

# Spring Framework: Enterprise Java Development Simplified

Spring powers over 45% of enterprise Java applications globally. Created by Rod Johnson in 2003, it's now maintained by Pivotal.

This comprehensive framework offers robust infrastructure support for building enterprise applications through a modular, loosely coupled approach.

**N** by Naresh Chaurasia



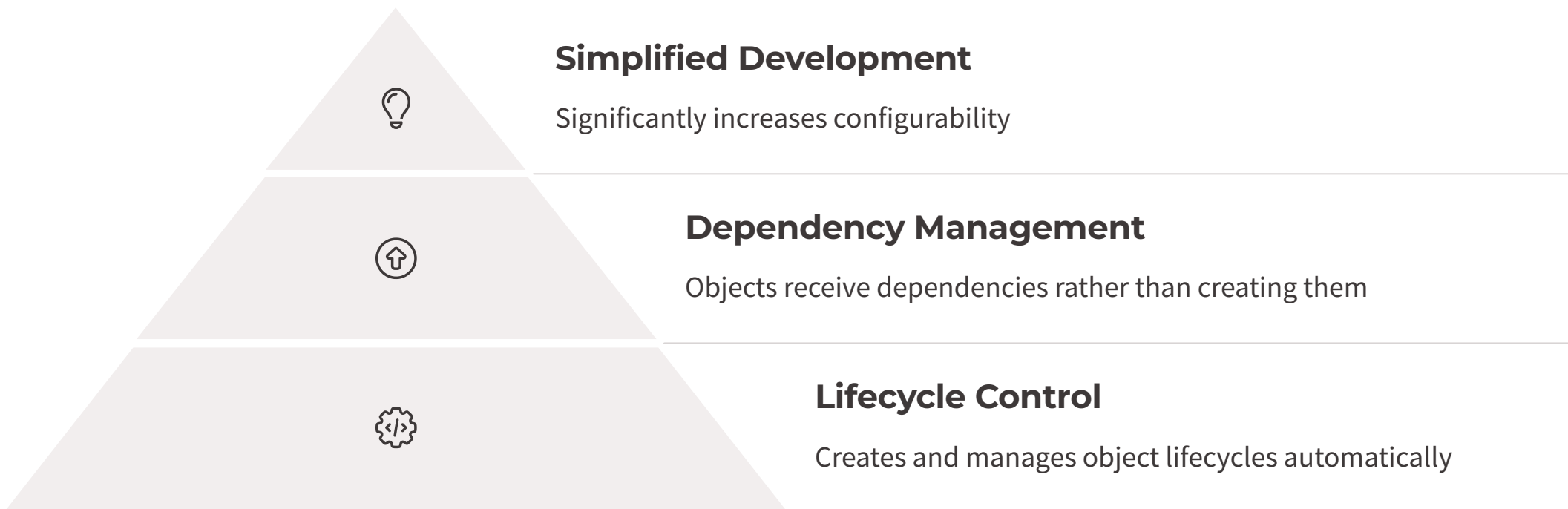
# What is Spring Framework?

Spring provides a complete Java application development solution. It simplifies Java EE development with a POJO-based approach.

The framework enables enterprise-level applications through infrastructure support and modular design principles.



# Core Features: Inversion of Control (IoC)



# Core Features:

## Dependency Injection



### Define Dependencies

Specify what objects your component needs



### Spring Container Magic

Container identifies and prepares dependencies



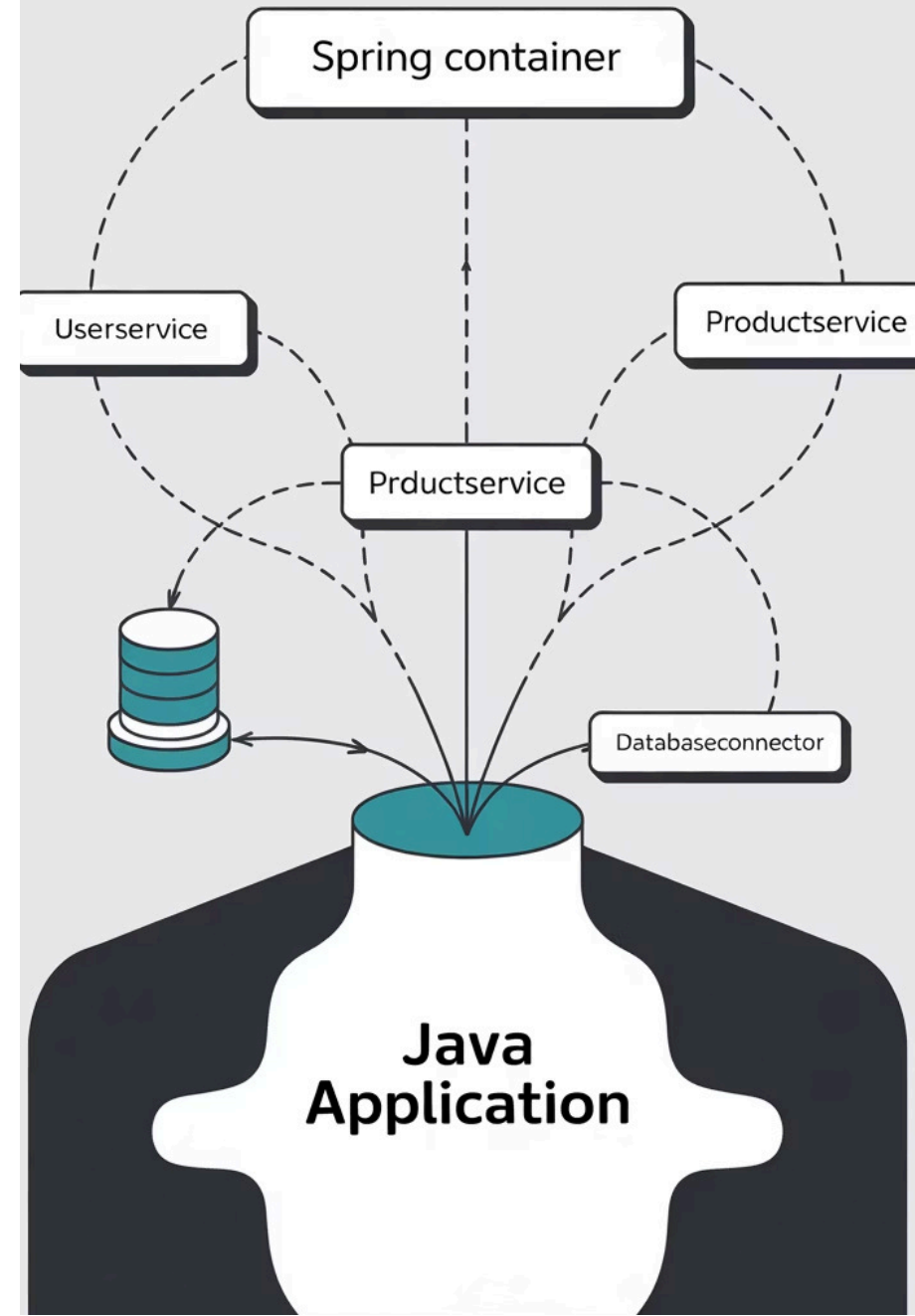
### Automatic Injection

Dependencies provided at runtime via constructor or setter



### Ready-to-Use Object

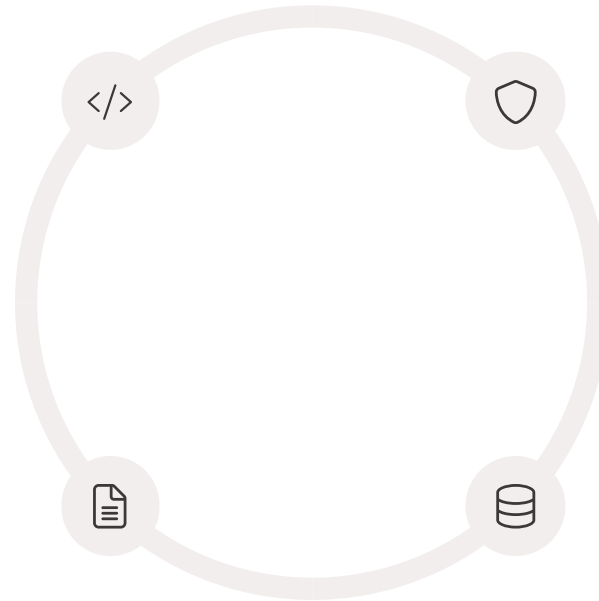
Your component has everything it needs



# Core Features: Aspect-Oriented Programming

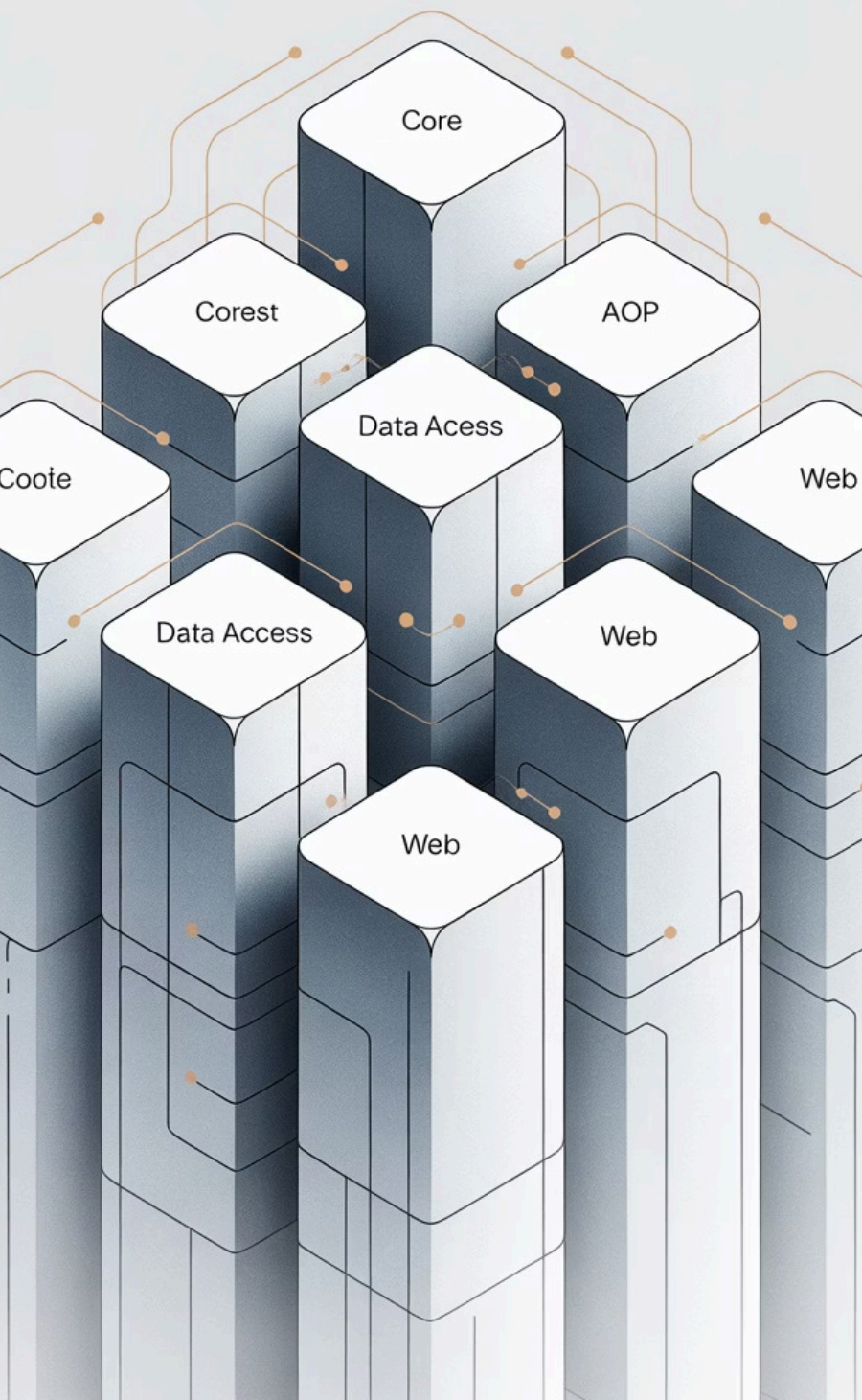
**Business Logic**  
Core functionality of application components

**Logging**  
Application activity tracking



**Security**  
Authentication and authorization aspects

**Transactions**  
Database transaction management



# Spring Architecture: Modular Design

## Core Container

Fundamental modules including spring-core and spring-beans that provide IoC and DI

## Context

Application context implementation with spring-context and support packages

## Data Access/Integration

JDBC, ORM, and transaction management modules for database operations

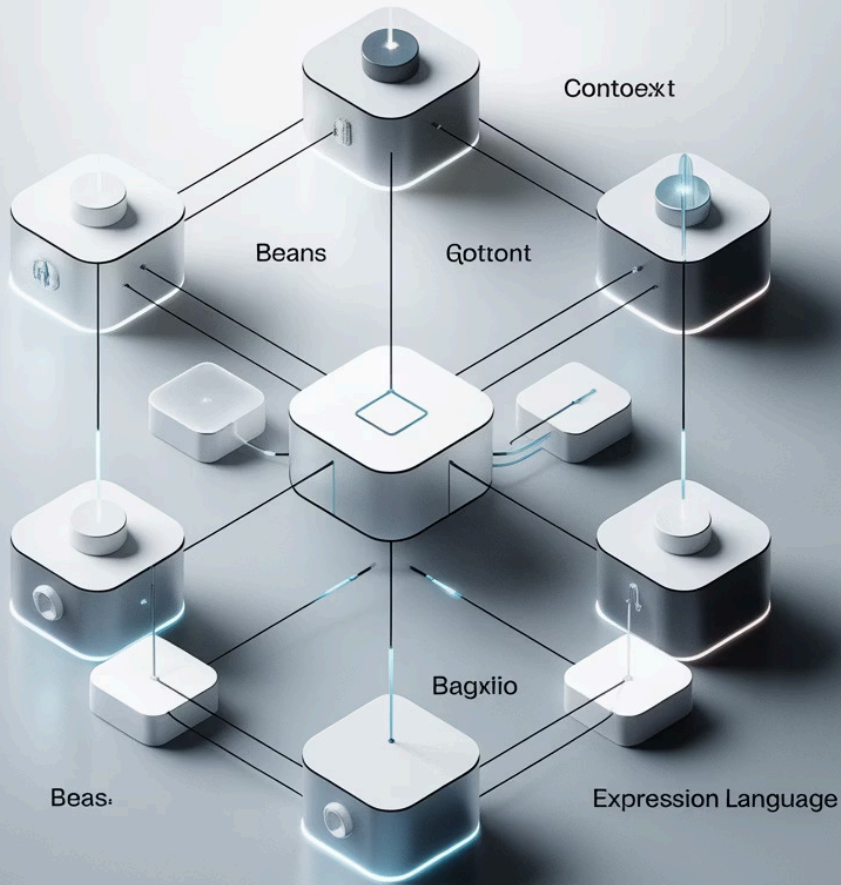
## Web & Test

Web application support and comprehensive testing capabilities



# Spring

Core Container



## Core Container Components

### Core & Beans

Foundation modules implementing IoC/DI and BeanFactory patterns. These form the basis of all Spring applications.

### Context

Builds on Core and Beans, providing medium to access defined objects. ApplicationContext extends BeanFactory.

### Expression Language

SpEL enables query and manipulation of object graphs at runtime. Supports property evaluation and method invocation.

## Spring Data Access Layer



# Data Access Framework



## JDBC Support

Simplifies JDBC coding with templates and callbacks



## ORM Integration

Seamless support for Hibernate, JPA, and other ORMs



## Transaction Management

Consistent transaction handling across technologies



## Exception Handling

Technology-agnostic data access exceptions





# Benefits of Spring Framework



## Lightweight Development

Build enterprise applications using simple POJOs instead of heavy EJBs



## Reduced Boilerplate

Annotations and conventions eliminate repetitive code



## Modularity

Use only what you need from the framework



## Testability

Dependency injection makes unit testing straightforward

# Spring Ecosystem Overview



## Spring Boot

Simplified application setup with auto-configuration



## Spring Cloud

Tools for distributed system development



## Spring Data

Consistent access to different data technologies



## Spring Security

Comprehensive security framework

