



XML Usages in your project

- **Configuration**
 - Human readable file
 - Computer readable format
- Presentation
 - With XSLT and CSS
 - Data separated from presentation
- Import and export of data
 - XSLT for data conversion

} *FOCUS!*

XML Structure

- XML Declaration
- Elements
- Attributes
- Texts
- Comments
- Processing Instructions

XML Declaration

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

```
<books>
```

```
  <!-- Consider adding ISBN attribute -->
```

```
  <book id="123-456-7698" pageCount="2017">
```

```
    <title>The rise and fall of the roman empire</title>
```

```
  </book>
```

```
  <book id="7">
```

```
    <book id="7-1" pageCount="1024">
```

```
      <title>Fellowship of the Ring</title>
```

```
    </book>
```

```
  <book id="7-2" pageCount="1007">
```

```
    <title>The two towers</title>
```

```
  </book>
```

```
  <book id="7-3" pageCount="1134">
```

```
    <title>Return of the King</title>
```

```
  </book>
```

```
  </book>
```

```
</books>
```

Always version="1.0"

XML Elements

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

```
<books>
```

```
  <!-- Consider adding ISBN attribute -->
```

```
  <book id="123-456-7698" pageCount="2017">
```

```
    <title>The rise and fall of the roman empire</title>
```

```
  </book>
```

```
  <book id="7">
```

```
    <book id="7-1" pageCount="1024">
```

```
      <title>Fellowship of the Ring</title>
```

```
    </book>
```

```
  <book id="7-2" pageCount="1007">
```

```
    <title>The two towers</title>
```

```
  </book>
```

```
  <book id="7-3" pageCount="1134">
```

```
    <title>Return of the King</title>
```

```
  </book>
```

```
</book>
```

```
</books>
```

Matching start and end tags

XML Attributes

```
<?xml version="1.0" encoding="UTF-8" ?>
<books>
  <!-- Consider adding ISBN attribute -->
  <book id='123-456-7698' pageCount="2017">
    <title>The rise and fall of the roman empire</title>
  </book>
  <book id="7">
    <book id="7-1" pageCount="1024">
      <title>Fellowship of the Ring</title>
    </book>
    <book id="7-2" pageCount="1007">
      <title>The two towers</title>
    </book>
    <book id="7-3" pageCount="1134">
      <title>Return of the King</title>
    </book>
  </book>
</books>
```

*Both key and value shall be specified,
values shall be in matching quotes,
either single or double*

XML Texts

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

```
<books>
```

```
  <!-- Consider adding ISBN attribute -->
```

```
  <book id="123-456-7698" pageCount="2017">
```

```
    <title>The rise & fall of the roman empire</title>
```

```
  </book>
```

```
<book id="7">
```

```
  <book id="7-1" pageCount="1024">
```

```
    <title>Fellowship of the Ring</title>
```

```
  </book>
```

```
<book id="7-2" pageCount="1007">
```

```
  <title>The two towers</title>
```

```
</book>
```

```
<book id="7-3" pageCount="1134">
```

```
  <title>Return of the King</title>
```

```
</book>
```

```
</books>
```

The characters <, >, and & are not allowed in texts.

Use <, >,

and & ;

instead!

XML Comments

```
<?xml version="1.0" encoding="UTF-8" ?>
<books>
  <!-- Consider adding ISBN attribute -->
  <book id="123-456-7698" pageCount="2017">
    <title>The rise and fall of the roman empire</title>
  </book>
  <book id="7">
    <book id="7-1" pageCount="1024">
      <title>Fellowship of the Ring</title>
    </book>
    <book id="7-2" pageCount="1007">
      <title>The two towers</title>
    </book>
    <book id="7-3" pageCount="1134">
      <title>Return of the King</title>
    </book>
  </book>
</books>
```

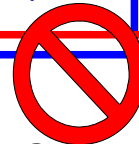
Comments cannot be nested

XML shall be well formed

- There shall be exactly one root element
- Elements can be nested, but not mixed

`dette er fed og <i>kursiv</i> <i>på samme tid</i>`

`dette er ikke fed og <i>kursiv på samme tid</i>`



Element's start and end tags must match

- Attributes must have values in matching quotes

`<book selected id=4711 code='Action' type="B8" ref='A38' />`

Xpath navigating in XML

- **/** The document root
- ***** Any element
- **a/b** All b elements which are children of an a element
- **a//b** All b elements with an a element ancestor
- **a/@id** All id attributes in a elements
- **a[@id]** All a elements with an id attribute
- **a[@id='A38']/b** All b elements with an a element that has an id attribute values A38 as an ancestor.