

## 11 - Lazy Init Bean

By default, when the Spring container is initialized, all beans are created eagerly. The container will create and manage all beans when the application context is loaded.

```
ApplicationContext context = new  
ClassPathXmlApplicationContext("spring.xml");
```

All beans mentioned in the XML file are created immediately, even if they are not used.

### Lazy Initialization:

Lazy loading, or lazy initialization, refers to a design pattern in which the initialization of an object is deferred until it is actually needed, rather than initializing it at the time of application startup.

- By marking a bean with the lazy-init="true" attribute, Spring delays the creation of the bean until it is needed. Spring will only create the bean when you call `getBean()`, which improves startup time.
- Even when a bean is lazily initialized, it is still a singleton by default.
- Once the lazy bean is created, it remains in the Spring container and will be reused on subsequent calls.

### Example:

```
<bean id="alien1" class="com.telusko.Alien" autowire="byType">  
    <property name="age" value="21" />  
</bean>  
  
<bean id="comp" class="com.telusko.Laptop" primary="true"></bean>  
<bean id="comp1" class="com.telusko.Desktop" lazy-init="true"></bean>
```

Here,

- The Alien and Laptop beans will be eagerly initialized when the application context is created.
- The Desktop bean is lazy-initialized and we have to use this to create the object of it.

**Output:**

```
Object Created  
Setter called  
21  
Coding  
Compiling using Laptop
```

After calling the bean, it will create the object.

```
Desktop obj = (Desktop) context.getBean("comp1");
```

**Output:**

```
Object Created  
Setter called  
21  
Coding  
Compiling using Laptop  
Desktop Objected Created
```

★ If an eagerly initialized bean depends on a lazy-initialized bean, the lazy bean will be created when the eager bean is created. This ensures that all required dependencies are available when the eager bean is constructed.

```
<bean id="alien1" class="com.telusko.Alien" autowire="byType">
```

```
<property name="age" value="21" />
```

```
<property name="comp" ref="comp1" />
```

```
</bean>
```

```
<bean id="comp" class="com.telusko.Laptop" primary="true">
```

```
</bean>
```

```
<bean id="comp1" class="com.telusko.Desktop" lazy-init="true">
```

```
</bean>
```

### ***Output:***

```
Object Created  
Desktop Objected Created  
Setter called  
21  
Coding  
Compiling using Desktop  
|
```

### **Code Link:**

<https://github.com/navinreddy20/spring6-course/tree/c6690e4f2c70d8f530d70623f13d14ff0ffd7e7d/2%20Exploring%20Spring%20Framework/2.11%20Lazy%20Init%20Bean/Spring1>