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TITLE- HOMEWORK 4

COURSE NAME- 16:332:568 SOFTWARE ENGINEERING OF WEB APPLICATIONS

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ANSWER 1

(a)

```
<?xml version="1.0"?>
<!DOCTYPE Products [
  <!ELEMENT Products (Product*)>
  <!ELEMENT Product (Name,Price,Description,Stores*)>
  <!ATTLIST Product pid ID #REQUIRED>
  <!ELEMENT Name     (#PCDATA)>
  <!ELEMENT Price    (#PCDATA)>
  <!ELEMENT Description (#PCDATA)>
  <!ELEMENT Stores (Name,Phones,Markup)*>
  <!ATTLIST Stores sid ID #REQUIRED>
  <!ELEMENT Name     (#PCDATA)>
  <!ELEMENT Phones   (#PCDATA)>
  <!ELEMENT Markup (#PCDATA)>
]>
```

(b)

Given XML interface in stored in file products.xml

```
<Products>
{
  for $p in doc("products.xml")/db/products/row
   return
      <Product pid="{$p/pid}">
```

```
      <Name>{$p/name/text()}</Name>

      <Price>{$p/price/text()}</Price>

      <Description>{$p/description/text()}</Description>

      {

        for $s in doc("products.xml")/db/stores/row

        for $s1 in doc("products.xml")/db/sells/row

        where $s/sid = $s1/sid and $s1/pid = $p/pid

        return

        <Stores sid="{$s/sid}">

          <Name>{$s/name/text()}</Name>

          <Phones>{$s/phones/text()}</Phones>

          <Markup>{$s1/markup/text()}</Markup>

        </Stores>

      }

    </Product>

}

</Products>
```

(c)

XML document with structure given in part (a) is stored in file products1.xml

```
<Products>

{

  for $p in doc("products1.xml")/Products/Product

  where $p/Stores/Markup = '25%'

  return
```

```
    <Product>

        {$p/Name}

        {$p/Price}

    </Product>

}

</Products>
```

(d)

SELECT P.Name, P.Price

FROM Products P, Sells S

WHERE P.pid=S.pid AND S.Markup='25%'

ANSWER 2

XML document with structure (given by DTD in the question) in part (a) is stored in file broadway.xml

(a)

for $a in doc("broadway.xml")//title

return $a

(b)

for $a in doc("broadway.xml")/broadway/theater

where some $c in $a/price satisfies $c<35 and $a/date="11/9/2008"

return

<result>

{$a/address, $a/title}

</result>

(c)

```
for $a in doc("broadway.xml")/broadway/concert[type="chamber orchestra"]

where avg($a/price)>=50

return

<result>

{$a/title}

</result>
```

(d)

```
for $p in doc("broadway.xml")//date

for $b in doc("broadway.xml")//theater[date = $p] | doc("broadway.xml")//concert[date = $p] | doc("broadway.xml")//opera[date=$p]

return

<result>

<groupedByDate>

<day>

{$p}

<show>

{$b/title}

{$b/price}

</show>

</day>

</groupedByDate>

</result>
```

ANSWER 3

(1)

CHANGED DTD FILE

<?xml version="1.0" ?>

<!ELEMENT bib ((book | article)+)>

<!ELEMENT book (author, title, year, (address)?, publisher)>

<!ELEMENT article (author, title, year, volume, page, journal) >

<!ELEMENT page (from, to)>

<!ELEMENT author (firstname,lastname)>

<!ELEMENT firstname (#PCDATA)>

<!ELEMENT lastname (#PCDATA)>

<!ELEMENT title (#PCDATA)>

<!ELEMENT year (#PCDATA)>

<!ELEMENT address (#PCDATA)>

<!ELEMENT publisher (#PCDATA)>

<!ELEMENT from (#PCDATA)>

<!ELEMENT to (#PCDATA)>

<!ELEMENT journal (#PCDATA)>

<!ELEMENT volume (#PCDATA)>

CHANGED XML FILE

<?xml version="1.0" encoding="ISO-8859-1" ?>

<?xml-stylesheet type="text/xsl" href="bib.xsl"?>

<!DOCTYPE bib SYSTEM "bib.dtd">

```
<book>
<author>
<firstname>Leslie</firstname>
<lastname>Lamport</lastname>
</author>
<title>Latex: A Document Preparation 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>
```

```xml
<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>
</bib>
```

CHANGED XSL FILE

```
<?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/lastname"/>,
<xsl:value-of select="author/firstname"/>.
<b><xsl:value-of select="title"/></b>,
(<xsl:value-of select="publisher"/>
<xsl:text> </xsl:text>
<xsl:value-of select="year"/>).
</li>
</xsl:for-each>
<xsl:for-each select="bib/article">
<p/><li>
<xsl:value-of select="author/lastname"/>,
<xsl:value-of select="author/firstname"/>.
<xsl:value-of select="title"/>,
<b><xsl:value-of select="journal"/>,
<xsl:value-of select="volume"/></b>,
pp.<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>
```

(2)

The following entries are added to the changed XML file from part (1) of the question

```
<book>

<author>

<firstname>David</firstname>

<lastname>Goliath</lastname>

</author>

<title>Deep Vision</title>

<publisher>Freeman brothers</publisher>

</book>


<book>

<author>

<firstname>Tim</firstname>

<lastname>Goliath</lastname>
```

```
</author>

<year>2018</year>

<publisher>Freeman brothers</publisher>

</book>


<article>

<author>

<firstname>David</firstname>

<lastname>Mazon</lastname>

</author>

<title> Deep Visual information processing</title>

<volume>290</volume>

<page>

<from>199</from>

<to>218</to>

</page>

<journal>Phil. Trans. Roy. Soc. D</journal>

</article>


<article>

<author>

<firstname>Miranda</firstname>

<lastname>Mazon</lastname>

</author>
```

```
<volume>290</volume>

<page>

<from>199</from>

<to>218</to>

</page>

<journal>Phil. Trans. Roy. Soc. G</journal>

</article>
```

 (3)

MODIFIED XSL FILE

```
<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/lastname"/>,

<xsl:value-of select="author/firstname"/>.

<b><xsl:value-of select="title"/></b>,
```

```
(<xsl:value-of select="publisher"/>
<xsl:text> </xsl:text>
<xsl:value-of select="year"/>).
</li>
</xsl:for-each>
<xsl:for-each select="bib/article">
<p/><li>
<xsl:value-of select="author/lastname"/>,
<xsl:value-of select="author/firstname"/>.
<xsl:value-of select="title"/>,
<b><xsl:value-of select="journal"/>,
<xsl:value-of select="volume"/></b>,
pp.<xsl:apply-templates select="page"/>,
<xsl:value-of select="year"/>.
</li>
</xsl:for-each>
<xsl:for-each select="bib/PHD_theses"> <p/>
<li>
<xsl:value-of select="author1"/>,
<b><xsl:value-of select="title"/></b>,
<xsl:value-of select="year"/>,
<xsl:value-of select="university"/>
</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 following entries are added to the changed XML file from part (1) of the question

```
<PHD_theses>
```

```
<author1>
```

Lex Friedman

```
</author1>
```

```
<title>Advanced deep learning techniques for driver safety</title>
```

```
<year>2016</year>
```

```
<university>Drexel University</university>
```

```
</PHD_theses>
```

```
<PHD_theses>
```

```
<author1>
```

Martin Friedman

```
</author1>
```

```
<title>Advanced deep reinforcement learning techniques for driverless cars</title>
```

<year>2017</year>

<university>Rutgers University</university>

</PHD_theses>

The following entry was added to the changed DTD file from part (1) of the question

<!ELEMENT PHD_theses (author1, title, year, university) >

<!ELEMENT author1 (#PCDATA)>

<!ELEMENT university (#PCDATA)>