

Homework 4

ZE LIU (z1265 174007753)

Question 1:

(a) DTD Description File:

```
<!DOCTYPE ProductsNote[
    <!ELEMENT ProductsNote    (products*)>
    <!ELEMENT products (name, price, description, store*)>
    <!ELEMENT name          (#PCDATA)>
    <!ELEMENT price          (#PCDATA)>
    <!ELEMENT description    (#PCDATA)>
    <!ELEMENT store (name, phone, markup)>
    <!ELEMENT name          (#PCDATA)>
    <!ELEMENT phone          (#PCDATA)>
    <!ELEMENT markup        (#PCDATA)>
]>
```

(b) XQuery Expression:

```
FOR $a IN document("db.xml") /db/products
  $c IN document("db.xml") /db/sells
  RETURN <products>
    {
      $a/row/name,
      $a/row/price,
      $a/row/description,
      FOR $b IN /db/stores[/row/sid = $c/row/sid and $c/row/pid = $a/row/pid]
      RETURN $b/row/name,
        $b/row/phone,
        $b/row/makeup,
    }
</products>
```

(c) XQuery Expression:

```
FOR $a IN document("db.xml") /db/products
  $c IN document("db.xml") /db/sells
  WHERE $a/row/pid = $c/row/pid and $c/row/makeup > 25%
  RETURN <result>
    {
      $a/row/name,
      $a/row/price,
    }
```

</result>

(d) SQL Expression:

```
SELECT P.name, P.price
FROM products P, sells S
WHERE P.pid = S.sid AND S.Markup > '25%'
```

Question 2:

(a) XQuery Expression:

```
FOR $a IN document("broadway.xml")/broadway/title
RETURN <result>
      {$a}
</result>
```

(b) XQuery Expression:

```
FOR $a IN document("broadway.xml")/broadway/theater[date = "11/9/2018"]
WHERE $a/price < 35
RETURN <result>
      {$a/title, $a/address}
</result>
```

(c) XQuery Expression:

```
FOR $a IN document("broadway.xml")/broadway/concert[type = "chamber orchestra"]
WHERE avg($a/price) >= 50
RETURN <result>
      {$x/title}
</result>
```

(d) XQuery Expression:

```
FOR $a IN document("groupedByDate.xml")/groupedByDate/day
ORDER BY $a/title
RETURN <date>{$a/date}</date>
      <title>{$a/show/title}</title>
      <price>{$a/show/price}</price>
```

Question 3

- (1) We first need to modify the XSL file and then change all the <author> elements in xml into the form:

```
<author>
    <firstName>xxx</firstName>
    <lastName>xxx</lastName>
</author>
```

The XSL Code

```
<?xml version="1.0"?>
<xsl:stylesheet xmlns:xsl="http://www.w3.org/TR/WD-xsl"
    result-ns="http://www.w3.org/TR/REC-html">
<xsl:template match="/">
    <html>
        <head>
            <title>Bibliography</title>
        </head>
        <body background="antiquewhite">
            <center><h2>Bibliography</h2><hr width="90%"/></center>
            <ul>
                <xsl:for-each select="bib/book">
                    <p/><li>
                        <xsl:value-of select="author/firstName">,
                        <xsl:value-of select="author/lastName">,
                        <b><xsl:value-of select="title"/></b>,
                        <xsl:value-of select="publisher"/>
                        <xsl:value-of select="year"/>.
                    </li>
                </xsl:for-each>

                <xsl:for-each select="bib/article">
                    <p/><li>
                        <xsl:value-of select="author/firstName">,
                        <xsl:value-of select="author/lastName">,
                        <b><xsl:value-of select="title"/></b>,
                        <em><xsl:value-of select="journal"/></em>,
                        <xsl:value-of select="volume"/>,
                        pages<xsl:apply-templates select="page"/>
                        <xsl:value-of select="year"/>.
                    </li>
                </xsl:for-each>
            </ul>
        </body>
```

```

</html>
</xsl:template>
<xsl:template match="page">
  <xsl:value-of select="from"/>-<xsl:value-of select="to"/>,
</xsl:template>
</xsl:stylesheet>

```

The XML code

```

<?xml version="1.0" encoding="ISO-8859-1"?>
<?xml-stylesheet type="text/xsl" href="bid.xsl"?>
<!DOCTYPE bib SYSTEM "bid.dtd">
<bid>
  <book>
    <author>
      <firstName>Leslie</firstName>
      <lastName>Lamport</lastName>
    </author>
    <title>Latex: A Document Presentation System</title>
    <year>1986</year>
    <publisher>Addison-Wesley</publisher>
  </book>

  <article>
    <author>
      <firstName>David</firstName>
      <lastName>Marr</lastName>
    </author>
    <title>Visual information processing</title>
    <year>1980</year>
    <volume>290</volume>
    <page>
      <from>199</from>
      <to>218</to>
    </page>
    <journal>Phil. Trans. Roy. Soc. B</journal>
  </article>

  <article>
    <author>
      <firstName>R.K</firstName>
      <lastName>Clifton</lastName>
    </author>
    <title>Breakdown of echo suppression in the precedence effect</title>

```

```

<year>1987</year>
<volume>82</volume>
<page>
  <from>1834</from>
  <to>1835</to>
</page>
<journal>J. Acoust. Soc. Am.</journal>
</article>

<book>
  <author>
    <firstName>David</firstName>
    <lastName>Marr</lastName>
  </author>
  <title>Vision</title>
  <year>1982</year>
  <address>NY</address>
  <publisher>Freeman</publisher>
</book>

<article>
  <author>
    <firstName>David</firstName>
    <lastName>Marr</lastName>
  </author>
  <title>Visual information processing</title>
  <year>1980</year>
  <volume>290</volume>
  <page>
    <from>199</from>
    <to>218</to>
  </page>
  <journal>Phil. Trans. Roy. Soc. B</journal>
</article>

</bid>

```

(2)

I added two books and two journals to the XML file. And the first book and the first article miss some information.

```

insert node element book{
  <author>
    <firstName>Louis</firstName>

```

```
<lastName>Liu</lastName>
</author>
<title>To be or not to be</title>
<year>2018</year>
} into document("bid.xml")/bid
```

```
insert node element article{
  <author>
    <firstName>Jay</firstName>
    <lastName>Liu</lastName>
  </author>
  <title>Web Application</title>
  <volume>204</volume>
  <page>
    <from>129</from>
    <to>329</to>
  </page>
  <journal>IEEE</journal>
} into document("bid.xml")/bid
```

```
insert node element article{
  <author>
    <firstName>Bob</firstName>
    <lastName>Jesey</lastName>
  </author>
  <title> Software Engineering</title>
  <year>2018</year>
  <volume>9</volume>
  <page>
    <from>2</from>
    <to>7</to>
  </page>
  <journal> Proceedings of the National Conference on Artificial Intelligence </journal>
} into document("bid.xml")/bid
```

```
insert node element book{
  <author>
    <firstName>Alan</firstName>
    <lastName>Liu</lastName>
  </author>
  <title>People Life </title>
```

```

        <year>2018</year>
        <address> Golf Links </address>
        <publisher>Xinhua Publisher </publisher>
    } into document("bid.xml")/bid

```

(3)

I add the following code to corresponding file:

For XSL:

```

<ul>
    <xsl:for-each select="bib/phdThesis ">
        <p/><li>
            <xsl:value-of select="author/firstName">,
            <xsl:value-of select="author/lastName">,
            <xsl:value-of select="year"/>,
            <b><xsl:value-of select="title"/></b>,
            <xsl:value-of select="university"/>.
        </li>
    </xsl:for-each>
</ul>

```

For DTD, add the code into DTD file

```

<!ELEMENT phdThesis(author, year, title, university)>
<!ELEMENT university(#PCDATA)>

```

For xml, add the following two items.

```

insert element phdThesis{
    <author>
        <firstName>Wang</firstName>
        <lastName>Xiao</lastName>
    </author>
    <year>2018</year>
    <title>Control Theory</title>
    <university>UESTC</university>
} into document("bid.xml")/bid

```

```

insert element phdThesis{
    <author>
        <firstName>Li</firstName>
        <lastName>Xiao</lastName>

```

```
</author>  
<year>2017</year>  
<title>Optimized Theory</title>  
<university>Qinghua</university>  
} into document("bid.xml")/bid
```