

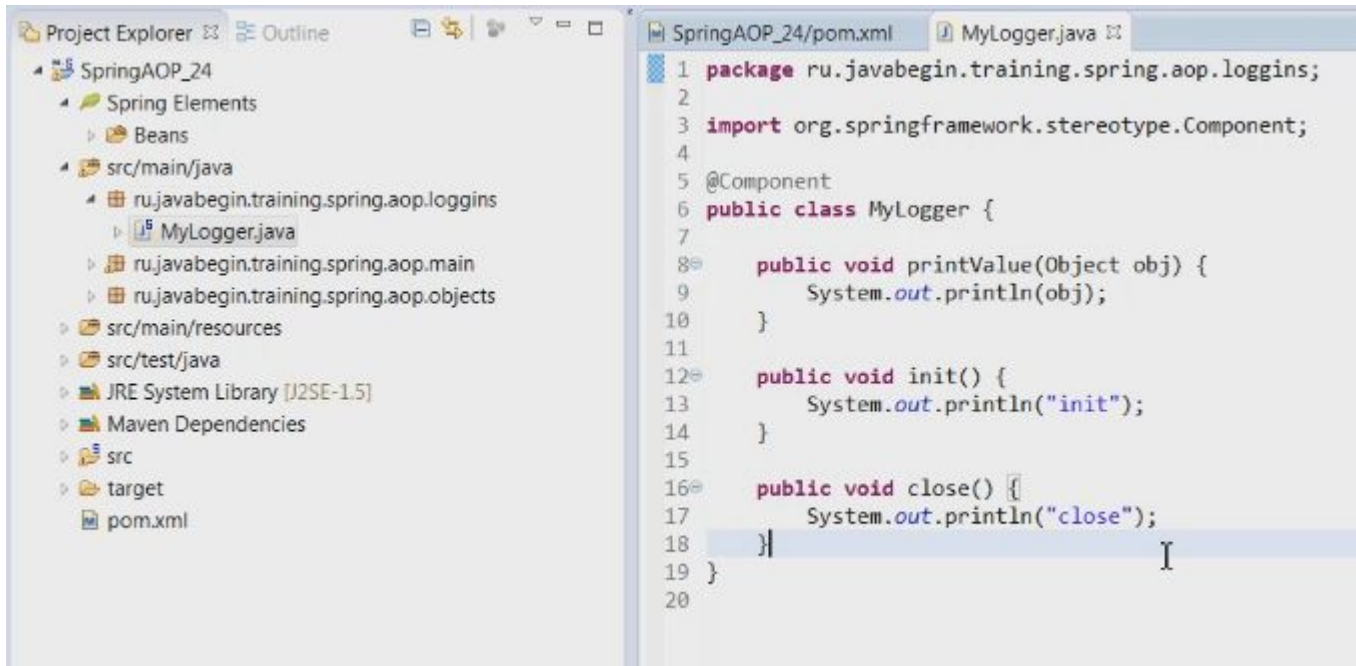
Аспектно - ориентированное программирование

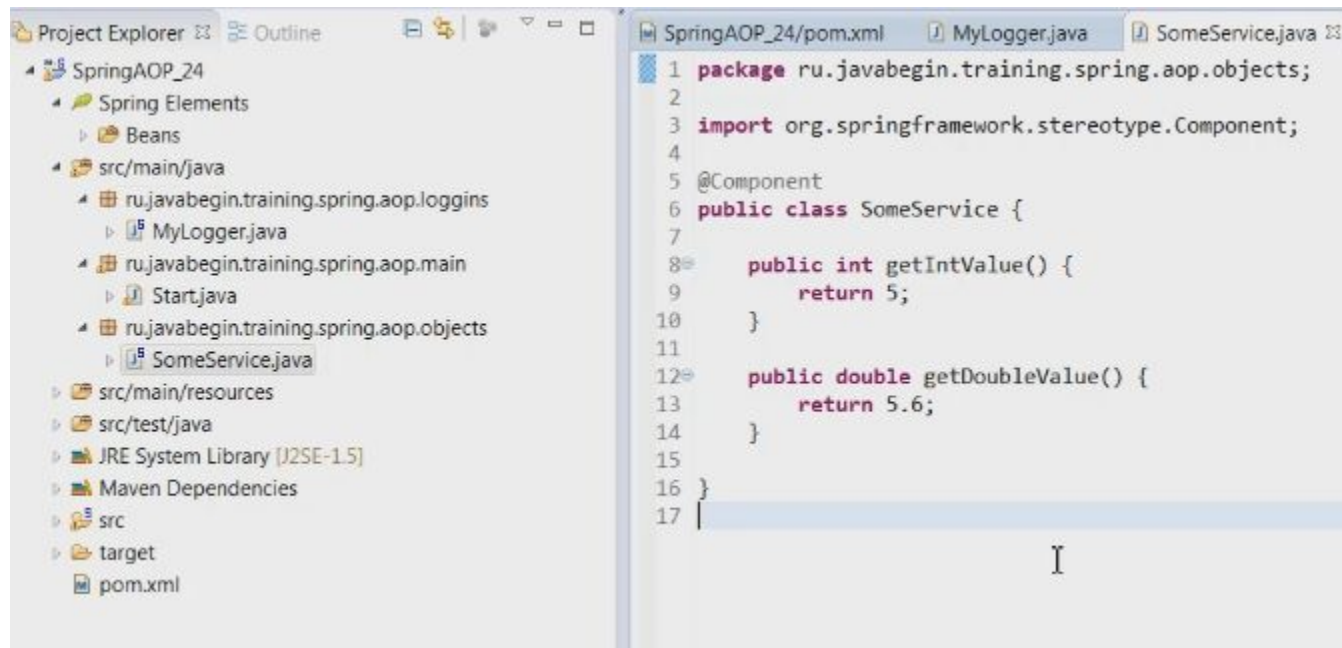
Лекция №5

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Добавление зависимостей в проект

```
SpringAOP_24/pom.xml
1 <project xmlns="http://maven.apache.org/POM/4.0.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
2   xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 http://maven.apache.org/xsd/maven-4.0.0.xsd">
3   <modelVersion>4.0.0</modelVersion>
4   <groupId>org.springframework.samples</groupId>
5   <artifactId>SpringAOP_24</artifactId>
6   <version>0.0.1-SNAPSHOT</version>
7
8
9
10  <dependencies>
11    <dependency>
12      <groupId>org.springframework</groupId>
13      <artifactId>spring-context</artifactId>
14      <version>4.0.3.RELEASE</version>
15    </dependency>
16
17    <dependency>
18      <groupId>cglib</groupId>
19      <artifactId>cglib</artifactId>
20      <version>3.1</version>
21    </dependency>
22
23
24    <dependency>
25      <groupId>org.springframework</groupId>
26      <artifactId>spring-aspects</artifactId>
27      <version>4.0.3.RELEASE</version>
28    </dependency>
29
30
31  </dependencies>
32 </project>
33
```





Project Explorer

- SpringAOP_24
 - Spring Elements
 - Beans
 - context.xml
 - Component - org.springframework.stereotype
 - src/main/java
 - ru.javabegin.training.spring.aop.loggings
 - MyLogger.java
 - ru.javabegin.training.spring.aop.main
 - Start.java
 - ru.javabegin.training.spring.aop.objects
 - SomeService.java
 - src/main/resources
 - src/test/java
 - JRE System Library [J2SE-1.5]
 - Maven Dependencies
 - src
 - target
 - pom.xml

MyLogger.java | SomeService.java | context.xml

```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <beans xmlns="http://www.springframework.org/schema/beans"
3     xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
4     xmlns:aop="http://www.springframework.org/schema/aop"
5     xmlns:context="http://www.springframework.org/schema/context"
6     xsi:schemaLocation="http://www.springframework.org/schema/aop http://www.springframework.org/sch
7     http://www.springframework.org/schema/beans http://www.springframework.org/schema/beans/spri
8     http://www.springframework.org/schema/context http://www.springframework.org/schema/context/
9
10    <context:component-scan base-package="ru.javabegin.training.*"/>
11
12    <aop:config>
13        <aop:aspect id="Log" ref="myLogger">
14            <aop:pointcut id="getValue" expression="execution(* ru.javabegin.training.spring.aop.obj
15            <aop:before pointcut-ref="getValue" method="init" />
16            <aop:after pointcut-ref="getValue" method="close" />
17            <aop:after-returning pointcut-ref="getValue" returning="obj" method="printValue" />
18        </aop:aspect>
19    </aop:config>
20
21
22 </beans>
23
```

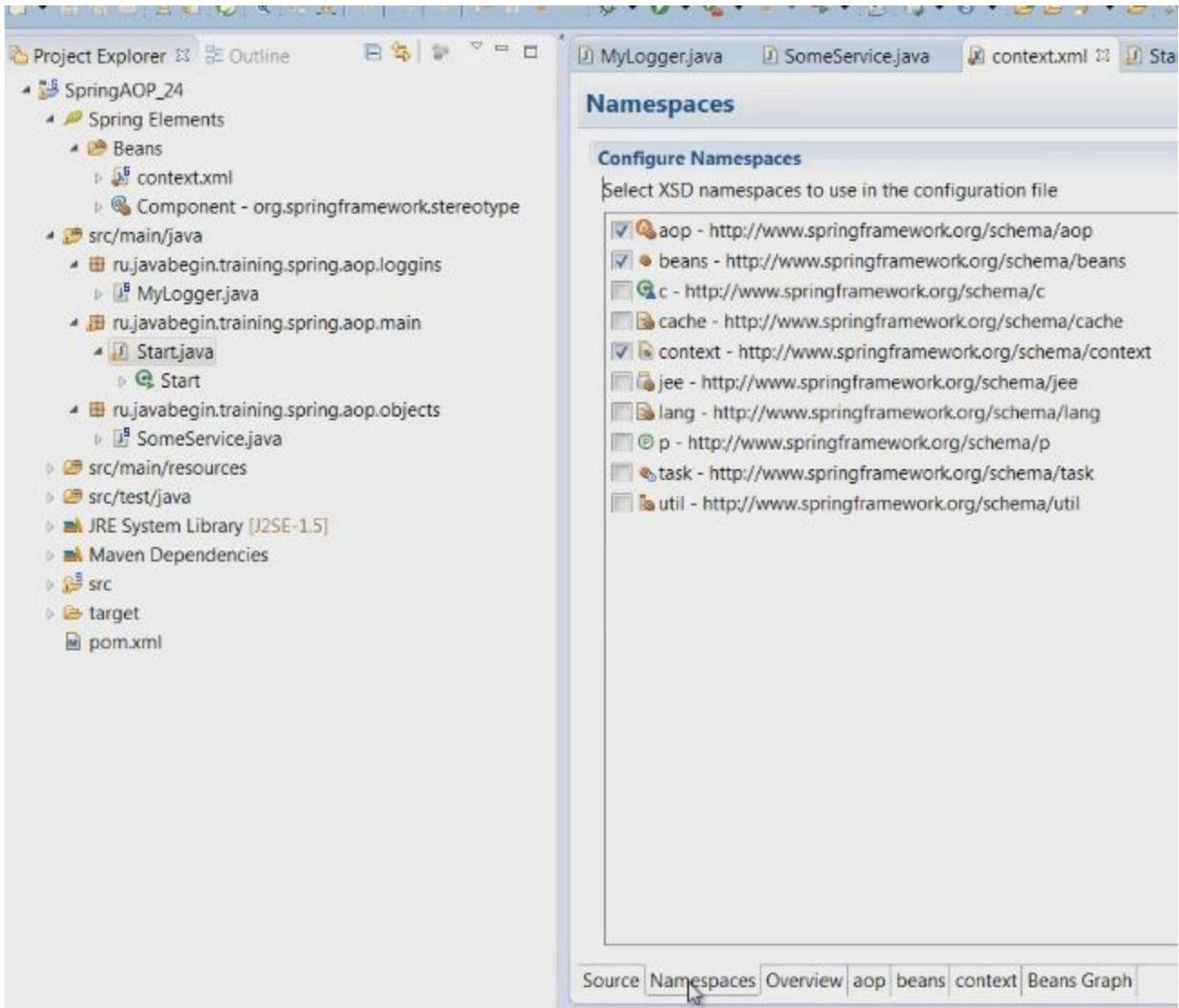
The image shows an IDE window with two panes. The left pane is the Project Explorer, showing the project structure for 'SpringAOP_24'. The right pane is the code editor, showing the source code for 'MyLogger.java'.

Project Explorer Structure:

- SpringAOP_24
 - Spring Elements
 - Beans
 - context.xml
 - Component - org.springframework.stereotype
 - src/main/java
 - ru.javabegin.training.spring.aop.loggins
 - MyLogger.java
 - ru.javabegin.training.spring.aop.main
 - Start.java
 - Start
 - ru.javabegin.training.spring.aop.objects
 - SomeService.java
 - src/main/resources
 - src/test/java
 - JRE System Library [J2SE-1.5]
 - Maven Dependencies
 - src
 - target
 - pom.xml

Code Editor Content (MyLogger.java):

```
1 package ru.javabegin.training.spring.aop.main;
2
3 import org.springframework.context.ApplicationContext;
4
5
6
7
8 public class Start {
9
10     public static void main(String[] args) {
11         ApplicationContext context = new ClassPathXmlApplicationContext("context.xml");
12         SomeService service = (SomeService) context.getBean("someService");
13         double val = service.getDoubleValue();
14     }
15 }
16
```



The screenshot shows an IDE with the following structure in the Project Explorer:

- SpringAOP_24
 - Spring Elements
 - Beans
 - context.xml
 - Component - org.springframework.stereotype
 - src/main/java
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 - MyLogger.java
 - ru.javabegin.training.spring.aop.main
 - Start.java
 - Start
 - ru.javabegin.training.spring.aop.objects
 - SomeService.java
 - src/main/resources
 - src/test/java
 - JRE System Library [J2SE-1.5]
 - Maven Dependencies
 - src
 - target
 - pom.xml

The main editor displays the content of context.xml:

```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <beans xmlns="http://www.springframework.org/schema/beans"
3     xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
4     xmlns:aop="http://www.springframework.org/schema/aop"
5     xmlns:context="http://www.springframework.org/schema/context"
6     xsi:schemaLocation="http://www.springframework.org/schema/aop http://www.sp
7         http://www.springframework.org/schema/beans http://www.springframework.o
8         http://www.springframework.org/schema/context http://www.springframework.o
9
10 <context:component-scan base-package="ru.javabegin.training.*"/>
11
12 <aop:config>
13 <aop:aspect id="Log" ref="myLogger">
14     <aop:pointcut id="get"
15     <aop:before pointcut="
16     <aop:after pointcut="r
17     <aop:after-returning
18 </aop:aspect>
19 </aop:config>
20
21
22 </beans>
23
```

A tooltip is displayed over the `ref="myLogger"` attribute in line 13, providing the following information:

- Attribute :** ref
- The name of the (backing) bean that encapsulates the aspect.
- Data Type :** string
- Press 'F2' for focus

Маска аспекта

```
MyLogger.java SomeService.java context.xml Start.java
1 <?xml version="1.0" encoding="UTF-8"?>
2 <beans xmlns="http://www.springframework.org/schema/beans"
3     xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
4     xmlns:aop="http://www.springframework.org/schema/aop"
5     xmlns:context="http://www.springframework.org/schema/context"
6     xsi:schemaLocation="http://www.springframework.org/schema/aop http://www.springframework.org/schema/aop/spring-aop-4.0.xsd
7     http://www.springframework.org/schema/beans http://www.springframework.org/schema/beans/spring-beans.xsd
8     http://www.springframework.org/schema/context http://www.springframework.org/schema/context/spring-context-4.0.xsd">
9
10     <context:component-scan base-package="ru.javabegin.training.*"/>
11
12     <aop:config>
13         <aop:aspect id="log" ref="myLogger">
14             <aop:pointcut id="getValue" expression="execution(* ru.javabegin.training.spring.aop.objects.SomeService.(..))" />
15             <aop:before pointcut-ref="getValue" method="init" />
16             <aop:after pointcut-ref="getValue" method="close" />
17             <aop:after-returning pointcut-ref="getValue" returning="obj" method="printValue" />
18         </aop:aspect>
19     </aop:config>
20
21
22 </beans>
23
```

Вывод результатов

```
INFO: Loading X  
init  
close  
5.6
```