

# Overview of Spring & Spring Boot

**Douglas C. Schmidt**

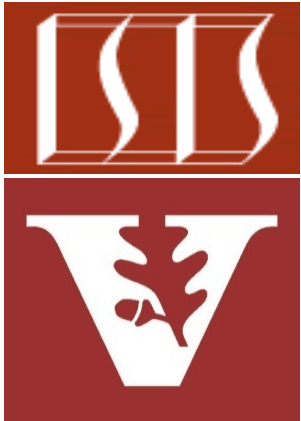
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**Institute for Software  
Integrated Systems**

**Vanderbilt University  
Nashville, Tennessee, USA**



# Learning Objectives in this Lesson

- Understand what Spring & Spring Boot are



## Spring Boot

Takes an opinionated view of building Spring applications and gets you up and running as quickly as possible.



## Spring Framework

Provides core support for dependency injection, transaction management, web apps, data access, messaging, and more.



## Spring Data

Provides a consistent approach to data access – relational, non-relational, map-reduce, and beyond.



## Spring Cloud

Provides a set of tools for common patterns in distributed systems. Useful for building and deploying microservices.



## Spring Cloud Data Flow

Provides an orchestration service for composable data microservice applications on modern runtimes.



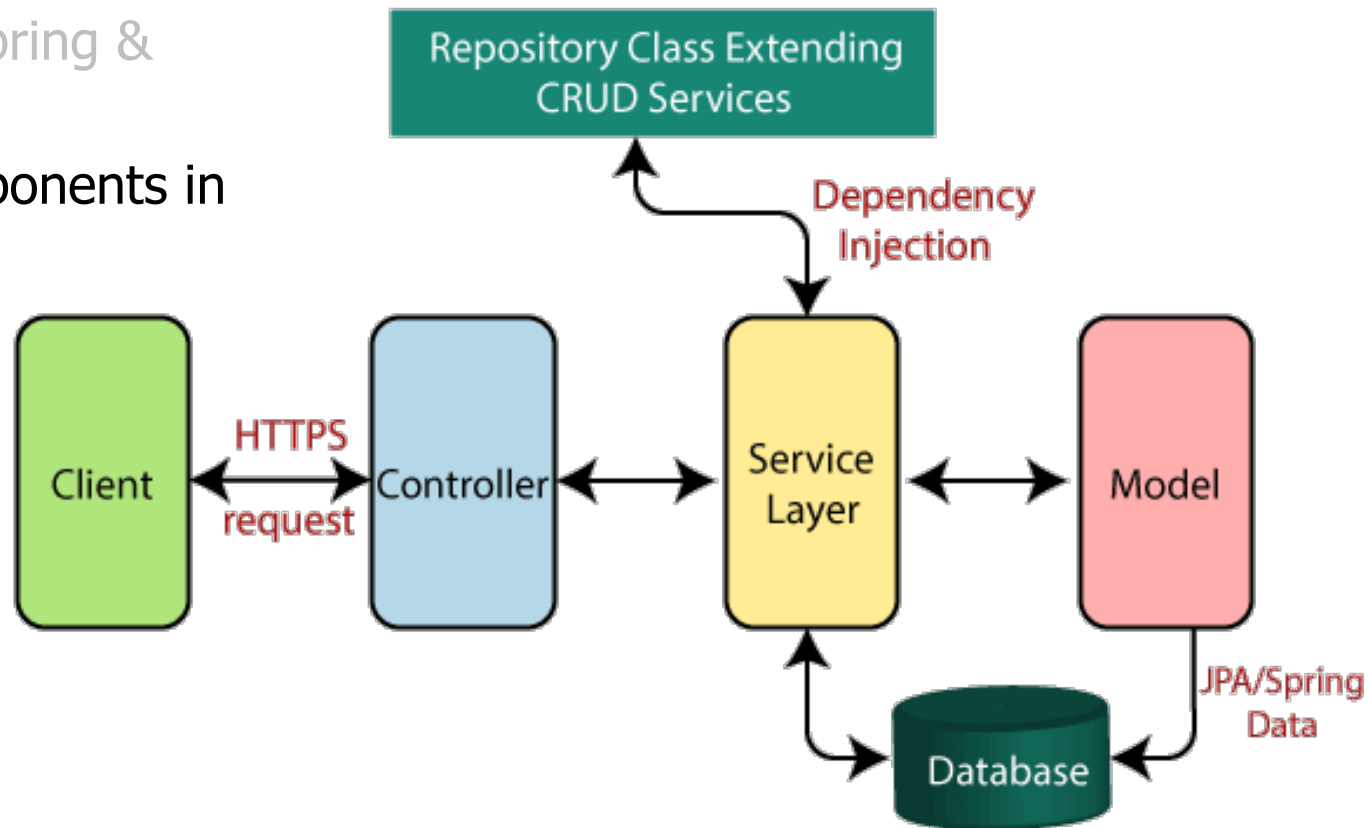
## Spring Security

Protects your application with comprehensive and extensible authentication and authorization support.

See [spring.io/projects](https://spring.io/projects)

# Learning Objectives in this Lesson

- Understand what Spring & Spring Boot are
- Recognize key components in Spring Boot



See [spring.io/projects/spring-boot](https://spring.io/projects/spring-boot)

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# Overview of Spring & Spring Boot

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- Spring is a dependency-injection framework & an inversion of control container for developing web apps on the Java platform



spring

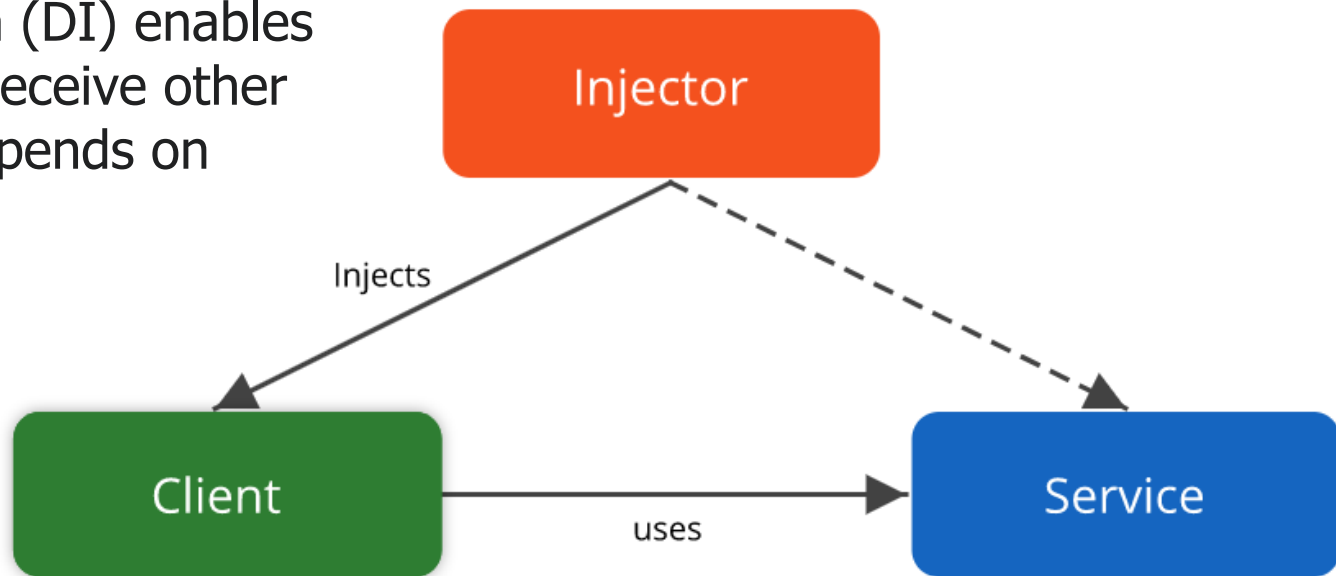
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See [spring.io](https://spring.io)

# Overview of Spring & Spring Boot

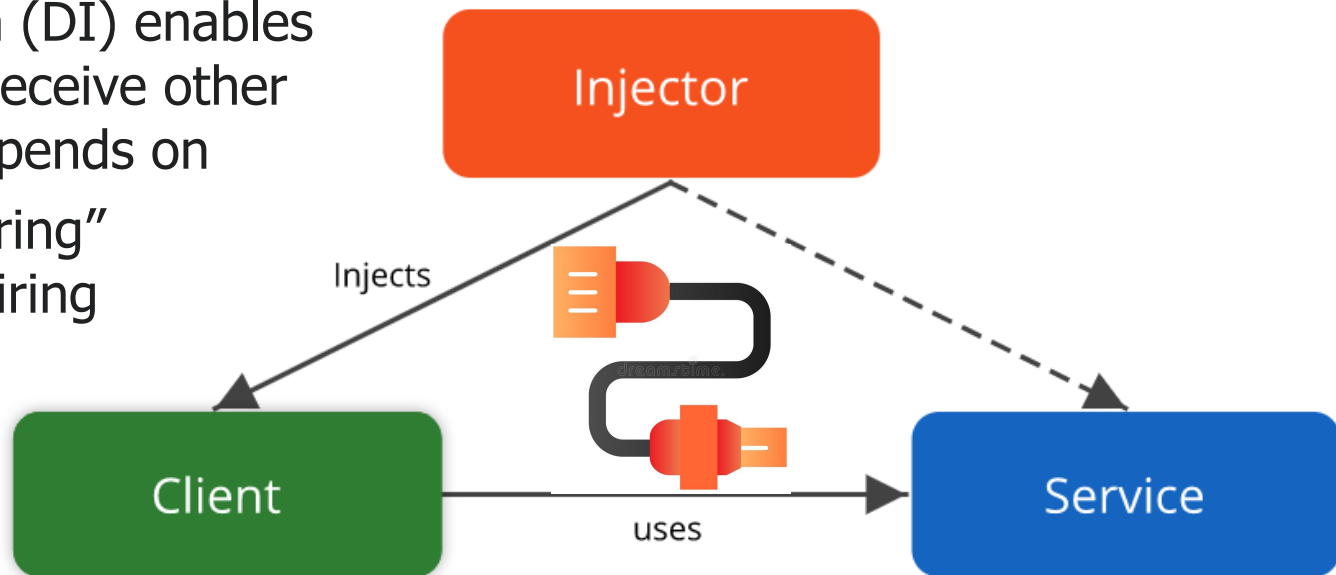
- Dependency injection (DI) enables an object/service to receive other objects/services it depends on



See [en.wikipedia.org/wiki/Dependency\\_injection](https://en.wikipedia.org/wiki/Dependency_injection)

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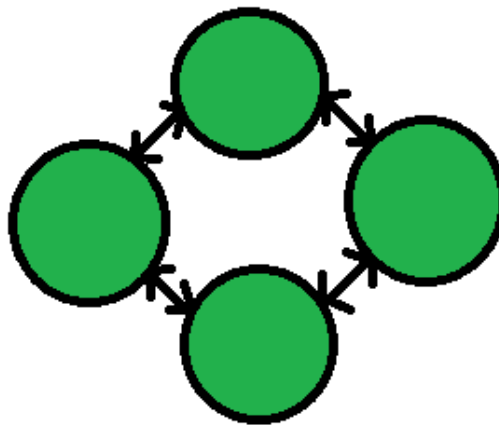
- Dependency injection (DI) enables an object/service to receive other objects/services it depends on
- DI enables “autowiring” in lieu of manual wiring



See [www.baeldung.com/spring-autowire](http://www.baeldung.com/spring-autowire)

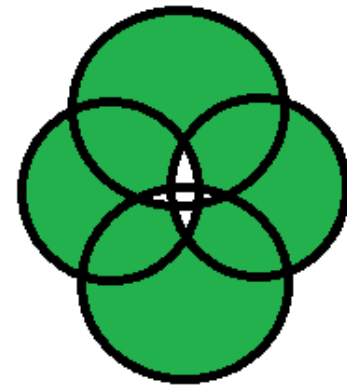
# Overview of Spring & Spring Boot

- Dependency injection (DI) enables an object/service to receive other objects/services it depends on
  - DI enables “autowiring” in lieu of manual wiring
- Separates the concerns of constructing objects & using them, leading to loosely coupled programs



## Loose coupling:

1. Less Interdependency
2. Less coordination
3. Less information flow



## Tight coupling:

1. More Interdependency
2. More coordination
3. More information flow



# Overview of Spring & Spring Boot

- With inversion of control (IoC) the framework runs the main execution thread(s)



See [en.wikipedia.org/wiki/Inversion\\_of\\_control](https://en.wikipedia.org/wiki/Inversion_of_control)

# Overview of Spring & Spring Boot

- With inversion of control (IoC) the framework runs the main execution thread(s)
  - Implements the “Hollywood Principle”

Don't call us, we'll call you



# Overview of Spring & Spring Boot

- Spring contains various projects



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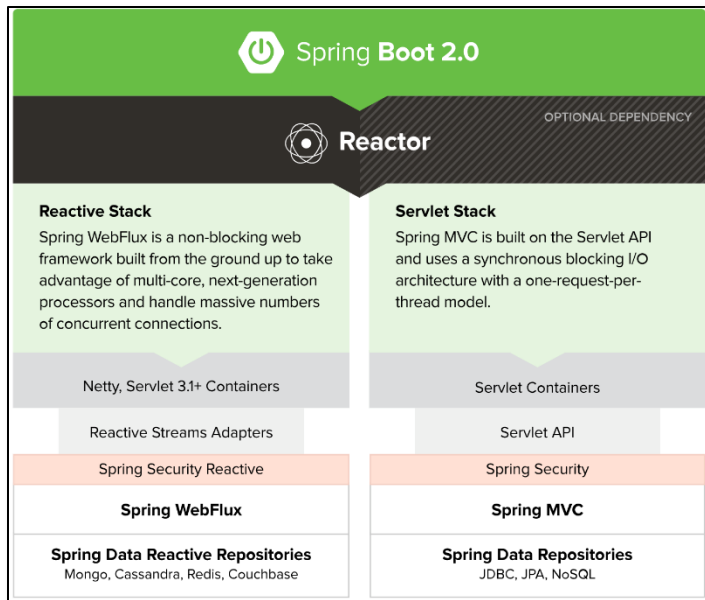
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# Overview of Spring & Spring Boot

- Spring contains various projects
  - We focus on Spring Boot 2.0



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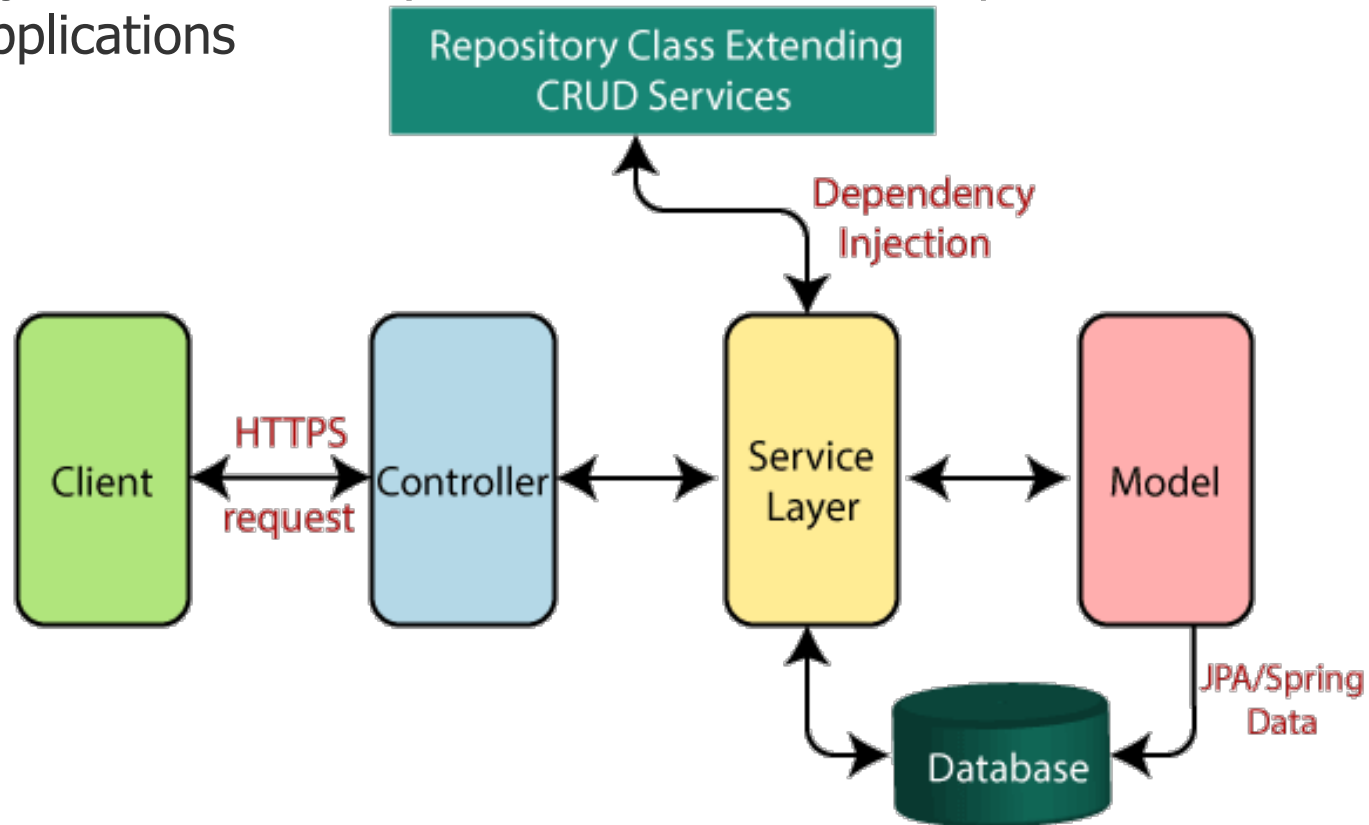
See [www.baeldung.com/new-spring-boot-2](http://www.baeldung.com/new-spring-boot-2)

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# Key Components in Spring Boot

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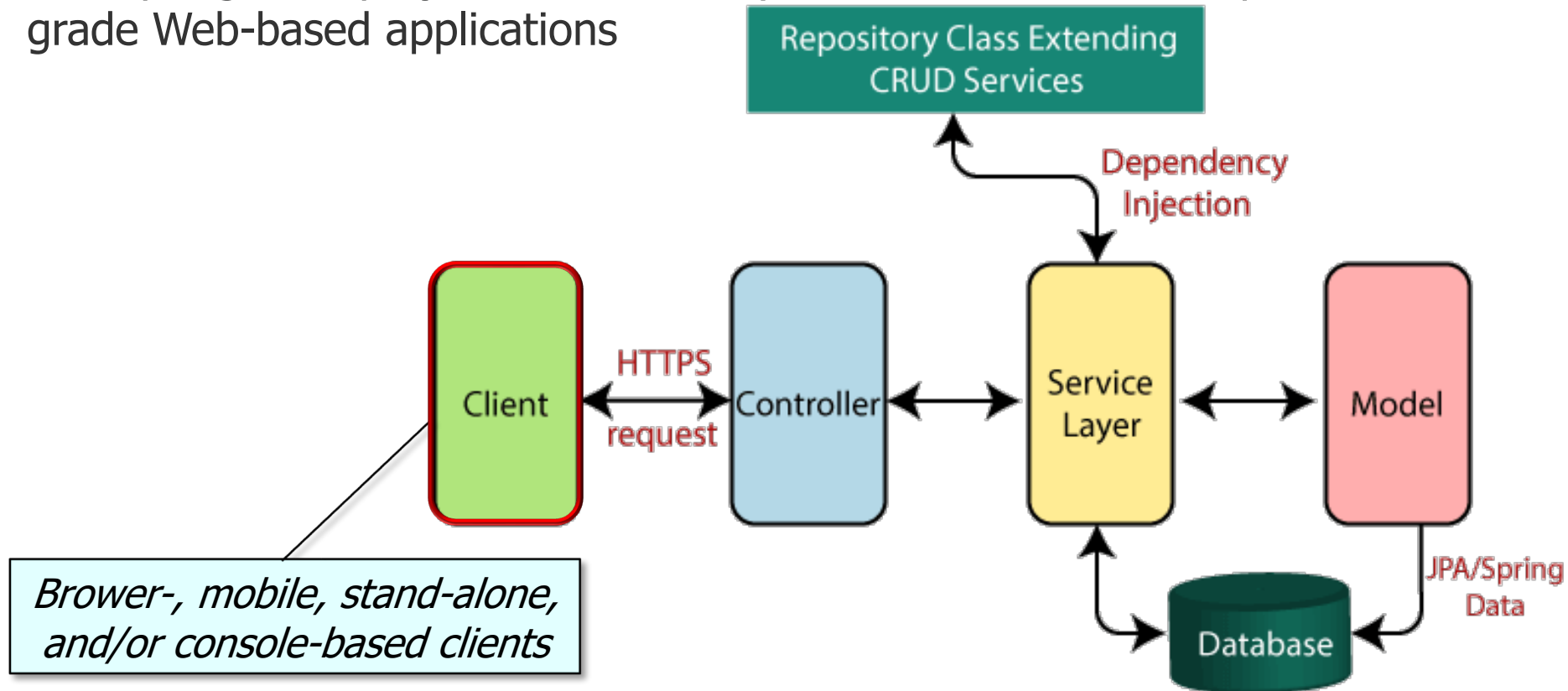
- The Spring Boot project makes it easy to create stand-alone, production-grade Web-based applications



See [spring.io/projects/spring-boot](https://spring.io/projects/spring-boot)

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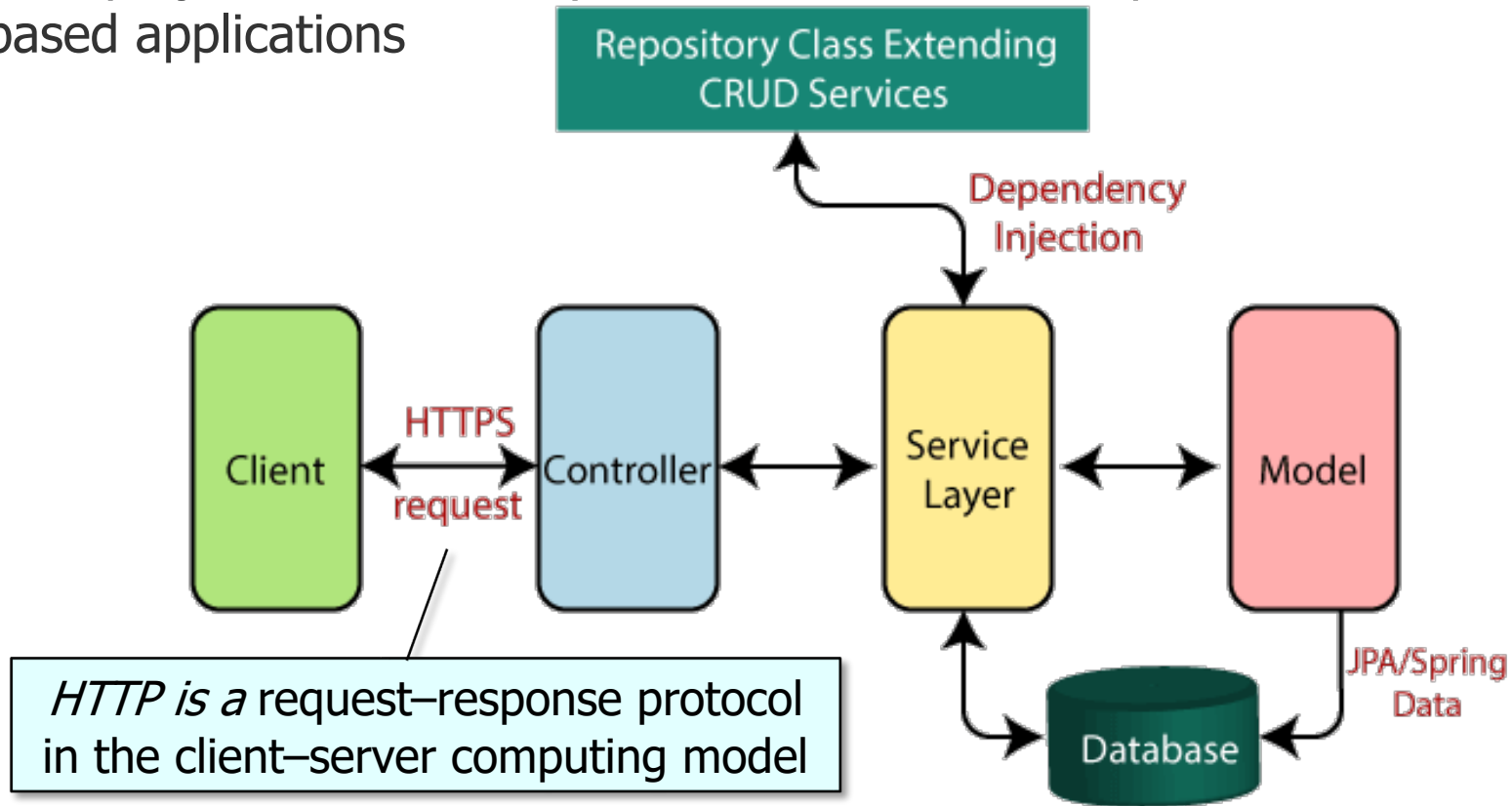
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See [en.wikipedia.org/wiki/Client\\_\(computing\)](https://en.wikipedia.org/wiki/Client_(computing))

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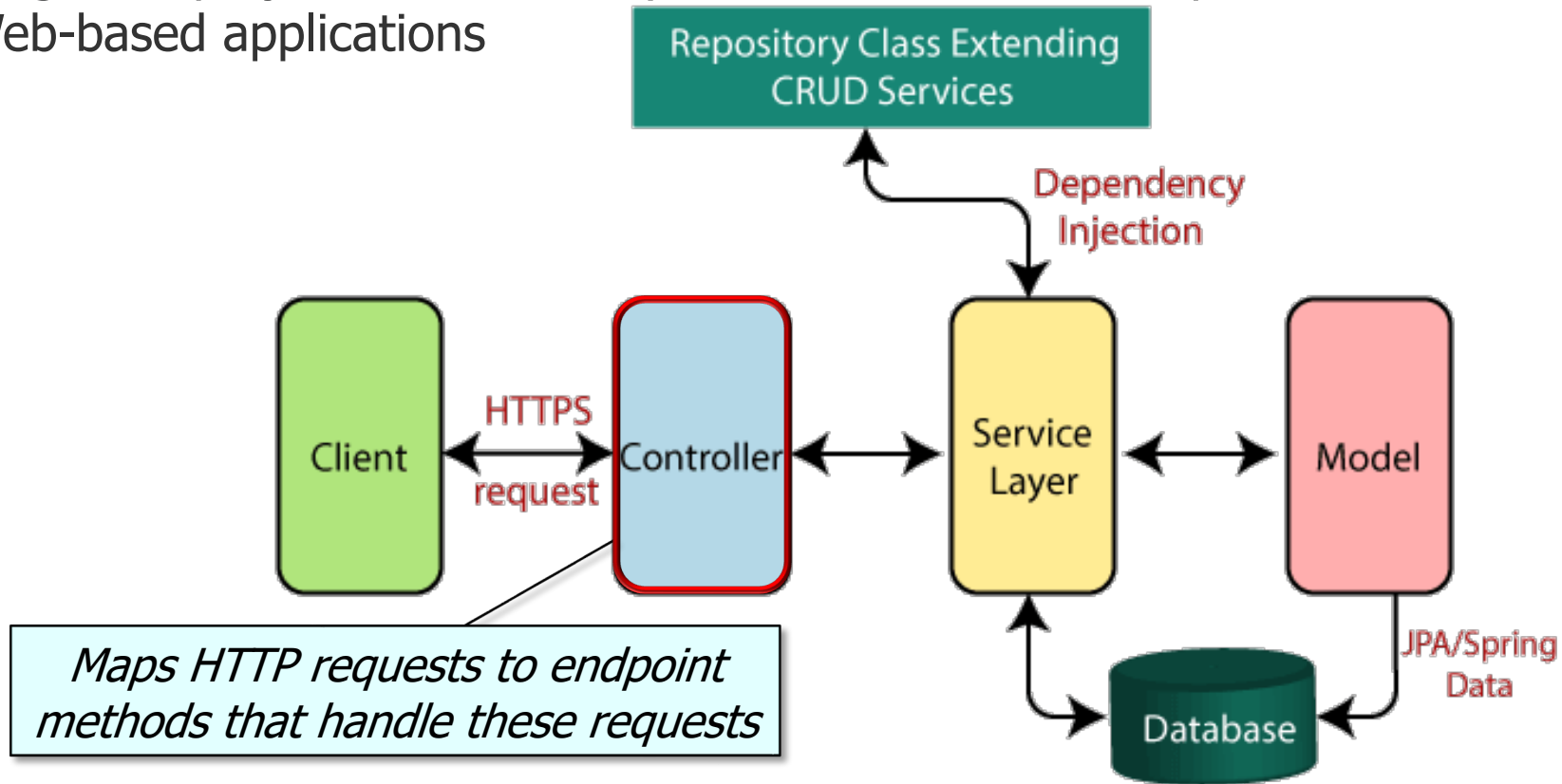


See [en.wikipedia.org/wiki/Hypertext\\_Transfer\\_Protocol](https://en.wikipedia.org/wiki/Hypertext_Transfer_Protocol)



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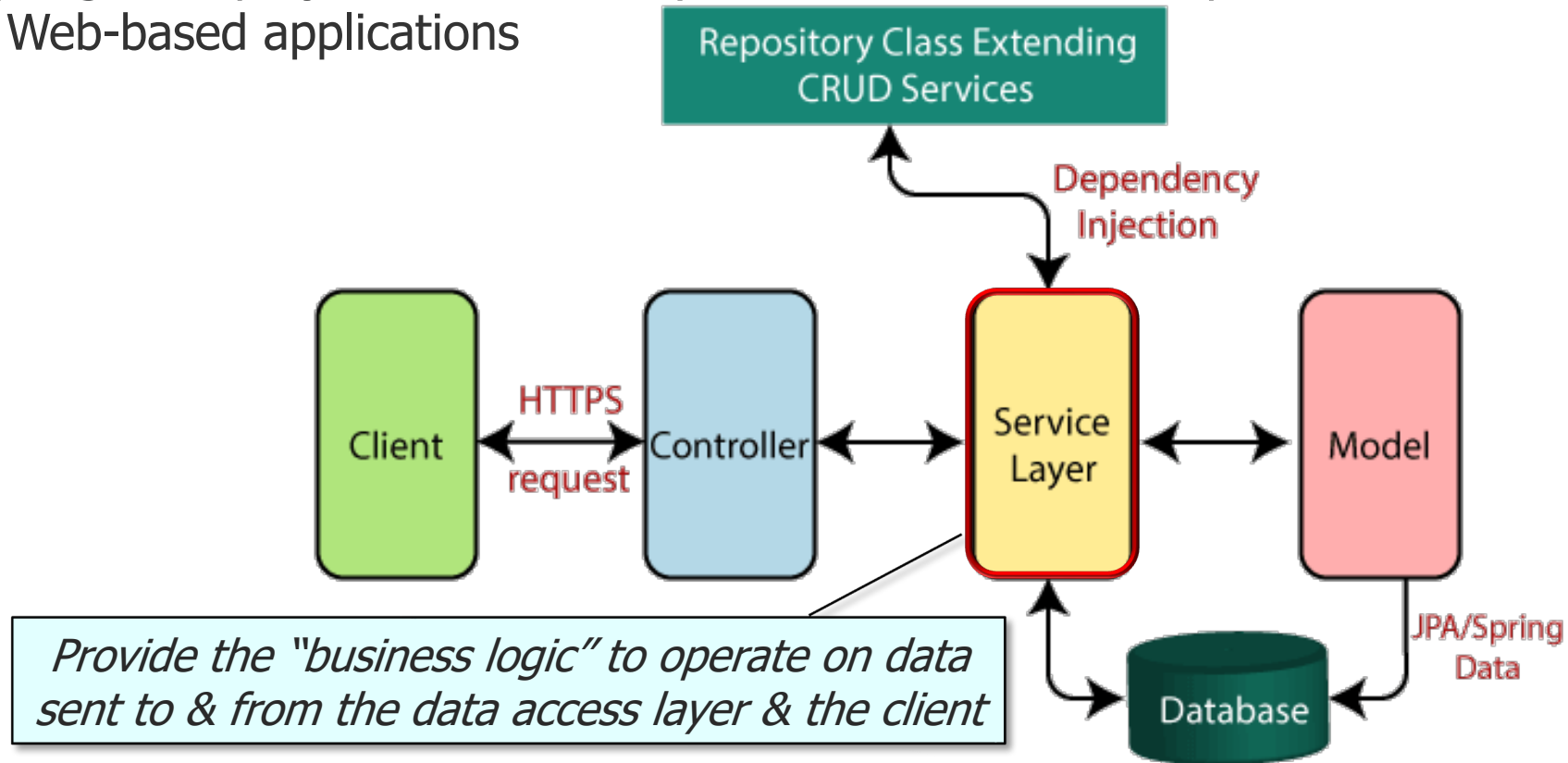
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See [spring.io/guides/gs/rest-service](https://spring.io/guides/gs/rest-service)

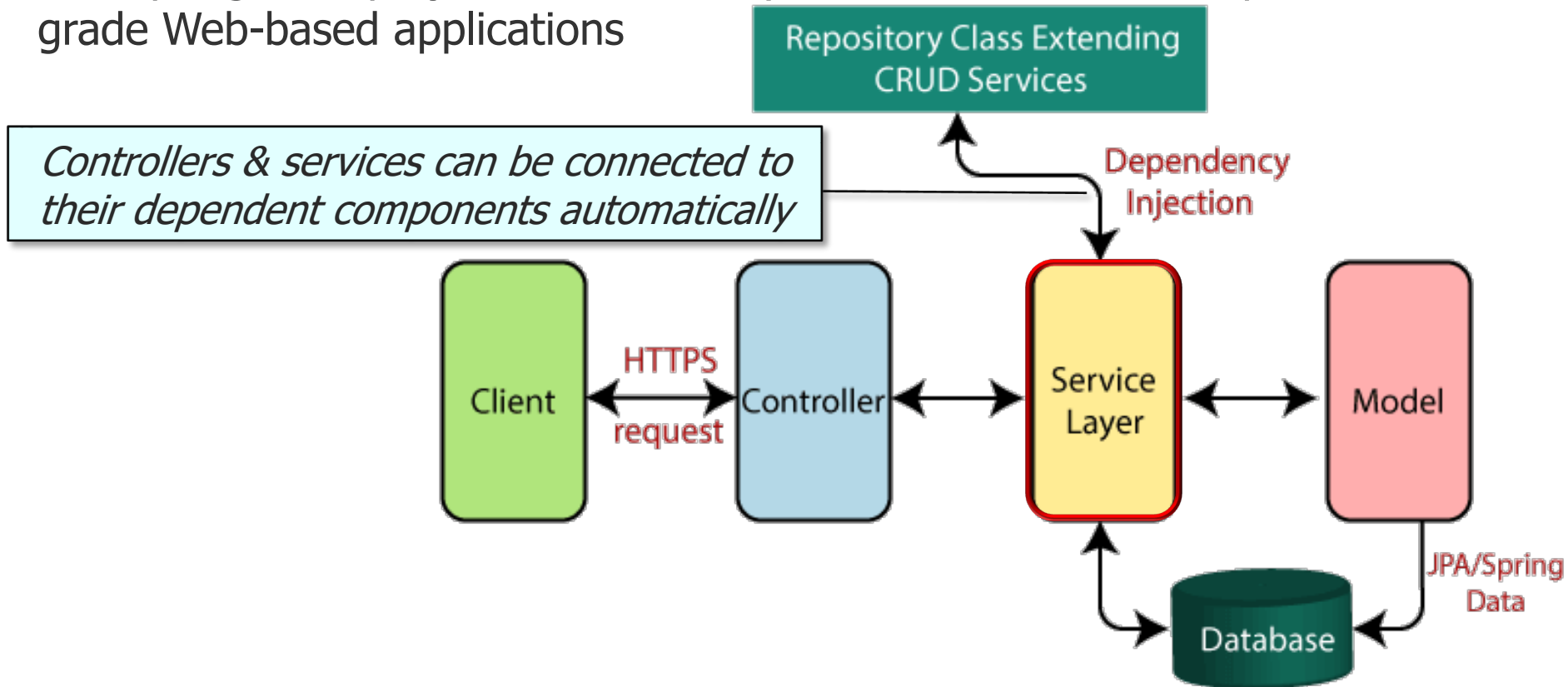
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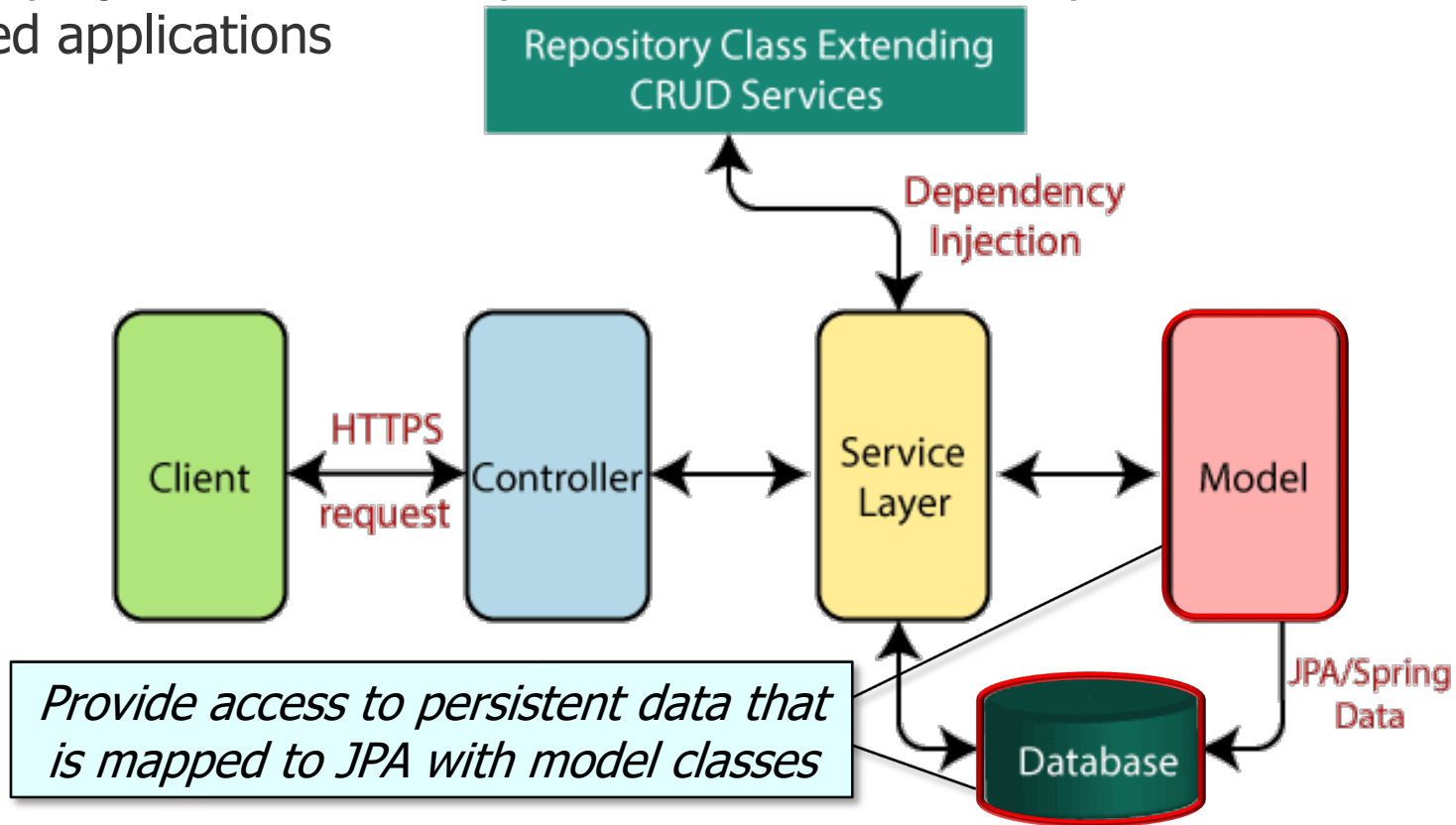
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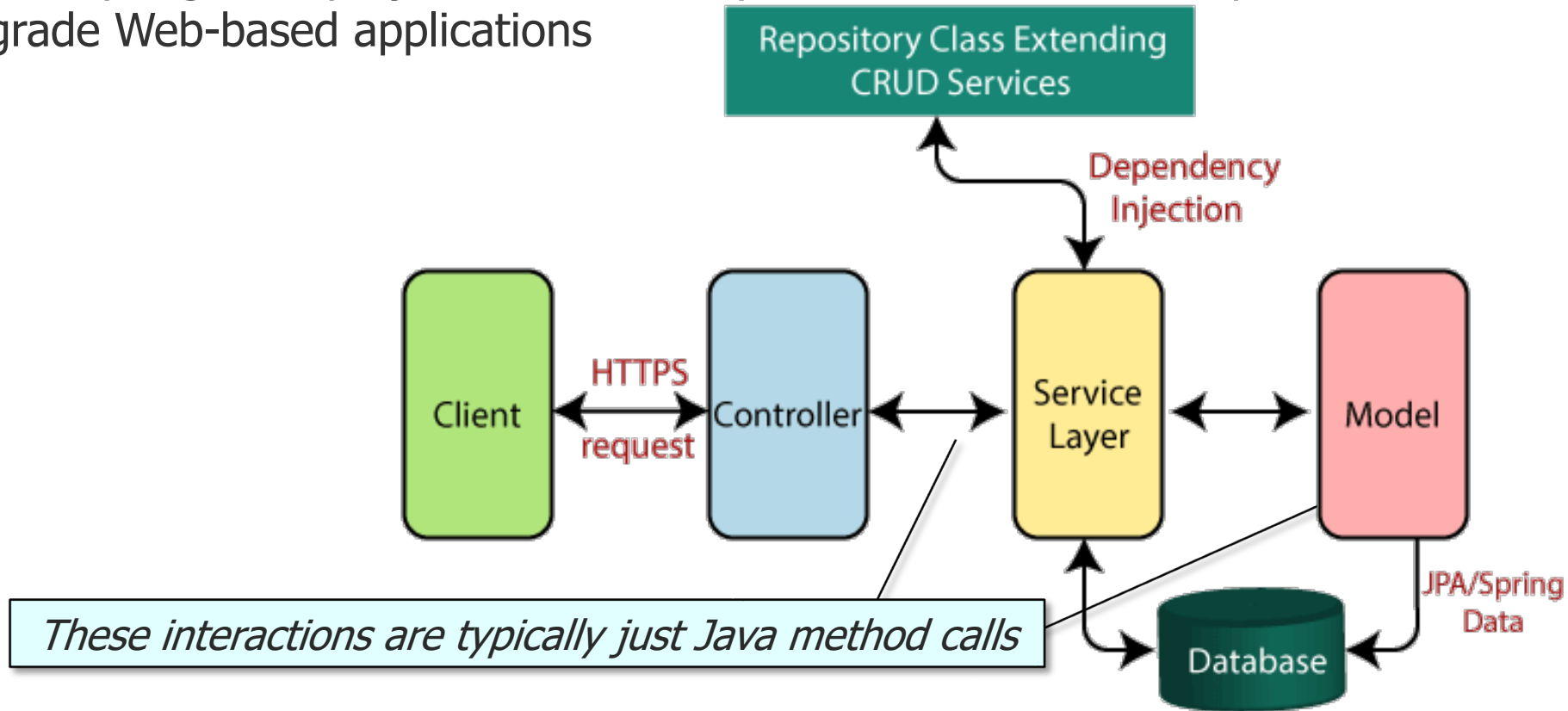
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See [blogs.oracle.com/javamagazine/mastering-the-mechanics-of-java-method-invocation](https://blogs.oracle.com/javamagazine/mastering-the-mechanics-of-java-method-invocation)

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# End of Overview of Spring & Spring Boot