications to communicate with each other**.

A **REST API** (**R**epresentational **S**tate **T**ransfer **A**pplication **P**rogramming **I**nterface) is a **set of rules for building and interacting with web services**.

To **interact** with a REST API, developers often use **libraries or tools in their programming language, making HTTP requests** to the API endpoints and processing the responses.

## Uniform Interface

A uniform and consistent set of conventions should be followed, including the use of standard HTTP methods, status codes, and representation formats (such as JSON or XML).

## Statelessness

Each request must contain all the information to fulfill the request. The server should not store any information about the client between requests.



## Client-Server Decoupling

Client and server applications must be completely independent of each other.

## Code on Demand

Not only can be the answers static, but they may also be executable code. In this case, it should only run on-demand architecture.

## Cacheability

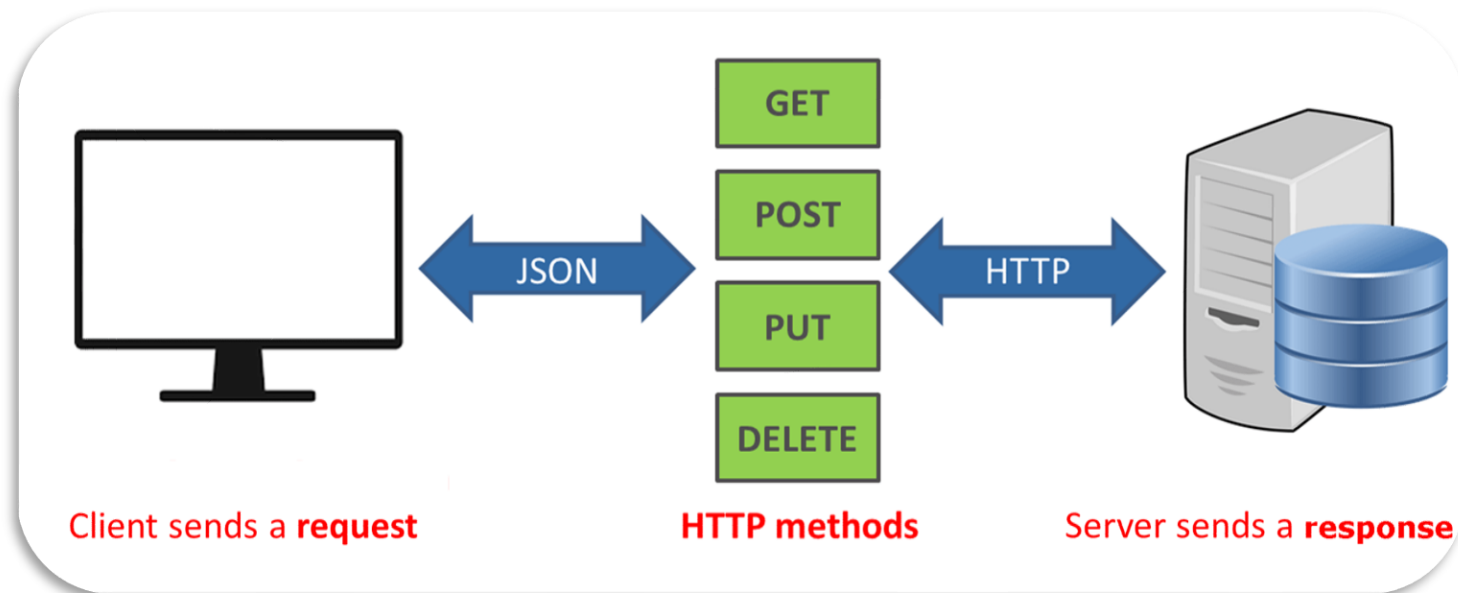
In order to improve performance on the client side and scalability on the server's one, resources should be cacheable, if possible.

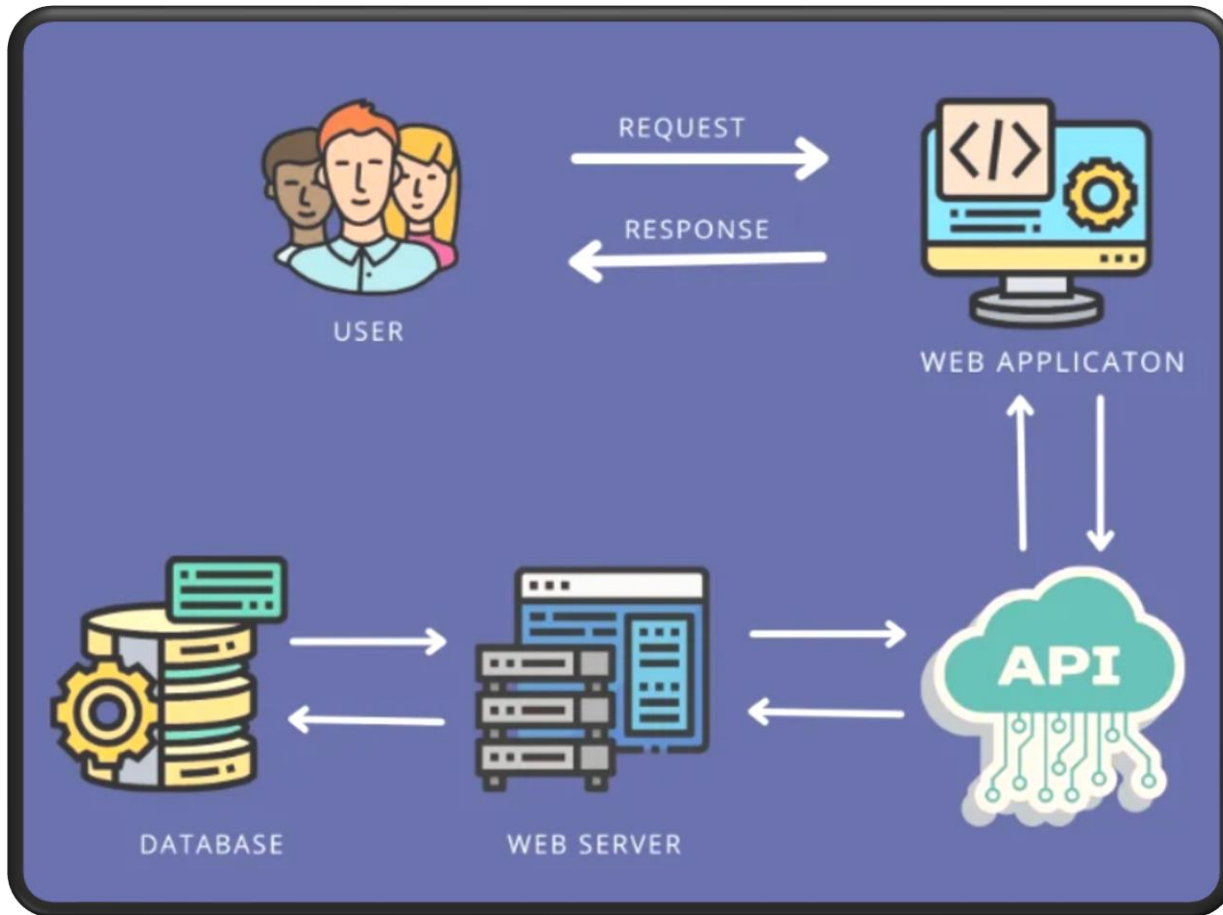
## Layers System Architecture

Calls and responses go through different layers. There may be a number of intermediaries during the communication. REST APIs have to be designed so that neither the client nor the server can tell whether it communicates with the end application or an intermediary.

## ➤ Common HTTP methods used in RESTful APIs

- **GET**: Retrieve a representation of a resource.
- **POST**: Create a new resource.
- **PUT**: Update an existing resource or create a new one if it doesn't exist.
- **DELETE**: Remove a resource.





RESTful APIs allow **different systems** to **communicate** over the **internet**.

The **client** sends **HTTP requests** to the server, and the **server responds** with the requested data or performs the requested actions.

## 2. SPRING FRAMEWORK



The Spring Framework is a **comprehensive framework** that **provides a wide range of features and functionalities** to address various concerns in **software development**.

It provides a **modular and flexible architecture** that **simplifies** the development of complex, scalable, and maintainable software systems.

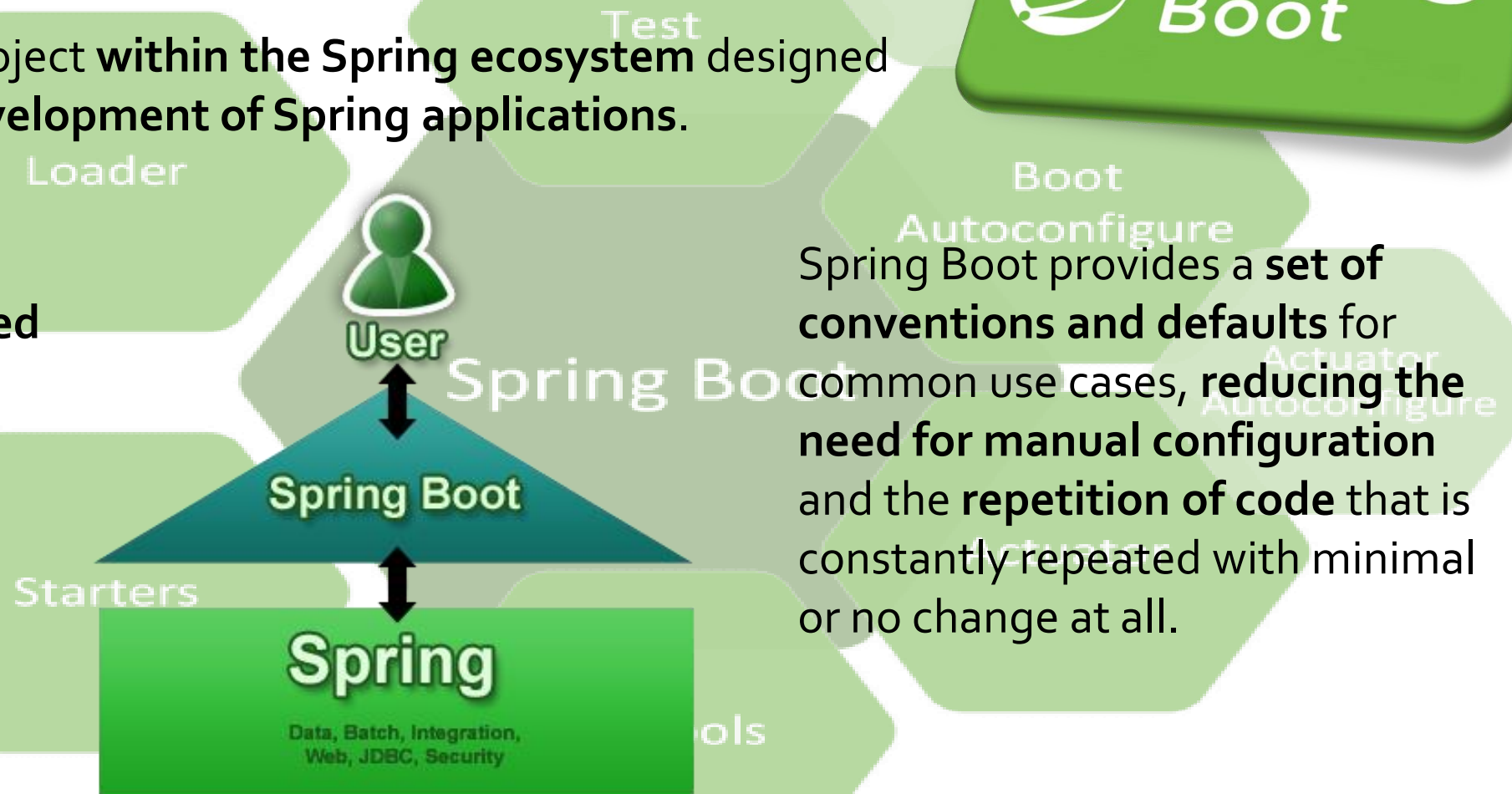
It follows the **principle of Inversion of Control (IoC)**, which **allows developers to focus on their application's business logic** while the framework takes care of infrastructure and plumbing.

Spring has become **immensely popular in the Java development community** due to its **versatility and scalability**.

### 3. SPRING BOOT

Spring Boot is a project **within the Spring ecosystem** designed to **simplify the development of Spring applications**.

It is a solution to **create Spring-based applications** in a **fast, autonomous** way and with desirable **features for production**.



Spring Boot provides a **set of conventions and defaults** for common use cases, **reducing the need for manual configuration** and the **repetition of code** that is constantly repeated with minimal or no change at all.

# Key Features of Spring Boot



Embed Tomcat or  
Jetty without  
deploying WAR files

**jetty://**

Test  
Autoconfigure



Opinionated 'starter' POMs  
to simplify Gradle/Maven  
configuration



Autoconfigure

Production-ready features  
(metrics, health checks,  
externalized configuration)

No requirement for XML  
configuration

No code  
generation

Smooth  
Integration and  
supports all EIP

Automatically configure  
Spring, when possible

Create stand-alone  
Spring applications

CLI



Bo



*Thank you so much*

