Spring bean scopes

➢ Spring supports the following 5 types of bean scopes and the default scope is **singleton**

1. *singleton* – Return a single bean instance per Spring IoC container

2. *prototype* – Return a new bean instance each time when requested

3. *request* – Return a single bean instance per HTTP request.

4. *session* – Return a single bean instance per HTTP session.

5. *globalSession* – Return a single bean instance per global HTTP session.

➢ **Singleton scope example:**

1. Create the Engine class

```
12   public class Engine {
13
14       private String engineID;
15       private String validity;
16
17       public String getEngineID() {
18           return engineID;
19       }
20       public void setEngineID(String engineID) {
21           this.engineID = engineID;
22       }
23       public String getValidity() {
24           return validity;
25       }
26       public void setValidity(String validity) {
27           this.validity = validity;
28       }
29       @Override
30       public String toString() {
31           return "Engine [engineID=" + engineID + ", validity=" + validity + "]";
32       }
33   }
```

2. Configure Engine class in Spring-Core.xml configuration file.

```
10   <beans xmlns="http://www.springframework.org/schema/beans"
11       xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
12       xsi:schemaLocation="http://www.springframework.org/schema/beans
13       http://www.springframework.org/schema/beans/spring-beans-3.0.xsd">
14
15       <bean id="engine" class="com.java2learn.core.Engine" scope="singleton">
16           <property name="engineID" value="123"></property>
17           <property name="validity" value="3Yrs."></property>
18       </bean>
19   </beans>
```

3. Create the client and run it.

```
10   package com.java2learn.app;
11
12   import org.springframework.context.ApplicationContext;
13   import org.springframework.context.support.ClassPathXmlApplicationContext;
14   import com.java2learn.core.Engine;
15   public class ApplicationContextDemo {
16
17       public static void main(String[] args) {
18
ApplicationContext applicationContext=new
ClassPathXmlApplicationContext("Spring-Core.xml");
21           Engine engine=(Engine)applicationContext.getBean("engine");
22           System.out.println("Validity::"+engine.getValidity());
23           //setting value to the validaity.
24           engine.setValidity("10 Yrs.");
25           System.out.println("Validity::"+engine.getValidity());
26           System.out.println("Engine ID::"+engine.getEngineID());
27
28           //retrieve bean again
29           Engine engine1=(Engine)applicationContext.getBean("engine");
30           System.out.println("Validity::"+engine1.getValidity());
31       }
32   }
```

➢ **Output:**
Validity::3Yrs.
Validity::10 Yrs.
Engine ID::123
Validity::10 Yrs.

➢ **Singleton scope example:**
1. Create the Engine class

```
12   public class Engine {
13
14       private String engineID;
15       private String validity;
16
17       public String getEngineID() {
18           return engineID;
19       }
20       public void setEngineID(String engineID) {
21           this.engineID = engineID;
22       }
23       public String getValidity() {
24           return validity;
25       }
26       public void setValidity(String validity) {
27           this.validity = validity;
28       }
29       @Override
30       public String toString() {
31           return "Engine [engineID=" + engineID + ", validity=" + validity + "]";
32       }
33   }
```

2. Configure Engine class in Spring-Core.xml configuration file.

```
10    <beans xmlns="http://www.springframework.org/schema/beans"
11        xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
12        xsi:schemaLocation="http://www.springframework.org/schema/beans
13        http://www.springframework.org/schema/beans/spring-beans-3.0.xsd">
14
15        <bean id="engine" class="com.java2learn.core.Engine" scope="singleton">
16            <property name="engineID" value="123"></property>
17            <property name="validity" value="3Yrs."></property>
18        </bean>
19    </beans>
```

3. Create the client and run it.

```
12    import org.springframework.context.ApplicationContext;
13    import org.springframework.context.support.ClassPathXmlApplicationContext;
14    import com.java2learn.core.Engine;
15    public class ApplicationContextDemo {
16
17        public static void main(String[] args) {

ApplicationContext applicationContext=new
ClassPathXmlApplicationContext("Spring-Core.xml");
21            Engine engine=(Engine)applicationContext.getBean("engine");
22            System.out.println("Validity::"+engine.getValidity());
23            //setting value to the validaity.
24            engine.setValidity("10 Yrs.");
25            System.out.println("Validity::"+engine.getValidity());
26            System.out.println("Engine ID::"+engine.getEngineID());
27
28            //retrieve bean again
29            Engine engine1=(Engine)applicationContext.getBean("engine");
30            System.out.println("Validity::"+engine1.getValidity());
31        }
32    }
```

➢ **Output:**
Validity::3Yrs.
Validity::10 Yrs.
Engine ID::123
Validity::10 Yrs.

➢ **Prototype scope example:**

1. Create the Engine class

```
12   public class Engine {
13
14       private String engineID;
15       private String validity;
16
17       public String getEngineID() {
18           return engineID;
19       }
20       public void setEngineID(String engineID) {
21           this.engineID = engineID;
22       }
23       public String getValidity() {
24           return validity;
25       }
26       public void setValidity(String validity) {
27           this.validity = validity;
28       }
29       @Override
30       public String toString() {
31           return "Engine [engineID=" + engineID + ", validity=" + validity + "]";
32       }
33   }
```

2. Configure Engine class in Spring-Core.xml configuration file.

```
10   <beans xmlns="http://www.springframework.org/schema/beans"
11       xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
12       xsi:schemaLocation="http://www.springframework.org/schema/beans
13       http://www.springframework.org/schema/beans/spring-beans-3.0.xsd">
14
15       <bean id="engine" class="com.java2learn.core.Engine" scope="prototype"/>
16   </beans>
```

3. Create the client and run it.

```
12   import org.springframework.context.ApplicationContext;
13   import org.springframework.context.support.ClassPathXmlApplicationContext;
14   import com.java2learn.core.Engine;
15   public class ApplicationContextDemo {
16
17       public static void main(String[] args) {

 ApplicationContext applicationContext=new
ClassPathXmlApplicationContext("Spring-Core.xml");
21           Engine engine=(Engine)applicationContext.getBean("engine");
22           //setting value to the validaity.
23           engine.setValidity("10 Yrs.");
24           System.out.println("Validity::"+engine.getValidity());
25
26           //retrieve bean again
27           Engine engine1=(Engine)applicationContext.getBean("engine");
28           System.out.println("Validity::"+engine1.getValidity());
29       }
30   }
```

➢ **Output:**
Validity::10 Yrs.
Validity::null