ΕΘΝΙΚΟ ΜΕΤΣΟΒΙΟ ΠΟΛΥΤΕΧΝΕΙΟ

ΣΧΟΛΗ ΗΜ&ΜΥ
Διαδίκτυο & Εφαρμογές

2^η Άσκηση
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Κώδικας άσκησης

i.   Κεντρική σελίδα

Εδώ μας δίνεται η δυνατότητα να επιλέξουμε το τι επιθυμούμε να δείξουμε καθώς και δύο στοιχεία μορφοποί-
ησης. Στοίχιση και χρώμα παρασκηνίου. Αυτά στέλνονται με POST στο servlet XMLTransformer.

```html
<!DOCtype html PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN" "http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
<title>Product Selection</title>
</head>

<body>
        <form ACTION="http://localhost:8080/ask2/XMLTransformer" method="POST">
                <div>
                        <div>
                                <h3>
                                        Please select a product:
                                        </h2>
                        </div>
                        <div>
                                <input type='radio' name='product' value="/WEB-INF/Airplanes.xml"
                                        checked> Airplanes
                        </div>
                        <div>
                                <input type='radio' name='product' value="/WEB-INF/Books.xml">
                                Books
                        </div>
                        <div>
                                <input type='radio' name='product' value="/WEB-INF/Cars.xml">
                                Cars
                        </div>
                        <div>
                                <br />
                        </div>
                        <div>
                                <h3>
                                        Please select color of header:
                                        </h2>
                        </div>
                        <div>
                                <input type='radio' name='color' value="red" checked> Red
                        </div>
                        <div>
                                <input type='radio' name='color' value="green"> Green
                        </div>
                        <div>
                                <input type='radio' name='color' value="blue"> Blue
                        </div>
                        <div>
                                <h3>
                                        Please select font size:
                                        </h2>
                        </div>
                        <div>
                                <input type='radio' name='align' value="left" checked> Left
                        </div>
                        <div>
                                <input type='radio' name='align' value="center"> Center
                        </div>
                        <div>
                                <input type='radio' name='align' value="right"> Right
                        </div>
                </div>
                <input type='submit' value='OK'>
        </form>
</body>
</html>
```

ii.   Servlet και web.xml

Το servlet παίρνει από το request τα δεδομένα που θέλουμε και ανοίγει τα αντίστοιχα αρχεία για να μας παρου-
σιάσει αυτά που ζητήσαμε.

```java
import java.io.*;
import javax.xml.transform.stream.*;
import javax.xml.transform.*;
import javax.xml.transform.sax.SAXSource;
import javax.xml.transform.stream.StreamSource;
import javax.xml.transform.stream.StreamResult;
import org.xml.sax.*;
// for servlet:
import javax.servlet.*;
```

```java
10   import javax.servlet.http.*;
11
12   import org.w3c.dom.*; // for DOM (Java DOM)
13   import javax.xml.parsers.*;
14
15   import javax.xml.transform.dom.*;// for transformations
16
17   public class XMLTransformer extends HttpServlet {
18           /**
19            *
20            */
21           private static final long serialVersionUID = 1L;
22           ServletContext ctx;
23           String absPath; // absolute path to our files - see below
24           SAXSource xsltDoc;
25           TransformerFactory tF;
26           Transformer myTransformer;// will be built at init, will be used by doGet
27           Document doc;
28
29           public void init(ServletConfig config) throws UnavailableException {
30                   System.out.println("Init start");
31                   try {
32                           ctx = config.getServletContext(); // we will use the 'contex' below
33                           absPath = ctx.getRealPath("/WEB-INF/present.xsl");
34                           xsltDoc = new SAXSource(new InputSource(absPath));
35                           tF = TransformerFactory.newInstance();
36                           DocumentBuilderFactory fact = DocumentBuilderFactory.newInstance();
37                           // absolutely important, to understand the meaning of prefix 'xslt'
38                           // !!!!
39                           fact.setNamespaceAware(true);
40                           DocumentBuilder builder = fact.newDocumentBuilder();
41                           doc = builder.parse(absPath);
42                           System.out.println("Name of document element is "
43                                           + doc.getDocumentElement().getNodeName());
44                   } catch (Exception e) {
45                           e.printStackTrace();
46                   }
47                   System.out.println("Init end");
48           }
49
50           private void changeDomByColor(Document doc, String color) {
51                   NodeList nl = doc.getElementsByTagName("h1");
52                   Attr a = doc.createAttribute("style");
53                   a.setValue("background-color: " + color);
54                   nl.item(0).getAttributes().setNamedItem(a);
55           }
56
57           private void changeDomByAlign(Document doc, String align) {
58                   NodeList nl = doc.getElementsByTagName("h1");
59                   Attr a = doc.createAttribute("align");
60                   a.setValue("" + align);
61                   nl.item(0).getAttributes().setNamedItem(a);
62           }
63
64           public void doPost(HttpServletRequest request, HttpServletResponse response)
65                           throws ServletException, IOException {
66
67                   String filename = request.getParameter("product");
68                   String align = request.getParameter("align");
69                   String color = request.getParameter("color");
70
71                   System.out.println("dopost start");
72                   System.out.println("Name of document element (at the post) is "
73                                   + doc.getDocumentElement().getNodeName());
74                   System.out.println("You selected the color " + color);
75                   System.out.println("You selected the alignment " + align);
76                   System.out.println("You selected the datafile " + filename);
77
78                   changeDomByColor(doc, color);
79                   changeDomByAlign(doc, align);
80
81                   System.out.println(doc.getElementsByTagName("h1").item(0)
82                                   .getAttributes().getNamedItem("style").getNodeValue());
83                   PrintWriter pwr = response.getWriter();
84                   try {
85                           DOMSource ds = new DOMSource(doc);
86                           System.out.println(((Document) ds.getNode()).getDocumentElement()
87                                           .getNodeName()
88                                           + " "
89                                           + ((Document) ds.getNode()).getDocumentElement()
90                                                           .getNodeValue());
91
92                           myTransformer = tF.newTransformer(ds);
93
94                           StreamSource xmlSource = new StreamSource(
95                                           ctx.getResourceAsStream(filename));
96                           System.out.println("Sending back the xml tranformed into html");
97                           response.setContentType("text/html"); // in order to put in http
98                                                                                           // body
```

2

```
99                          myTransformer.transform(xmlSource, new StreamResult(pwr));
100                         pwr.println("The response sent back as a page!");
101                         pwr.close();
102                 } catch (Exception e) {
103                         e.printStackTrace();
104                 }
105                 System.out.println("dopost stop");
106         }
107
108 }
```

```
1   <?xml version="1.0" encoding="UTF-8"?>
2   <web-app xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://java.sun.com/xml/ns/javaee" xmlns:web="http://java.sun.com/xml/ns/jav
3     <display-name>ask2</display-name>
4     <welcome-file-list>
5       <welcome-file>index.html</welcome-file>
6       <welcome-file>index.htm</welcome-file>
7       <welcome-file>index.jsp</welcome-file>
8       <welcome-file>default.html</welcome-file>
9       <welcome-file>default.htm</welcome-file>
10      <welcome-file>default.jsp</welcome-file>
11    </welcome-file-list>
12    <servlet>
13      <description></description>
14      <display-name>XMLTransformer</display-name>
15      <servlet-name>XMLTransformer</servlet-name>
16      <servlet-class>XMLTransformer</servlet-class>
17    </servlet>
18    <servlet-mapping>
19      <servlet-name>XMLTransformer</servlet-name>
20      <url-pattern>/XMLTransformer</url-pattern>
21    </servlet-mapping>
22  </web-app>
```

iii.   XSL αρχείο template

Το template περιέχει την πληροφορία για τον τρόπο που θα περαστούν τα δεδομένα, που βρίσκονται στα XML αρχεία, στη σελίδα, για να παρουσιαστούν στο χρήστη.

```
1   <?xml version="1.0" encoding="UTF-8"?>
2   <xsl:stylesheet version="1.0"
3           xmlns:xsl="http://www.w3.org/1999/XSL/Transform">
4           <xsl:template match="/">
5                   <!-- TODO: Auto-generated template -->
6                   <html>
7                           <body background="Money.jpg">
8                                   <h1 style="text-align:right">
9                                           <font>
10                                                  List of
11                                                  <xsl:value-of select="name(*/*)" />
12                                                  s
13                                          </font>
14                                  </h1>
15
16                                  <table align="center" border="0">
17                                          <thead>
18                                                  <th>
19                                                          <xsl:value-of select="name(*/*/@*[1])" />
20                                                  </th>
21                                                  <th>
22                                                          <xsl:value-of select="name(*/*/@*[2])" />
23                                                  </th>
24                                                  <th>
25                                                          <xsl:value-of select="name(*/*/@*[3])" />
26                                                  </th>
27                                                  <th>
28                                                          <xsl:value-of select="name(*/*/*[1])" />
29                                                  </th>
30                                                  <th>
31                                                          <xsl:value-of select="name(*/*/*[2])" />
32                                                  </th>
33                                                  <th>
34                                                          <xsl:value-of select="name(*/*/*[3])" />
35                                                  </th>
36                                          </thead>
37                                          <tbody>
38                                                  <xsl:apply-templates />
39                                          </tbody>
40                                  </table>
41
42                                  <form action="index.html">
43                                          <input type="submit" value="Back"/>
44                                  </form>
45                          </body>
46
47                  </html>
48          </xsl:template>
```

```
49
50
51          <xsl:template match="/*/*">
52                  <tr>
53                          <td>
54                                  <xsl:value-of select="@*[1]" />
55                          </td>
56                          <td>
57                                  <xsl:value-of select="@*[2]" />
58                          </td>
59                          <td>
60                                  <xsl:value-of select="@*[3]" />
61                          </td>
62                          <td>
63                                  <xsl:value-of select="*[1]" />
64                          </td>
65                          <td>
66                                  <xsl:value-of select="*[2]" />
67                          </td>
68                          <td>
69                                  <xsl:value-of select="*[3]" />
70                          </td>
71                  </tr>
72
73          </xsl:template>
74
75
76
77  </xsl:stylesheet>
```

iv.   XML αρχεία που χρησιμοποιήθηκαν

Όπως φαίνεται από τα παρακάτω δεν έχει σημασία το όνομα των πεδίων στα αρχεία xml. Τα templates γράφτη-καν ώστε να λειτουργούν με τη μορφή και όχι με το περιεχόμενό τους.

```
1  <?xml version="1.0"?>
2  <!-- REFERENCE TO THE STYLESHEET: -->
3  <!-- not present here, is programmatically arranged -->
4  <airplanes>
5          <airplane brand="Boeing" model="747" company="Aegean">
6                  <capacity>220</capacity>
7                  <weight>81600</weight>
8                  <cost>$229100</cost>
9          </airplane>
10         <airplane brand="AirBus" model="A380" company="EasyJet">
11                 <capacity>850</capacity>
12                 <weight>391000</weight>
13                 <cost>$319095</cost>
14         </airplane>
15         <airplane brand="Bombardier" model="Global 5000" company="Aegean">
16                 <capacity>25</capacity>
17                 <weight>40700</weight>
18                 <cost>$259958</cost>
19         </airplane>
20  </airplanes>
```

```
1  <?xml version="1.0"?>
2  <!-- REFERENCE TO THE STYLESHEET: -->
3  <!-- not present here, is programmatically arranged -->
4  <books>
5          <book title="The Dark Tower" writer="Stephen King" publisher="Harper Colling">
6                  <pages>520</pages>
7                  <version>40</version>
8                  <RetailPrice>$25</RetailPrice>
9          </book>
10         <book title="The Alchemist" writer="Paolo Coelho" publisher="Penguin Group">
11                 <pages>850</pages>
12                 <version>12</version>
13                 <RetailPrice>$35</RetailPrice>
14         </book>
15         <book title="Aksion Esti" writer="Odysseas Elytis" publisher="Psyxogios">
16                 <pages>490</pages>
17                 <version>47</version>
18                 <RetailPrice>$20</RetailPrice>
19         </book>
20         <book title="Le petit prince" writer="Antoine de Saint-Exupéry"
21                 publisher="Gallimard">
22                 <pages>390</pages>
23                 <version>27</version>
24                 <RetailPrice>$40</RetailPrice>
25         </book>
26  </books>
```

```
1  <?xml version="1.0"?>
2  <!-- REFERENCE TO THE STYLESHEET: -->
3  <!-- not present here, is programmatically arranged -->
4  <vehicles>
```

```xml
    <vehicle year="1996" make="Land Rover" model="Discovery">
            <mileage>36500</mileage>
            <color>black</color>
            <price>$22100</price>
    </vehicle>
    <vehicle year="1998" make="Land Rover" model="Discovery">
            <mileage>3550</mileage>
            <color>yellow</color>
            <price>$31995</price>
    </vehicle>
    <vehicle year="1996" make="Chevrolet" model="Suburban 2500">
            <mileage>49300</mileage>
            <color>green</color>
            <price>$25995</price>
    </vehicle>
</vehicles>
```