Spring Boot

2f4869676820706572666f726d616e63652c2044656c69766572265642c2f4869676820706572666f726d616e63652c2044656c69766572265642c2f4869676820706572666f726d616e63652c2044656c69766572265642c2f4869676820706572666f726d616e63652c2044656c69766572265642c2f4869676820706572666f726d616e63652c2044656c69766572265642c2f4869676820706572666f726d616e63652c2044656c69766572265642c2f4869676820

Spring Boot

2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f48696768207

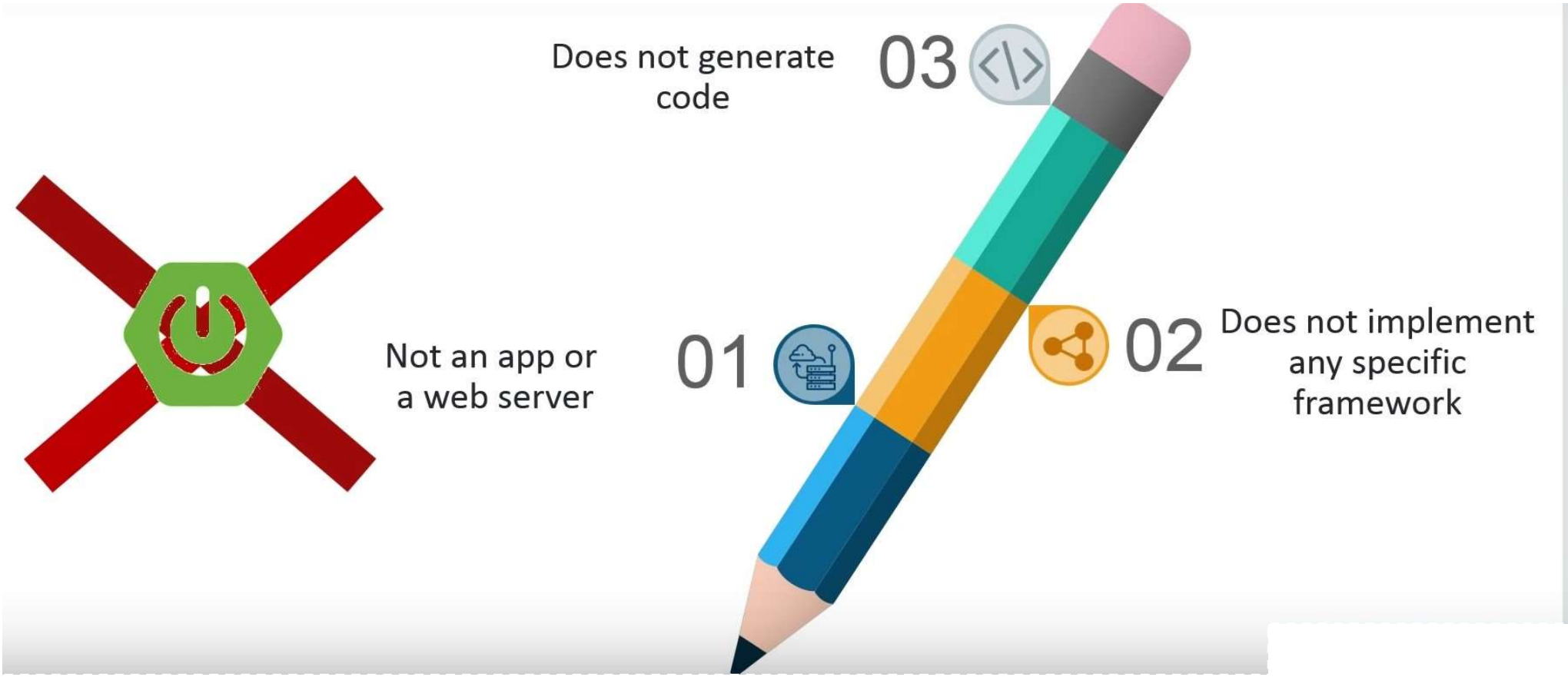
- Spring Boot makes it easy to create stand-alone, production-grade Spring based Applications that you can "just run“
- Create stand-alone Spring applications
- Embed Tomcat, Jetty or Undertow directly (no need to deploy WAR files)
- Automatically configure Spring and 3rd party libraries whenever possible
- Absolutely no code generation and no requirement for XML configuration

Spring Boot

2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f48696768207

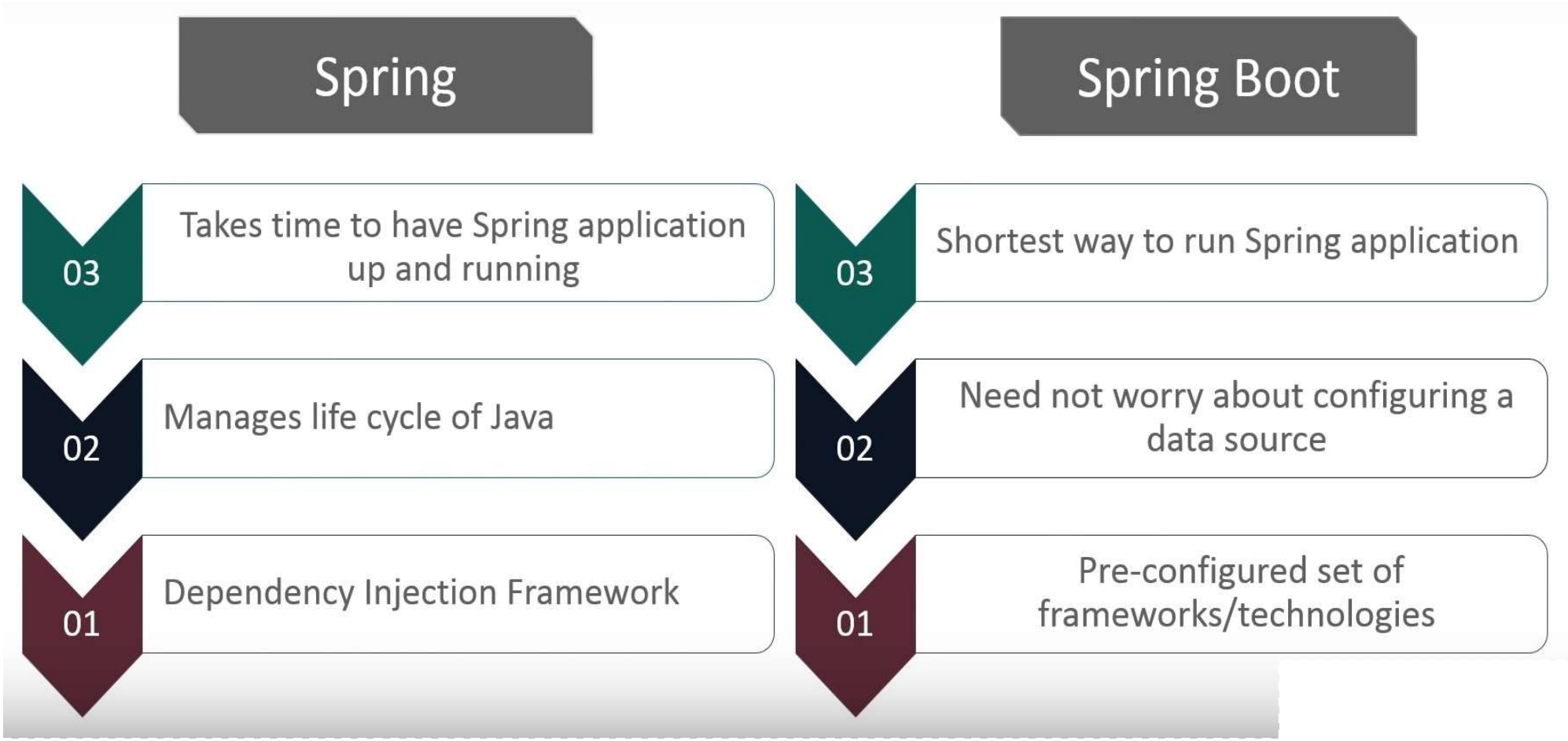
Spring Boot is not

2f48696768207065726f726d616e63652e2044656c6976657265642e2f48696768207065726f726d616e63652e2044656c6976657265642e2f48696768207065726f726d616e63652e2044656c6976657265642e2f48696768207065726f726d616e63652e2044656c6976657265642e2f48696768207065726f726d616e63652e2044656c6976657265642e2f48696768207065726f726d616e63652e2044656c6976657265642e2f48696768207



Spring vs Spring Boot

2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f48696768207



Spring Boot Advantages

2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f48696768207

- Create stand-alone Spring applications that can be started using java -jar.
- Embed Tomcat, Jetty or Undertow directly. You don't need to deploy WAR files.
- It provides opinionated 'starter' POMs to simplify your Maven configuration.
- It automatically configure Spring whenever possible.
- It provides production-ready features such as metrics, health checks and externalized configuration.
- Absolutely no code generation and no requirement for XML configuration.

Spring Boot Web

2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f48696768207

- Provides embedded tomcat server
- Web application can be bundled as normal application with main method
- No DispatcherServlet configuration required
- Configuration can be provided through properties

application.properties

2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f48696768207

- Used to provide configuration
- Full list of properties at --
- https://docs.spring.io/spring-boot/docs/current/reference/html/common-application-properties.html

- Example

```
environments.dev.url=https://dev.example.com
environments.dev.name=Developer Setup
environments.prod.url=https://another.example.com
environments.prod.name=My Cool App
```

application.yml

2f48696768207065726f726d616e63652e2044656c6976657265642e2f48696768207065726f726d616e63652e2044656c6976657265642e2f48696768207065726f726d616e63652e2044656c6976657265642e2f48696768207065726f726d616e63652e2044656c6976657265642e2f48696768207065726f726d616e63652e2044656c6976657265642e2f48696768207065726f726d616e63652e2044656c6976657265642e2f48696768207

- YAML is a superset of JSON, and as such is a very convenient format for specifying hierarchical configuration data

- Example

```
environments:
    dev:
        url: https://dev.example.com
        name: Developer Setup
    prod:
        url: https://another.example.com
        name: My Cool App
```

properties OR yaml

2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f48696768207

- We can use either properties file or yml file.
- Try not to use both in the same application
- If both properties and yml files are available, property defined in properties file will have precedence

Spring Boot JPA

2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f48696768207

- Automatic CRUD Repository for entities
- CrudRepository interface provides basic methods
- JPARepository interface provides additional JPA related methods

- DB configuration through properties file or YML file

- In memory database H2

H2 in-memory database

2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f48696768207

- H2 is in-memory database
- Need H2 dependency
- H2 console can be used by setting following properties

```
spring.h2.console.enabled=true
spring.datasource.url=jdbc:h2:mem:testdb
spring.data.jpa.repositories.bootstrap-mode=default
```

CrudRepository

2f48696768207065726f726d616e63652e2044656c6976657265642e2f48696768207065726f726d616e63652e2044656c6976657265642e2f48696768207065726f726d616e63652e2044656c6976657265642e2f48696768207065726f726d616e63652e2044656c6976657265642e2f48696768207065726f726d616e63652e2044656c6976657265642e2f48696768207065726f726d616e63652e2044656c6976657265642e2f48696768207

long	count() Returns the number of entities available.
void	delete(T entity) Deletes a given entity.
void	deleteAll(Iterable<? extends T> entities) Deletes the given entities.
void	deleteById(ID id) Deletes the entity with the given id.
boolean	existsById(ID id) Returns whether an entity with the given id exists.
Iterable<T>	findAll() Returns all instances of the type.
Iterable<T>	findAllById(Iterable<ID> ids) Returns all instances of the type T with the given IDs.

…….. More methods

Spring Boot JPA properties

2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f48696768207

spring.datasource.url= jdbc:mysql://localhost/ramana

spring.datasource.username=root

spring.datasource.password= rasaspsi

spring.datasource.driver-class-name= com.mysql.jdbc.Driver

spring. jpa.hibernate.ddl-auto= create-drop

CrudRepository - Example

2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f48696768207

Extend CrudRepository and add additional methods if needed

```
@Repository
public interface StudentRepository extends CrudRepository<Student,
Long>
{
    public List<Student> findById(long id);

    @Query("select s from Student s where s.age <= ?1")
    public List<Student> findByAgeLessThanEqual (long age);
}
```

Using CrudRepository

2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f48696768207

CrudRepository can be autowired in a service or DAO class

```
@Autowired
 private StudentRepository studentRepository;
```

JPA config annotations

2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f48696768207

- If the entities are not in the base package, we may have to provide @EntityScan annoation to scan for entities

@EntityScan(basePackages = “com.boot.examples.entity")

- If the Repositories are not in the base package, we may have to provide @EnabelJpaRepositories annoation to scan for Repositories

@EnableJpaRepositories(basePackages = “com.boot.jpa.repo")

Creating Spring Boot Application

2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f486967682070657266f726d616e63652e2044656c6976657265642e2f4869676820

- Through Spring Initializr
- As a maven project
- As a Gradle project
- As a starter project in STS

Spring Boot Non-web Application

2f48696768207065726666f726d616e63652e2044656c6976657265642e2f48696768207065726666f726d616e63652e2044656c6976657265642e2f48696768207065726666f726d616e63652e2044656c6976657265642e2f48696768207065726666f726d616e63652e2044656c6976657265642e2f48696768207065726666f726d616e63652e2044656c6976657265642e2f48696768207065726666f726d616e63652e2044656c6976657265642e2f48696768207

- Implement CommandLineRunner
- Override run() method

```
@SpringBootApplication
public class NormalApplication implements CommandLineRunner{

public static void main(String[] args) {

 SpringApplication app = new SpringApplication(NormalApplication.class);
        app.setBannerMode(Banner.Mode.OFF);
        app.run(args);
}

public void run(String... args) throws Exception {
      System.out.println("Hello World");
}
```

Spring Data Rest

2f48696768207065726666f726d616e63652e2044656c6976657265642e2f48696768207065726666f726d616e63652e2044656c6976657265642e2f48696768207065726666f726d616e63652e2044656c6976657265642e2f48696768207065726666f726d616e63652e2044656c6976657265642e2f48696768207065726666f726d616e63652e2044656c6976657265642e2f48696768207065726666f726d616e63652e2044656c6976657265642e2f48696768207

- Spring Data REST is built on top of the Spring Data project and makes it easy to build hypermedia-driven REST web services that connect to Spring Data repositories – all using HAL as the driving hypermedia type

- Separate controller is not required

```
@RepositoryRestResource(collectionResourceRel = "employeeList", path =
"employees")
public interface EmpRepository extends JpaRepository<Employee, Long> {

}
```