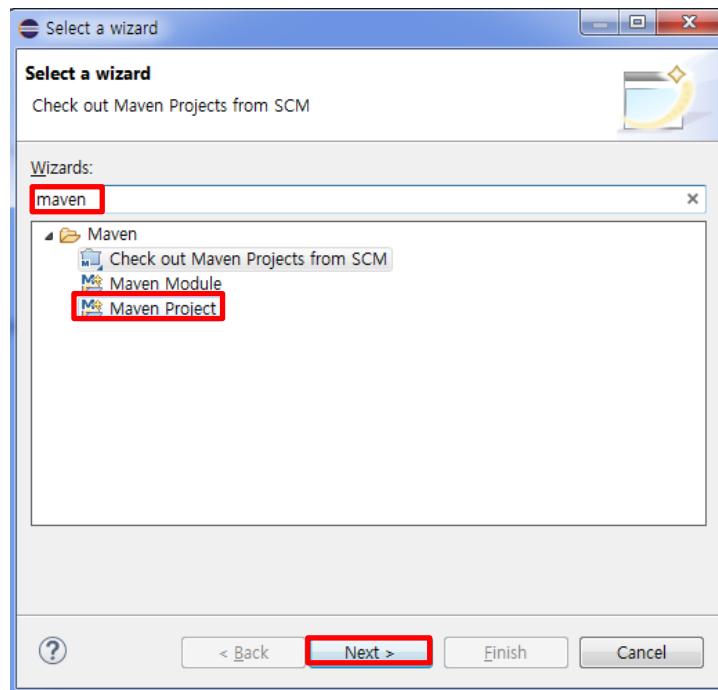
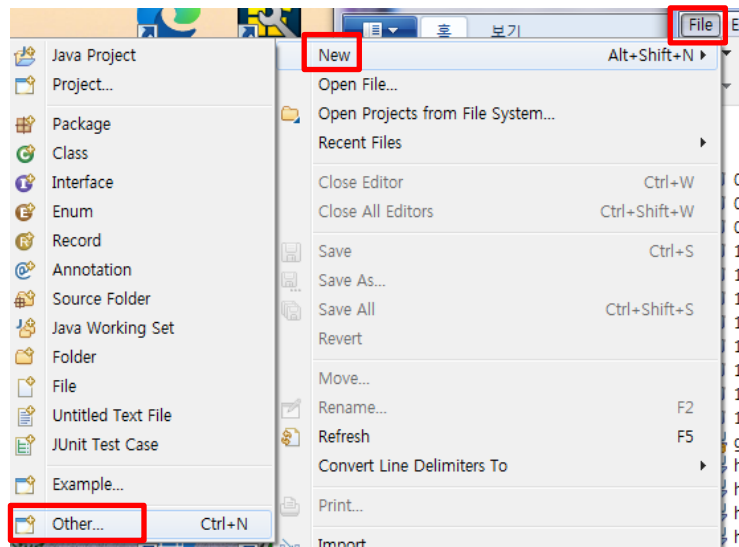
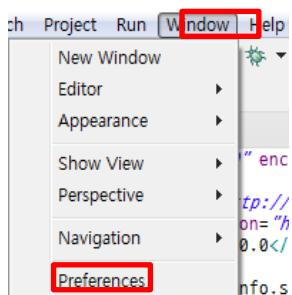
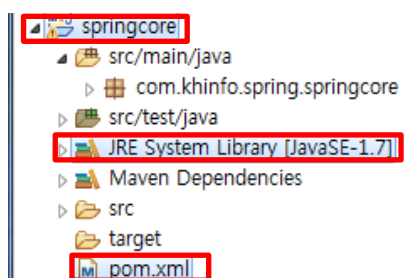
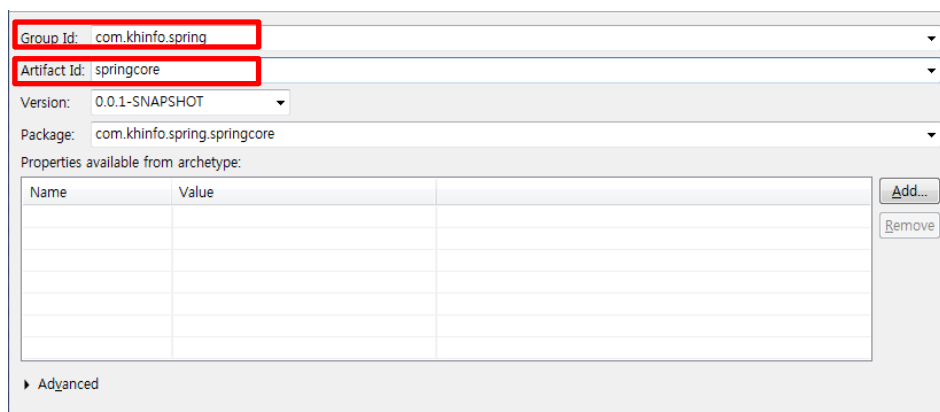
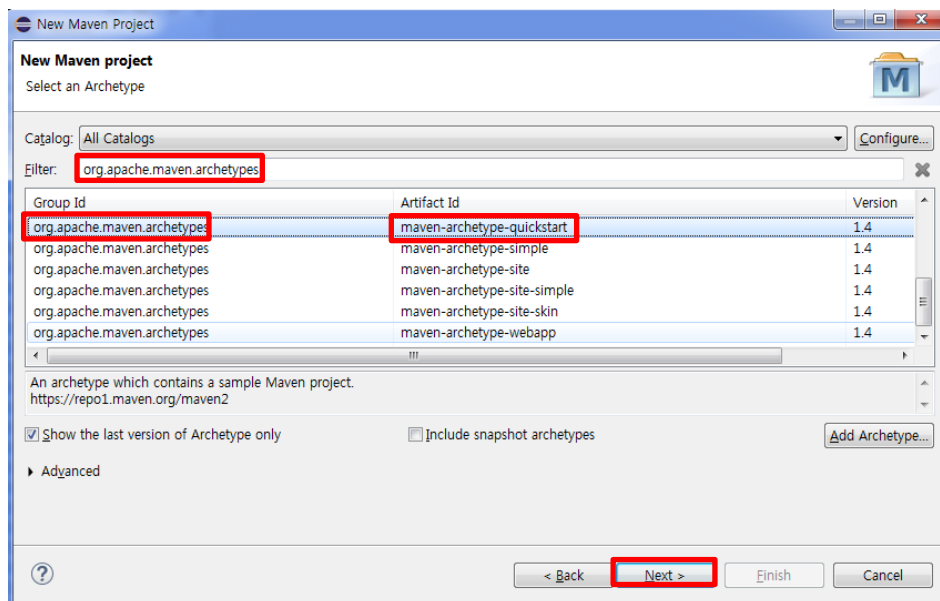
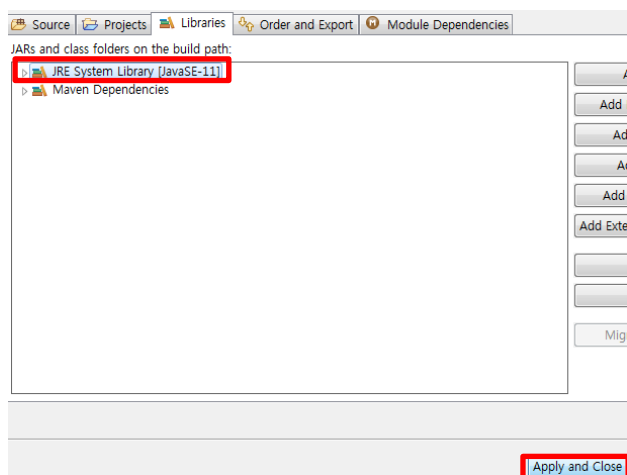
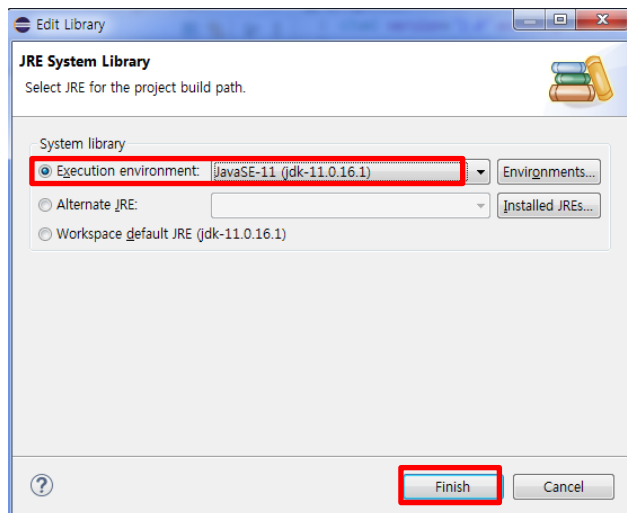
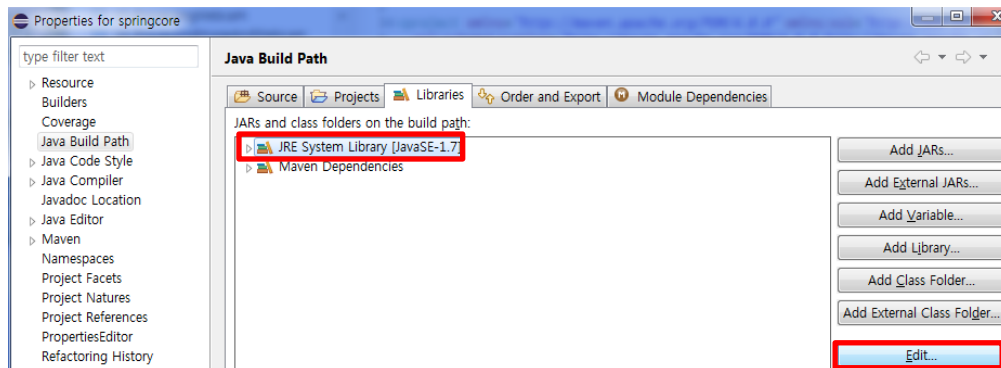
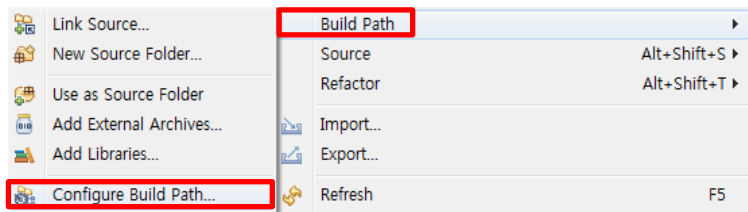
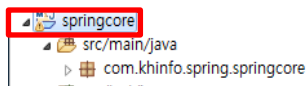
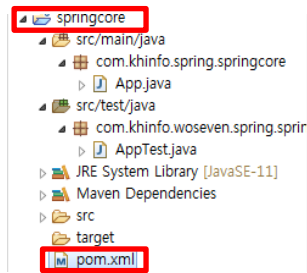


1. 메이븐 프로젝트 만들기









pom.xml

```
<project xmlns="http://maven.apache.org/POM/4.0.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 http://maven.apache.org/xsd/maven-4.0.0.xsd">
  <modelVersion>4.0.0</modelVersion>
```

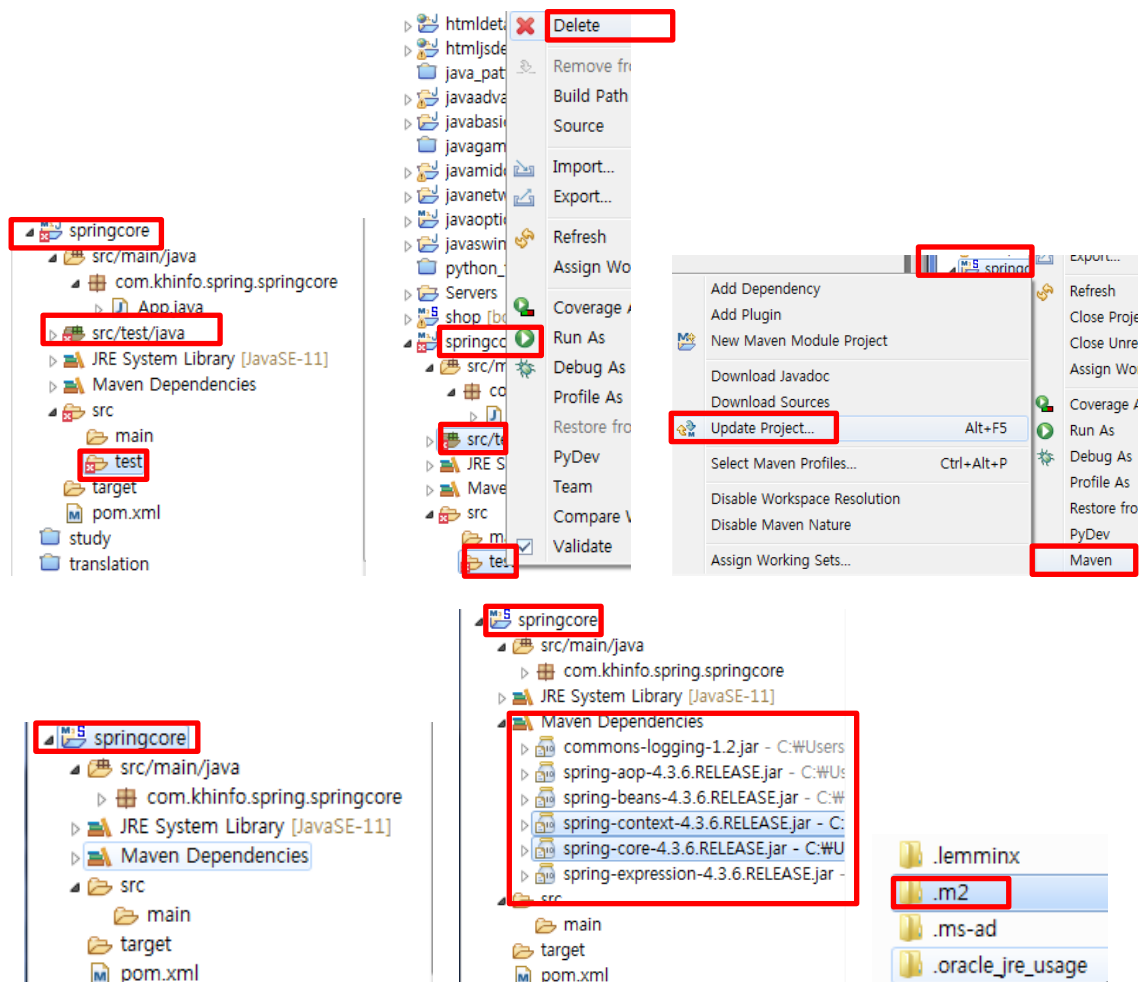
```
<name>springcore</name>
<url>http://maven.apache.org</url>
```

```
<dependencies>
  <dependency>
    <groupId>org.springframework</groupId>
    <artifactId>spring-core</artifactId>
    <version>${springframework.version}</version>
  </dependency>
  <dependency>
    <groupId>org.springframework</groupId>
    <artifactId>spring-context</artifactId>
    <version>${springframework.version}</version>
  </dependency>
```

```

        </configuration>
    </plugin>
</plugins>
</pluginManagement>
</build>
</project>

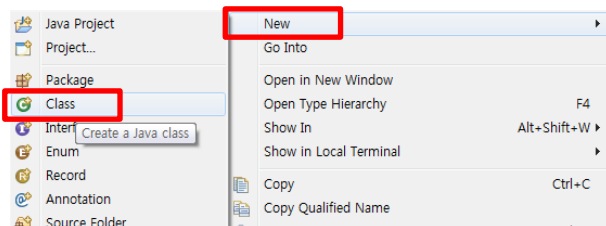
```



2. 자바빈 생성

2.1 DI에 대한 3단계

가. POJO(Plain Old Java Object) 클래스 만들기



Java Class
Create a new Java class.

Source folder:

Package:

☐ Enclosing type:

Name:

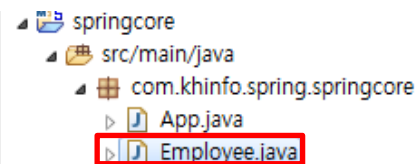
Modifiers: ☒ public ☐ package ☐ private ☐ protected
☐ abstract ☐ final ☐ static

Superclass:

Interfaces:

Which method stubs would you like to create?
☐ public static void main(String[] args)
☐ Constructors from superclass
☒ Inherited abstract methods

Do you want to add comments? (Configure templates and default value [here](#))
☐ Generate comments



Employee.java

```

1 package com.khinfo.spring.springcore;
2
3 public class Employee {
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

```

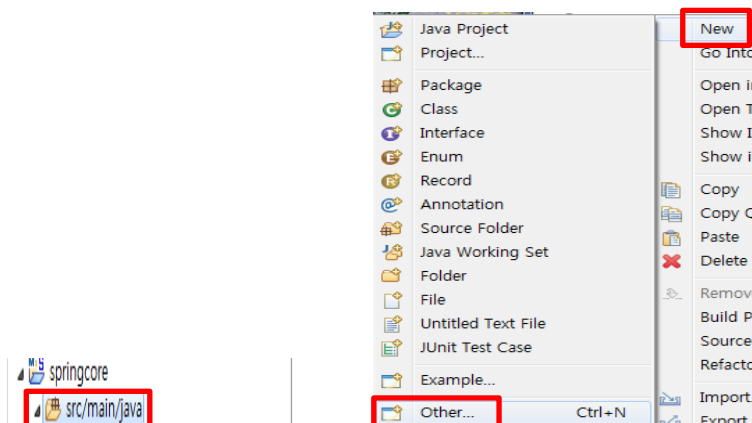
Employee.java

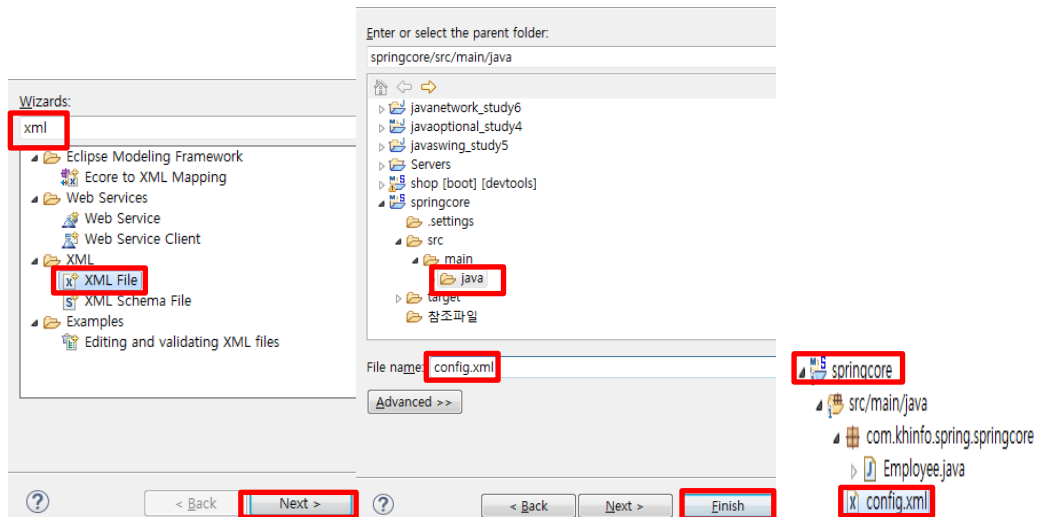
```

1 package com.khinfo.spring.springcore;
2
3 public class Employee {
4
5     private int id;
6     private String name;
7
8     public int getId() {
9         return id;
10    }
11
12    public void setId(int id) {
13        this.id = id;
14    }
15
16    public String getName() {
17        return name;
18    }
19
20    public void setName(String name) {
21        this.name = name;
22    }
23
24 }

```

나. 설정파일 만들기





```
<?xml version="1.0" encoding="UTF-8"?>
```

```
<beans xmlns="http://www.springframework.org/schema/beans"
       xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
       xmlns:context="http://www.springframework.org/schema/context"
       xmlns:p="http://www.springframework.org/schema/p"
       xsi:schemaLocation="http://www.springframework.org/schema/beans
http://www.springframework.org/schema/beans/spring-beans.xsd
http://www.springframework.org/schema/context
http://www.springframework.org/schema/context/spring-context.xsd">
```

```
<bean name="emp" class="com.khinfo.spring.springcore.Employee">
    <property name="id">
        <value>20</value>
    </property>
    <property name="name">
        <value>KHT</value>
    </property>
</bean>
```

```
</beans>
```

다. 테스트 클래스 만들기

3. p 스키마 또는 p 네임스페이스 사용

```
config3.xml Test3.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:context="http://www.springframework.org/schema/context"
5       xmlns:p="http://www.springframework.org/schema/p"
6       xsi:schemaLocation="http://www.springframework.org/schema/beans
7       http://www.springframework.org/schema/beans/spring-beans.xsd
8       http://www.springframework.org/schema/context
9       http://www.springframework.org/schema/context/spring-context.xs
10
11       <bean name="emp" class="com.khinfo.spring.springcore.Employee"
12             p:id="20" p:name="KHT3" />
13
14 </beans>
```

4. 레퍼런스 타입

A $\xrightarrow{\text{HAS - A}}$ B

B b;

```
<bean class="B" name="b"/>

<bean class="A" name="a">
    <property name="b">
        <ref bean="b"/>
    </property>
</bean>
```

Student $\xrightarrow{\quad\quad\quad}$ Scores

```
Double maths;
Double physics;
Double chemistry;
```

```
Student.java Scores.java
1 package com.springcore.setterInjection.reftypes;
2
3 public class Student {
4
5     private Scores scores;
6
7     public Scores getScores() {
8         return scores;
9     }
10
11     public void setScores(Scores scores) {
12         this.scores = scores;
13     }
14 }

1 package com.springcore.setterInjection.reftypes;
2
3 public class Scores {
4
5     private Double maths;
6     private Double physics;
7     private Double chemistry;
8
9     public Double getMaths() {
10         return maths;
11     }
12
13     public void setMaths(Double maths) {
14         this.maths = maths;
15     }
16
17     public Double getPhysics() {
18         return physics;
19     }
20
21     public void setPhysics(Double physics) {
22         this.physics = physics;
23     }
24
25     public Double getChemistry() {
26         return chemistry;
27     }
28
29     public void setChemistry(Double chemistry) {
30         this.chemistry = chemistry;
31     }
32 }
```



```

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:context="http://www.springframework.org/schema/context"
5       xsi:schemaLocation="http://www.springframework.org/schema/beans
6       http://www.springframework.org/schema/beans/spring-beans.xsd
7       http://www.springframework.org/schema/context
8       http://www.springframework.org/schema/context/spring-context
9       />
10
11 <bean name="scores"
12       class="com.springcore.setterInjection.reftypes.Scores"
13       p:maths="80" p:physics="90" p:chemistry="70" />
14
15 <bean name="student"
16       class="com.springcore.setterInjection.reftypes.Student"
17       <property name="scores">
18         <ref bean="scores" />
19       </property>
20 </bean>
21 </beans>

```

```

1 package com.springcore.setterInjection.reftypes;
2
3 import org.springframework.context.support.ClassPathXmlApplicationContext;
4
5 public class Test {
6
7     private static ClassPathXmlApplicationContext context;
8
9     public static void main(String[] args) {
10         context = new ClassPathXmlApplicationContext(
11             "com/springcore/setterInjection/reftypes/reftypesconfig.xml");
12         Student student = (Student) context.getBean("student");
13         System.out.println(student);
14     }
15 }

```

```

1 package com.springcore.setterInjection.reftypes;
2
3 public class Student {
4
5     private Scores scores;
6
7     public Scores getScores() {
8         return scores;
9     }
10
11     public void setScores(Scores scores) {
12         this.scores = scores;
13     }
14
15     @Override
16     public String toString() {
17         return "Student [scores=" + scores + "]";
18     }
19 }

```

```

1 package com.springcore.setterInjection.reftypes;
2
3 public class Scores {
4
5     private Double math;
6     private Double physics;
7     private Double chemistry;
8
9     public Double getMaths() {
10         return math;
11     }
12
13     public void setMaths(Double math) {
14         this.math = math;
15     }
16
17     public Double getPhysics() {
18         return physics;
19     }
20
21     public void setPhysics(Double physics) {
22         this.physics = physics;
23     }
24
25     public Double getChemistry() {
26         return chemistry;
27     }
28
29     public void setChemistry(Double chemistry) {
30         this.chemistry = chemistry;
31     }
32
33     @Override
34     public String toString() {
35         return "Scores [maths=" + math + ", physics=" + physics;
36     }
37 }

```

Markers Proper... Servers Data S... Snippets Console

```

<terminated> Test (4) [Java Application] D:\Java\jdk-11.0.16\bin\javaw.exe (2023
4월 06, 2023 5:43:01 오전 org.springframework.context.support.Class
INFO: Refreshing org.springframework.context.support.ClassPathXmlAp
4월 06, 2023 5:43:01 오전 org.springframework.beans.factory.xml.Xml
INFO: Loading XML bean definitions from class path resource [com/s
Student [scores=Scores [maths=80.0, physics=90.0, chemistry=70.0]]

```

5. 레퍼런스 타입: 속성과 P 스키마

```
reftypesconfig.xml Test.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:context="http://www.springframework.org/schema/context"
5       xmlns:p="http://www.springframework.org/schema/p"
6       xsi:schemaLocation="http://www.springframework.org/schema/beans
7                           http://www.springframework.org/schema/beans/spring-beans.xsd
8                           http://www.springframework.org/schema/context
9                           http://www.springframework.org/schema/context/spring-context.xsd">
10
11     <bean name="scores"
12           class="com.springcore.setterInjection.reftypes.Scores"
13           p:maths="80" p:physics="90" p:chemistry="70" />
14
15     <!-- <bean name="student"
16           class="com.springcore.setterInjection.reftypes.Student">
17         <property name="scores">
18             <ref bean="scores" />
19         </property>
20     </bean> -->
21
22     <!-- <bean name="student"
23           class="com.springcore.setterInjection.reftypes.Student">
24         <property name="scores" ref="scores" />
25     </bean> -->
26
27     <bean name="student"
28           class="com.springcore.setterInjection.reftypes.Student" p:scores-ref="scores" />
29
30 </beans>
```

6. 과제

ShoppingCart	→	Item
		id int
		name String
		price double
		quantity int