Spring Framework

The Spring Framework is a popular open-source framework for building Java-based applications. It provides a comprehensive programming and configuration model, making it easier to develop enterprise-grade applications. Here are some key features:

Inversion of Control (IoC): Spring manages the objects in your application using Dependency Injection, which helps decouple the configuration and dependencies from your application logic.

Data Access Framework: Spring provides a consistent way to interact with databases. It simplifies working with technologies like JDBC, Hibernate, and JPA by handling common tasks like transaction management and exception handling.

Spring MVC: A module to build web applications using the Model-View-Controller pattern, making it easier to develop REST APIs and web-based applications.

Spring Boot: Built on top of the Spring Framework, it simplifies the setup and development process by providing pre-configured templates and auto-configuration features, helping to create production-ready applications with minimal boilerplate code. Security:

Spring Security is a powerful module that provides authentication and authorization for Java applications, helping secure applications from common vulnerabilities.

and more such as cloud, Gateway , etc.

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Inversion of Control (IoC) && Dependency Injection (DI)

Inversion of Control is **a design principle control** of objects or portions of a program to a **container** or framework **that allows classes to be loosely coupled** and, therefore, easier to test and maintain.

Dependency Injection (DI) is a design pattern used to reduce coupling between components and improve the modularity of the application. Instead of a class managing its dependencies, they are injected externally, typically through a constructor or setter methods.

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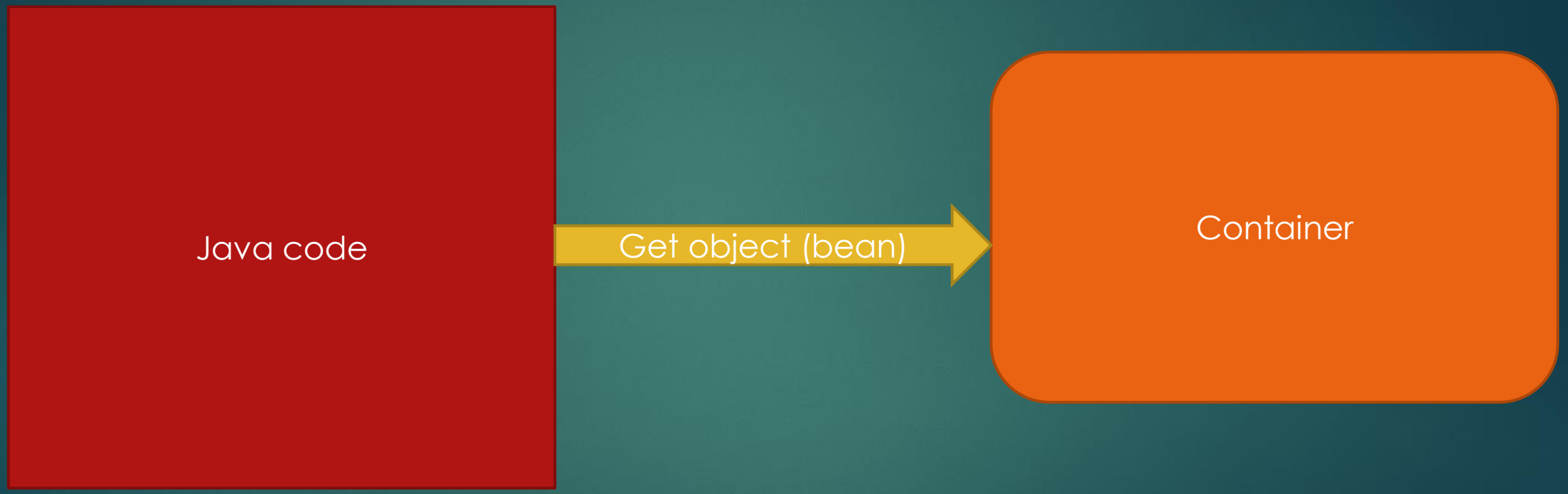

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Container of Spring

Create and manage objects (Inversion of Control)

Inject object's dependencies (Dependency Injection)

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spring configuration containers.

XML-Based Configuration

Annotation-Based Configuration

Java-Based Configuration (JavaConfig)

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Types to get Containers

ClassPathXMLApplicationContdxt

AnnotationConfigApplicationContext

GenericWebApplicationContext

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Let's Start coooooooooode

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Injection Types

There are many types of injection with spring

Constructor Injection

Setter Injection

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Scope Types

scope refers to life cycle of bean

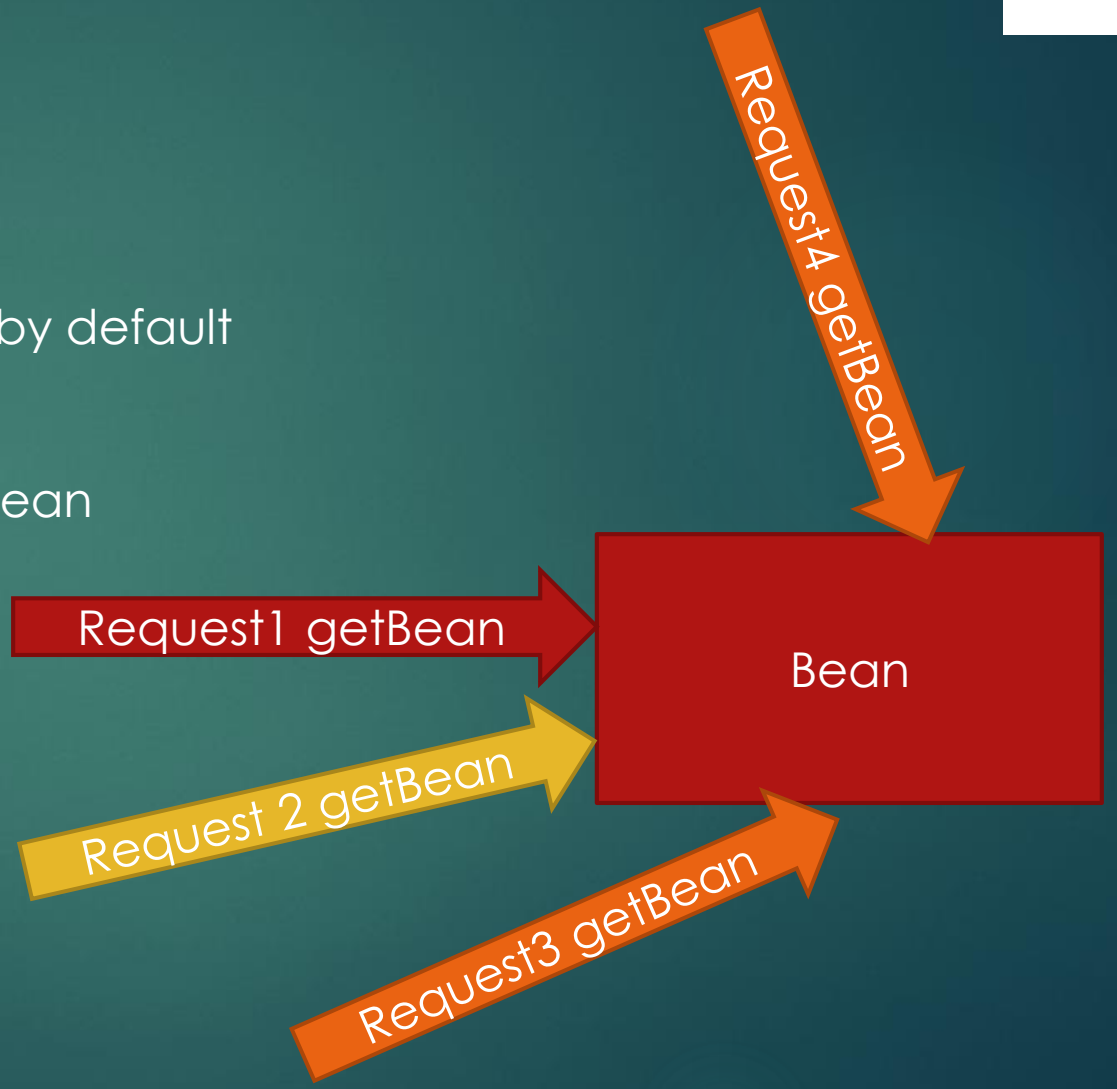
How long the bean live

How many object are created

How is bean shared

Scope Types

spring container create one instance of bean by default
- Cached in memory
- All request of bean
- return shared reference to the same bean



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Scope Types

Prototype
every request return new bean

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Singleton

prototype

Request , seesion

one bean for all request

every request return new bean

for web

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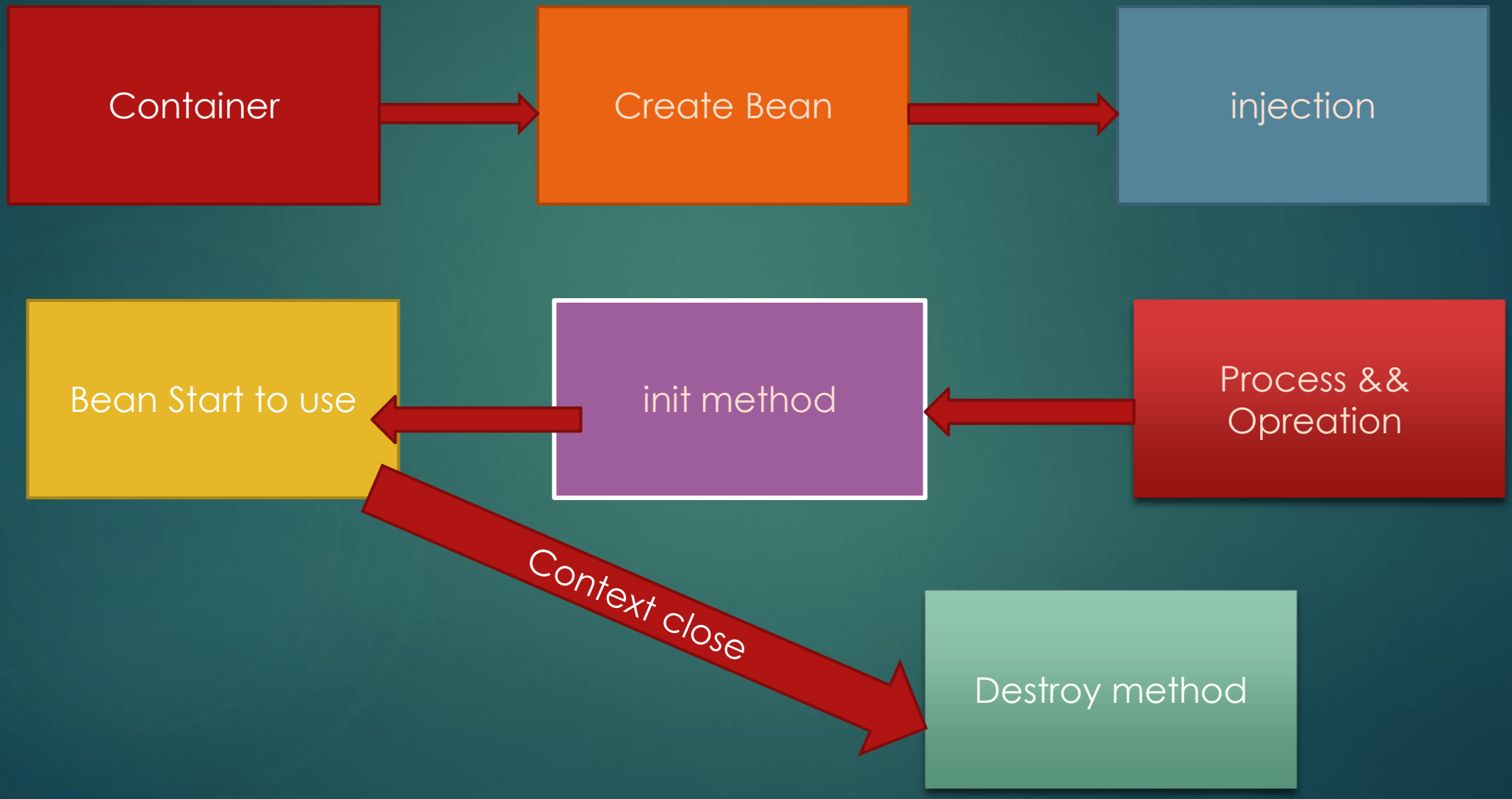
spring

Bean Life cycle

EraaSoft



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Bean Life cycle

What benefit of using Init-method

Example of you get data from database you must open connection

If in your bean function to get data so you need to add open connection in init-method

What benefit of using destroy-method

It method contain code

Example of you get data from database you must close connection at the end so put code of close connection in destroy method

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