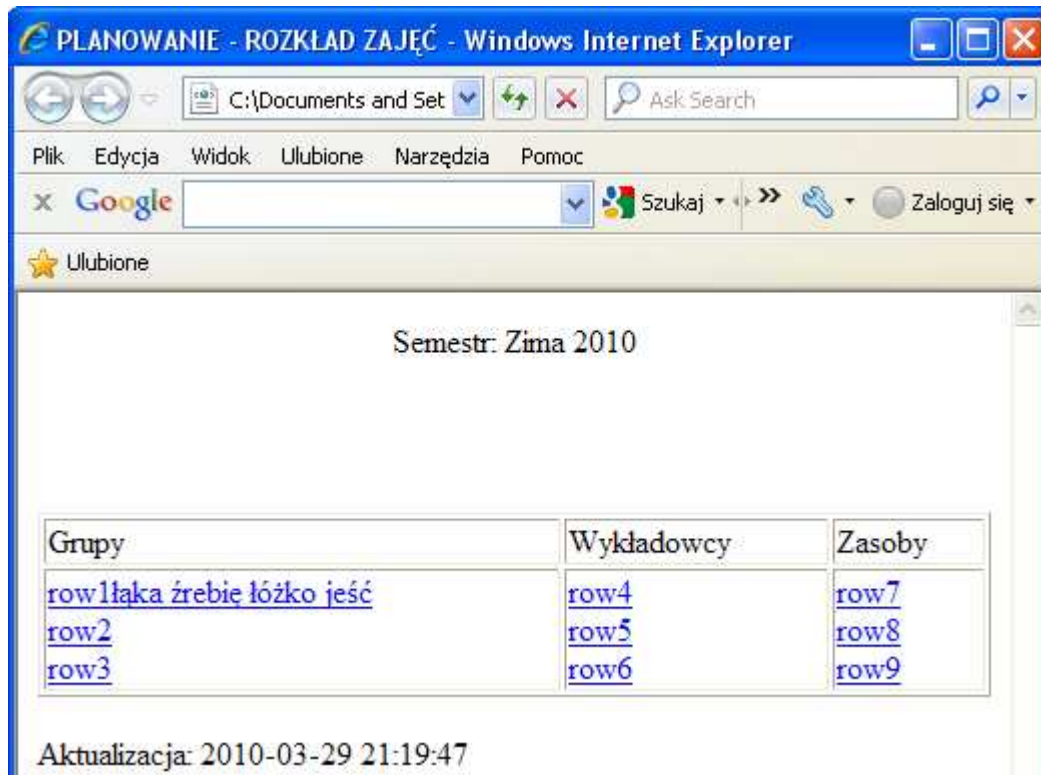## *XSLT Transformation*

This technique allows you distinguish data and layout into two separated files.
You need any web browser, nothing else.

More about transformations
1. xslt file can be written manually or by GUI in jdeveloper
2. alternative for xslt is xquery. Xquery can be written manually or by GUI in eclipse
3. in Oracle Database is function XMLTRANSFORM which transforms one XML file into another file

Simple example

Desired effect

Input file : XML

```<?xml version="1.0" encoding="windows-1250"?>``` ```<?xml-stylesheet type="text/xsl" href="layout.xslt"?>``` ```<xml>``` ```<title name="PLANOWANIE – ROZKŁAD ZAJĘĆ"></title>``` ```<period name="Semestr: Zima 2010"></period>``` ```<data>```	Standard header, windows-1250 = standard of ms windows operation system Reference to xslt
``` <gro href="(c11).htm" text="row1łąka źrebię łóżko jeść"/>``` ``` <gro href="(c11).htm" text="row2"/>``` ``` <gro href="(c11).htm" text="row3"/>``` ``` <lec href="(c11).htm" text="row4"/>``` ``` <lec href="(c11).htm" text="row5"/>``` ``` <lec href="(c11).htm" text="row6"/>``` ``` <res href="(c11).htm" text="row7"/>```	Tag with attribute with no data

```
   <res href="(c11).htm" text="row8"/>
   <res href="(c11).htm" text="row9"/>
</data>
<who lastupdatetext="Aktualizacja: 2010-03-29 21:19:47"></who>
</xml>
```

Input file : XSLT

`<?xml version="1.0" encoding="windows-1250" ?>` `<xsl:stylesheet version="1.0" xmlns:xsl="http://www.w3.org/1999/XSL/Transform">` `  <xsl:output method="html"/>` `  <xsl:template match="xml">` `    <html>` `     <HEAD>` `      <xsl:for-each select = "title">` `        <title>` `          <xsl:value-of select="@name"/>` `        </title>` `      </xsl:for-each>` `     </HEAD>` `     <body>` `       <xsl:apply-templates/>` `     </body>` `    </html>` `  </xsl:template>` `  <xsl:template match="period">` `    <CENTER><xsl:value-of select="@name"/></CENTER>    ` `  </xsl:template>` `  <xsl:template match="data">` `    <TABLE BORDER="1" WIDTH="100%">` `    <TR><TD>Grupy</TD><TD>Wyk³adowcy</TD><TD>Zasoby</TD></TR>` `    <TR>` `    <TD VALIGN="TOP">` `     <xsl:for-each select = "gro">` `      <a>` `        <xsl:attribute name="href"><xsl:value-of select="@href"/></xsl:attribute>` `       <xsl:value-of select="@text"/>` `      </a> ` `     </xsl:for-each>` `    </TD>` `    <TD VALIGN="TOP">` `     <xsl:for-each select = "lec">` `      <a>` `        <xsl:attribute name="href"><xsl:value-of select="@href"/></xsl:attribute>` `       <xsl:value-of select="@text"/>` `      </a> ` `     </xsl:for-each>` `    </TD>` `    <TD VALIGN="TOP">` `     <xsl:for-each select = "res">`	Defines key words to be used In file Process branch named "xml". This is case sensitive Content of result file Process branch named "title". Must be inside "xml" branch @ means reference to attribute, compare with xml file recursive calling NOT ← each element must be closed For each element named "gro" This is a bit sophisticated. This command generates to html element ?

```
      <a>
        <xsl:attribute name="href"><xsl:value-of select="@href"/></xsl:attribute>
        <xsl:value-of select="@text"/>
      </a><BR/>
     </xsl:for-each>
    </TD>
    </TR>
    </TABLE>
  </xsl:template>

  <xsl:template match="who">
    <BR/><xsl:value-of select="@lastupdatetext"/>
  </xsl:template>

</xsl:stylesheet>
```

Result file

```
<html>
<HEAD>
<META http-equiv="Content-Type" content="text/html; charset=UTF-16">
<title>PLANOWANIE - ROZKfAD ZAJÊÆ</title>
</HEAD>
<body>
<CENTER>Semestr: Zima 2010</CENTER><BR><BR><BR><BR><TABLE BORDER="1" WIDTH="100%">
<TR><TD>Grupy</TD><TD>Wykładowcy</TD><TD>Zasoby</TD></TR>
<TR>
<TD VALIGN="TOP"><a href="(c11).htm">row1³¹ka Ÿrebiê ³ó¿ko jeœæ</a><BR><a
href="(c11).htm">row2</a><BR><a href="(c11).htm">row3</a><BR></TD>
<TD VALIGN="TOP"><a href="(c11).htm">row4</a><BR><a href="(c11).htm">row5</a><BR><a
href="(c11).htm">row6</a><BR></TD>
<TD VALIGN="TOP"><a href="(c11).htm">row7</a><BR><a href="(c11).htm">row8</a><BR><a
href="(c11).htm">row9</a><BR></TD>
</TR>
</TABLE><BR>Aktualizacja: 2010-03-29 21:19:47</body>
</html>
```

Advanced example

This example shows
- how to reference to specific nodes ([])
- how to use "disable-output-escaping"
- how to use reusable code (<xsl:template name="comment">, <xsl:call-template name="comment">)
- how to use "case " statement (<xsl:choose>)

- how to reference to current element (.)
- how to use build-in functions (translate)
- how test whether node exists

Desired effect

title	description	summary	priority	status	resolution	assignee	reporter	created	resolved	comments1	comments2	comments3	c
[CW-345] java.lang.OutofMemoryError	podczas wprowadzania danych (obywatelstwo, pesel, dokument, numer) pojawia sie blad: java.lang.outofmemoryerror for more information, please see the server's error log for an entry beginning with: server exception during ppr, #3.	java.lang.OutofMemoryError	Krytyczny	Open	NierozwiÄ… zane	Krzysztof Michalski	Joanna Kruszynska	Fri, 2 Apr 2010 14:37:19 +0200 (CEST)		Value from element <comment>, 1st,2nd,3rd instance respectively			
	agnieszka, prosba o zmiane w												

Input file : XML

C:\Documents and Settings\admin\Pulpit'

```xml
<?xml version="1.0" encoding="windows-1250"?>
<?xml-stylesheet type="text/xsl" href="layout.xslt"?>
<rss version="0.92">
    <channel>
        <title>Credit Workflow</title>

<link>http://10.200.205.44:8080/secure/IssueNavigator.jspa?reset=true&amp;jqlQuery=p
roject+%3D+CW</link>
        <description>An XML representation of a search request</description>
                <language>pl-pl</language>
                        <issue start="0" end="328" total="328"/>
                <build-info>
        <version>4.0.1</version>
        <build-number>471</build-number>
        <build-date>27-11-2009</build-date>
        <edition>enterprise</edition>
    </build-info>
```

```
<item>
            <title>[CW-345] java.lang.OutofMemoryError</title>
                <link>http://10.200.205.44:8080/browse/CW-345</link>
                    <project id="10002" key="CW">Credit Workflow</project>
                        <description>podczas wprowadzania danych (obywatelstwo,
PESEL, dokument, numer) pojawia sie blad:
&lt;br/&gt;

&lt;br/&gt;
java.lang.OutOfMemoryError
&lt;br/&gt;

&lt;br/&gt;
For more information, please see the server&apos;s error log for an entry beginning
with: Server Exception during PPR, #3.</description>
                <key id="10608">CW-345</key>
            <summary>java.lang.OutofMemoryError</summary>
                <type id="1"
iconUrl="http://10.200.205.44:8080/images/icons/bug.gif">Bug</type>
                        <priority id="2"
iconUrl="http://10.200.205.44:8080/images/icons/priority_critical.gif">Krytyczny</pr
iority>
                <status id="1"
iconUrl="http://10.200.205.44:8080/images/icons/status_open.gif">Open</status>
                <resolution id="-1">Nierozwi¹zane</resolution>
                <security id="10000">ORACLE</security>
                    <assignee username="kmichalski">Krzysztof
Michalski</assignee>
                        <reporter username="jkruszynska">Joanna
Kruszynska</reporter>
                    <created>Fri, 2 Apr 2010 14:37:19 +0200 (CEST)</created>
                <updated>Fri, 2 Apr 2010 14:37:19 +0200 (CEST)</updated>
                        <version> 0.0.7</version>
                                <component>ADF</component>
                    <due></due>
                <votes>0</votes>
                        <attachments>
                </attachments>
            <subtasks>
        </subtasks>
                <customfields>
                                    <customfield
id="customfield_10005"
key="com.atlassian.jira.plugin.system.customfieldtypes:select">
                <customfieldname>Zg&#322;aszaj&#261;cy</customfieldname>
                <customfieldvalues>
                    <customfieldvalue><![CDATA[Zespó³ testowy]]></customfieldvalue>

                </customfieldvalues>
            </customfield>
                                <customfield id="customfield_10004"
key="com.atlassian.jira.plugin.system.customfieldtypes:select">
                <customfieldname>&#346;rodowisko</customfieldname>
                <customfieldvalues>
                    <customfieldvalue><![CDATA[Testowe]]></customfieldvalue>

                </customfieldvalues>
```


 =
, see "disable-output-escaping" in xslt

```
                    </customfield>
                                    <customfield id="customfield_10003"
key="com.atlassian.jira.plugin.system.customfieldtypes:select">
                    <customfieldname>Wykryto w</customfieldname>
                    <customfieldvalues>
                        <customfieldvalue><![CDATA[Testach
modu³owych]]></customfieldvalue>

                    </customfieldvalues>
                </customfield>
                                    <customfield id="customfield_10000"
key="com.atlassian.jira.plugin.system.customfieldtypes:multiselect">
                    <customfieldname>Formatka</customfieldname>
                    <customfieldvalues>
                            <customfieldvalue><![CDATA[WNI-001]]></customfieldvalue>

                    </customfieldvalues>
                </customfield>
                                        </customfields>
        </item>


<item>
            <title>[CW-344] zmiana w interfejsie</title>
                <link>http://10.200.205.44:8080/browse/CW-344</link>
                <project id="10002" key="CW">Credit Workflow</project>
                    <description>Agnieszka, prosba o zmiane w dokumencie -
przyciski &amp;quot;zamykajace&amp;quot; formatke, czyli &amp;quot;Zakonczenie
negatywne&amp;quot;, &amp;quot;Przeslij&amp;quot;, &amp;quot;Anuluj&amp;quot; beda
na tle jasniejszym, podobnie jak przycisk &amp;quot;Zapisz&amp;quot;. beda wizualnie
oddzielone od &amp;quot;niezamykajacego&amp;quot; przycisku
&amp;quot;Zapisz&amp;quot;. Dzieki</description>
                    <key id="10607">CW-344</key>
                <summary>zmiana w interfejsie</summary>
                    <type id="3"
iconUrl="http://10.200.205.44:8080/images/icons/task.gif">Task</type>
                            <priority id="4"
iconUrl="http://10.200.205.44:8080/images/icons/priority_minor.gif">&#346;redni</pri
ority>
                    <status id="1"
iconUrl="http://10.200.205.44:8080/images/icons/status_open.gif">Open</status>
                    <resolution id="-1">Nierozwi¹zane</resolution>
                    <security id="10000">ORACLE</security>
                        <assignee username="amatuszewska">Agnieszka
Matuszewska</assignee>
                            <reporter username="kkrasowski">Kamil
Krasowski</reporter>
                        <created>Fri, 2 Apr 2010 14:10:42 +0200 (CEST)</created>
                <updated>Fri, 2 Apr 2010 14:10:42 +0200 (CEST)</updated>
                            <version> 0.0.7</version>
                                        <due></due>
                <votes>0</votes>
                            <attachments>
                </attachments>
            <subtasks>
        </subtasks>
                <customfields>
                                                <customfield
```

```
id="customfield_10000"
key="com.atlassian.jira.plugin.system.customfieldtypes:multiselect">
                <customfieldname>Formatka</customfieldname>
                <customfieldvalues>
                        <customfieldvalue><![CDATA[WAR-001]]></customfieldvalue>

                </customfieldvalues>
            </customfield>
                                      <customfield id="customfield_10004"
key="com.atlassian.jira.plugin.system.customfieldtypes:select">
                <customfieldname>&#346;rodowisko</customfieldname>
                <customfieldvalues>
                    <customfieldvalue><![CDATA[Developerskie]]></customfieldvalue>

                </customfieldvalues>
            </customfield>
                                          </customfields>
    </item>


<item>
            <title>[CW-343] createBMAccount - jaka wartosc dla takiego parametru:
AccountCategory</title>
                <link>http://10.200.205.44:8080/browse/CW-343</link>
                <project id="10002" key="CW">Credit Workflow</project>
                        <description>uruchomilam createBMAccount ale zwrocilo mi
status: 2 = Niedopuszczalna kategoria konta
&lt;br/&gt;
nie wiem co wprowadzic w to pole, a w excelu nie mam zadnych wartosci dla Kategorii
zakladanego rachunku (wydaje mi sie ze o to chodzi, ale pewna nie jestem) - jest
info ze tego brakuje!</description>
                <key id="10606">CW-343</key>
            <summary>createBMAccount - jaka wartosc dla takiego parametru:
AccountCategory</summary>
                <type id="1"
iconUrl="http://10.200.205.44:8080/images/icons/bug.gif">Bug</type>
                        <priority id="5"
iconUrl="http://10.200.205.44:8080/images/icons/priority_trivial.gif">Niski</priorit
y>
                    <status id="1"
iconUrl="http://10.200.205.44:8080/images/icons/status_open.gif">Open</status>
                    <resolution id="-1">Nierozwi¹zane</resolution>
                    <security id="10000">ORACLE</security>
                        <assignee username="msobieszek">Marcin Sobieszek</assignee>
                                <reporter username="mbartnik">Martyna
Bartnik</reporter>
                        <created>Fri, 2 Apr 2010 13:00:11 +0200 (CEST)</created>
                <updated>Fri, 2 Apr 2010 13:00:11 +0200 (CEST)</updated>

<component>Interfejsy</component>
                        <due></due>
                    <votes>0</votes>
                            <attachments>
                    </attachments>
            <subtasks>
        </subtasks>
                <customfields>
                                          <customfield
```

```
id="customfield_10005"
key="com.atlassian.jira.plugin.system.customfieldtypes:select">
                <customfieldname>Zg&#322;aszaj&#261;cy</customfieldname>
                <customfieldvalues>
                    <customfieldvalue><![CDATA[Zespó³ testowy]]></customfieldvalue>

                </customfieldvalues>
            </customfield>
                                    <customfield id="customfield_10004"
key="com.atlassian.jira.plugin.system.customfieldtypes:select">
                <customfieldname>&#346;rodowisko</customfieldname>
                <customfieldvalues>
                    <customfieldvalue><![CDATA[Testowe]]></customfieldvalue>

                </customfieldvalues>
            </customfield>
                                    <customfield id="customfield_10003"
key="com.atlassian.jira.plugin.system.customfieldtypes:select">
                <customfieldname>Wykryto w</customfieldname>
                <customfieldvalues>
                    <customfieldvalue><![CDATA[Testach
modu³owych]]></customfieldvalue>

                </customfieldvalues>
            </customfield>
                                                    </customfields>
    </item>

<item>
            <title>[CW-342] Metoda &quot;assignBMAccountCoowner&quot; nie uruchamia
si&#281;</title>
                <link>http://10.200.205.44:8080/browse/CW-342</link>
                <project id="10002" key="CW">Credit Workflow</project>
                    <description>Ma&#263;ku, wymieniona w tytule metoda nie
uruchamia si&#281;, b&#322;&#261;d jaki wyskakuje jest w za&#322;&#261;czniku (tam
tak&#380;e kiedy wyst&#261;pi&#322; problem). Martyna tak&#380;e ma ten sam
b&#322;&#261;d. Jeszcze zaobserwowali&#347;my r&amp;#xF3;&#380;nice: w pliku
&amp;quot;CoreSystem.Account.AssignCoowner.xsd&amp;quot; jest wymagany atrybut
&amp;quot;ACCOUNT_RELATION&amp;quot; a na konsoli nie jest on oznaczony
gwiazdk&#261; (w testach dawali&#347;my oba atrybuty).</description>
                <key id="10605">CW-342</key>
            <summary>Metoda &quot;assignBMAccountCoowner&quot; nie uruchamia
si&#281;</summary>
                <type id="1"
iconUrl="http://10.200.205.44:8080/images/icons/bug.gif">Bug</type>
                            <priority id="3"
iconUrl="http://10.200.205.44:8080/images/icons/priority_major.gif">Wysoki</priority
>
                    <status id="1"
iconUrl="http://10.200.205.44:8080/images/icons/status_open.gif">Open</status>
                <resolution id="-1">Nierozwi¹zane</resolution>
                <security id="10000">ORACLE</security>
                    <assignee username="msobieszek">Marcin Sobieszek</assignee>
                        <reporter username="ppachla">Piotr Pachla</reporter>
                <created>Fri, 2 Apr 2010 12:55:46 +0200 (CEST)</created>
            <updated>Wed, 7 Apr 2010 09:20:50 +0200 (CEST)</updated>
                            <version>0.0.6</version>
```

```xml
                            <component>Interfejsy</component>
                    <due></due>
                  <votes>0</votes>
                    <comments>
                    <comment id="10394" author="msobieszek" created="Tue, 6 Apr 2010
09:00:16 +0200 (CEST)"  >Piotrek,
&lt;br/&gt;


&lt;br/&gt;
poprosze o stos wyjatku.</comment>
                    <comment id="10396" author="ppachla" created="Wed, 7 Apr 2010
09:11:09 +0200 (CEST)"  >Do&#322;&#261;czony zrzut ekranu.</comment>
                    <comment id="10397" author="ppachla" created="Wed, 7 Apr 2010
09:20:50 +0200 (CEST)"  >Dane wej&#347;ciowe to np:
&lt;br/&gt;
1. Modulo: 400957 i Relacja: A
&lt;br/&gt;
2. Modulo: 402405 i Relacja: C</comment>
                </comments>
                    <attachments>
                    <attachment id="10041" name="assignBMAccountCoowner g1042.jpg"
size="119003" author="ppachla" created="Wed, 7 Apr 2010 09:10:38 +0200 (CEST)" />
                </attachments>
            <subtasks>
        </subtasks>
                <customfields>
                                            <customfield
id="customfield_10005"
key="com.atlassian.jira.plugin.system.customfieldtypes:select">
                <customfieldname>Zg&#322;aszaj&#261;cy</customfieldname>
                <customfieldvalues>
                    <customfieldvalue><![CDATA[Zespó³ testowy]]></customfieldvalue>

                </customfieldvalues>
            </customfield>
                                        <customfield id="customfield_10004"
key="com.atlassian.jira.plugin.system.customfieldtypes:select">
                <customfieldname>&#346;rodowisko</customfieldname>
                <customfieldvalues>
                    <customfieldvalue><![CDATA[Testowe]]></customfieldvalue>

                </customfieldvalues>
            </customfield>
                                        <customfield id="customfield_10003"
key="com.atlassian.jira.plugin.system.customfieldtypes:select">
                <customfieldname>Wykryto w</customfieldname>
                <customfieldvalues>
                    <customfieldvalue><![CDATA[Testach
integracyjnych]]></customfieldvalue>

                </customfieldvalues>
            </customfield>
                                                <customfields>
    </item>
</channel>
</rss>
```

Input file : XSLT

C:\Documents and
Settings\admin\Pulpit'

```xml
<?xml version="1.0" encoding="windows-1250" ?>
<xsl:stylesheet version="2.0" xmlns:xsl="http://www.w3.org/1999/XSL/Transform"
xmlns:fn="http://www.w3.org/2005/02/xpath-functions">
  <xsl:output method="html"/>

  <xsl:template match="xml">
      <html>
       <HEAD>
       </HEAD>
       <body style="text-align: center;  background-color: #eeeeee; ">
                          <xsl:apply-templates/>
       </body>
      </html>
  </xsl:template>

  <xsl:template match="channel">
   <center>
    <TABLE BORDER="1" WIDTH="100%" style="border: 0px dashed black">
    <TR style="background-color:
silver"><TD>title</TD><TD>description</TD><TD>summary</TD><TD>priority</TD><TD>statu
s</TD><TD>resolution</TD><TD>assignee</TD><TD>reporter</TD><TD>created</TD><TD>resol
ved</TD><TD>comments1</TD><TD>comments2</TD><TD>comments3</TD><TD>comments4</TD><TD>
comments5</TD><TD>comments6</TD><TD>comments7</TD><TD>comments8</TD><TD>comments9</T
D><TD>comments10</TD></TR>
    <xsl:for-each select = "item">
    <TR>
    <TD><xsl:value-of select="title"/></TD>
    <TD><xsl:value-of select="translate(description, 'ABCDEFGHIJKLMNOPQRSTUVWXYZ',
'abcdefghijklmnopqrstuvwxyz')" disable-output-escaping = "yes"/></TD>
    <TD><xsl:value-of select="summary"/></TD>
    <TD><xsl:value-of select="priority"/></TD>
    <TD><xsl:value-of select="status"/></TD>
    <TD><xsl:value-of select="resolution"/></TD>
    <TD><xsl:value-of select="assignee"/></TD>
    <TD><xsl:value-of select="reporter"/></TD>
    <TD><xsl:value-of select="created"/></TD>
    <TD><xsl:value-of select="resolved"/><br/></TD>
     <xsl:call-template name="comment">
      <xsl:with-param name="cmnt" select="comments/comment[1]" />
     </xsl:call-template>
```

Translate == PL/SQL Translate. You can also use other functions described on wc3.org website
disable-output-escaping = execute statements like
 (go to new line) instead of writing

xsl:call-template – call subprocedure "comment" with param "cmnt"

```
          <xsl:call-template name="comment">
            <xsl:with-param name="cmnt" select="comments/comment[2]" />
          </xsl:call-template>
          <xsl:call-template name="comment">
            <xsl:with-param name="cmnt" select="comments/comment[3]" />
          </xsl:call-template>
      </TR>
      </xsl:for-each>
      </TABLE>
      </center>
  </xsl:template>

  <xsl:template name="comment">
    <xsl:param name="cmnt"/>
    <td>
      <xsl:choose>
        <xsl:when test="$cmnt">
          <b><xsl:value-of select="$cmnt/." disable-output-escaping =
"yes"/></b><br/><br/>
            <xsl:value-of select="$cmnt/@author"/><br/><br/>
            <xsl:value-of select="$cmnt/@created"/><br/><br/>
        </xsl:when>
        <xsl:otherwise> </xsl:otherwise>
      </xsl:choose>
    </td>
  </xsl:template>

</xsl:stylesheet>
```

[2] = look for second instance of element comment in comments

xsl:template – procedure called by xsl:call-template.

Choose = PL/SQL case of
$cmnt – reference do parameter of this procedure
. = element value

test = check whether does element exist

<xsl:otherwise> </xsl:otherwise> - set single char (required in order <td> to be inserted)

Result file

Not necessary

Xpath simple example

```
<?xml version="1.0" encoding="UTF-8"?>
<xsl:stylesheet version="2.0" xmlns:xsl="http://www.w3.org/1999/XSL/Transform" >
  <xsl:output method="xml"/>
 <xsl:template match="/">
  <xsl:copy-of xmlns:v11="http://policja.gov.pl/EnterpriseObjectLibrary/Common/V1" select="//v11:Picture/text()"/>
 </xsl:template>
</xsl:stylesheet>
```

More

See also SORT option
Look for w3schools – free good quality studies

Open issues

Does not work
<xsl:stylesheet version="2.0" xmlns:xsl="http://www.w3.org/1999/XSL/Transform" xmlns:fn="http://www.w3.org/2005/02/xpath-functions">
<TD><xsl:value-of select="fn:upper-case(description)" disable-output-escaping = "yes"/></TD>