

# SDXML

## Assignment 4

GROUP 9

XQuery

Group members.

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## Summary:

Use DB : Movie.XML

Software : Query 1.0 – Query 3.0 – BaseX

### Question 01

Retrieve all authors per genre! The result must comply with the following DTD:

```
<!ELEMENT Result (Genre*)>
<!ELEMENT Genre (Author*)>
<!ATTLIST Genre Name CDATA #REQUIRED>
<!ELEMENT Author (#PCDATA)>
```

The text node of the element Author shall contain the name of the author

### SOLUTION IN XQUERY 3.0

```
element Result {
  for $book in //Book[@Genre]
  group by $genreGroup := $book/@Genre
  let $authors :=for $author_name in distinct-values($book/Author/@Name)
    return element Author {$author_name}

  return element Genre {
    attribute Name {$genreGroup},
    $authors
  }
}
```

## RESULT

```
<Result>
  <Genre Name="Thriller">
    <Author>John Craft</Author>
    <Author>Jakob Hanson</Author>
  </Genre>
  <Genre Name="Educational">
    <Author>Arnie Bastoft</Author>
    <Author>Meg Gilmand</Author>
    <Author>Chris Ryan</Author>
    <Author>Alan Griff</Author>
    <Author>Marty Faust</Author>
    <Author>Celine Biceau</Author>
    <Author>Sam Davis</Author>
    <Author>Mimi Pappas</Author>
    <Author>Carl George</Author>
    <Author>Peter Feldon</Author>
    <Author>Lilian Carrera</Author>
    <Author>Auna Gonzales Perre</Author>
    <Author>Kostas Andrianos</Author>
    <Author>Andreas Shultz</Author>
    <Author>Antje Liedderman</Author>
    <Author>Christina Ohlsen</Author>
    <Author>Alicia Bing</Author>
    <Author>Linda Evans</Author>
    <Author>Chuck Morrisson</Author>
    <Author>Kay Morrisson</Author>
  </Genre>
  <Genre Name="Science Fiction">
    <Author>Carl Sagan</Author>
    <Author>Leslie Brenner</Author>
  </Genre>
  <Genre Name="Novel">
    <Author>Leslie Brenner</Author>
    <Author>Marie Franksson</Author>
    <Author>James Patterson</Author>
    <Author>Peter de Jonge</Author>
  </Genre>
</Result>
```

## Question 02

Which books have been translated to Russian and at least one more language? The result must comply with the following DTD:

```
<!ELEMENT Result (Book*)>
<!ELEMENT Book EMPTY>
<!ATTLIST Book Title CDATA #REQUIRED
OriginalLanguage CDATA #REQUIRED
NumberOfOtherLanguages CDATA #REQUIRED>
```

The attribute NumberOfOtherLanguages specifies the number of languages other than Russian that the book has been translated to.

## SOLUTION IN XQUERY 1.0

```
element Result {
  for $book in //Book[Edition[Translation[@Language='Russian']]]
  let $translations := for $translation in distinct-
values($book//Translation[@Language!='Russian']/@Language)
  return element Translation {
    $translation
  }
  where count($translations)>1
  return element Book {
    $book/@Title,
    $book/@OriginalLanguage,
    attribute NumberOfOtherLanguages {count($translations)}
  }
}
```

## RESULT

```
<Result>
  <Book Title="Misty Nights" OriginalLanguage="English" NumberOfOtherLanguages="2"/>
  <Book Title="Contact" OriginalLanguage="English" NumberOfOtherLanguages="2"/>
  <Book Title="Music Now and Before" OriginalLanguage="English" NumberOfOtherLanguages="3"/>
  <Book Title="European History" OriginalLanguage="English" NumberOfOtherLanguages="11"/>
  <Book Title="Musical Instruments" OriginalLanguage="English" NumberOfOtherLanguages="6"/>
</Result>
```

### Question 03

The translations of which books has each publisher published? The result must comply with the following DTD:

```
<!ELEMENT Result (Publisher*)>
<!ELEMENT Publisher (Book*)>
<!--ATTLIST Publisher Name CDATA #REQUIRED
Country CDATA #REQUIRED-->
<!ELEMENT Book EMPTY>
<!--ATTLIST Book Title CDATA #REQUIRED
Genre CDATA #IMPLIED-->
```

### SOLUTION IN XQUERY 1.0

```
element Result {
  for $pub in //Publisher
  let $bookList := for $bok in //Book[Edition[Translation[@Publisher=$pub/@Name]]]
  return element Book {
    $bok/@Title,
    $bok/@Genre
  }
  return element Publisher {
    $pub/@Name,
    attribute Country {$pub//Country},
    $bookList
  }
}
```

## RESULT

```
<Result>
  <Publisher Name="ABC International" Country="Germany">
    <Book Title="Music Now and Before" Genre="Educational"/>
    <Book Title="Musical Instruments" Genre="Educational"/>
    <Book Title="Oceans on Earth" Genre="Educational"/>
    <Book Title="Oceanography for Dummies" Genre="Educational"/>
  </Publisher>
  <Publisher Name="Deutsche Ferlage" Country="Germany"/>
  <Publisher Name="Addison" Country="France">
    <Book Title="Misty Nights" Genre="Thriller"/>
  </Publisher>
  <Publisher Name="Aurora Publ." Country="Italy">
    <Book Title="Le chateau de mon pere"/>
  </Publisher>
  <Publisher Name="Benton Inc" Country="England">
    <Book Title="Le chateau de mon pere"/>
  </Publisher>
  <Publisher Name="McManus Publishing" Country="England"/>
  <Publisher Name="Bästa Bok" Country="Sweden">
    <Book Title="The Fourth Star" Genre="Science Fiction"/>
    <Book Title="The Fifth Star" Genre="Novel"/>
  </Publisher>
  <Publisher Name="EU Publishing" Country="Belgium">
    <Book Title="European History" Genre="Educational"/>
  </Publisher>
  <Publisher Name="KLC" Country="Sweden">
    <Book Title="Archeology in Egypt" Genre="Educational"/>
    <Book Title="Music Now and Before" Genre="Educational"/>
  </Publisher>
  <Publisher Name="Kingsly" Country="Austria">
    <Book Title="Misty Nights" Genre="Thriller"/>
  </Publisher>
  <Publisher Name="Pels And Jafs" Country="Scotland">
    <Book Title="Encore une fois"/>
  </Publisher>
  <Publisher Name="RP" Country="Russia">
    <Book Title="Contact" Genre="Science Fiction"/>
  </Publisher>
```

## Question 04

The French translation of the 1999 edition of the book "Archeology in Egypt" was published by "ABC International", not by "KLC". Correct the error in the database!

### SOLUTION IN XQUERY 1.0

```
copy $root := (/)
```

```
modify replace value of node $root//Book[@Title = 'Archeology in  
Egypt']/Edition[@Year='1999']/Translation[@Language="French"]/@Publisher with "ABC  
International"
```

```
return $root
```

### RESULT

```
<Book Title="Archeology in Egypt" OriginalLanguage="English" Genre="Educational">  
  <Author Name="Arnie Bastoft" Email="bastoft@frei.at" YearOfBirth="1971" Country="Austria"/>  
  <Author Name="Meg Gilmand" Email="megil@archeo.org" YearOfBirth="1968" Country="Australia"/>  
  <Author Name="Chris Ryan" Email="chris@egypt.eg" YearOfBirth="1944" Country="France"/>  
  <Edition Year="1992" Price="250">  
    <Translation Language="Swedish" Price="340"/>  
    <Translation Language="French" Price="320"/>  
  </Edition>  
  <Edition Year="1994" Price="280">  
    <Translation Language="Swedish" Publisher="KLC" Price="390"/>  
    <Translation Language="French" Publisher="KLC" Price="330"/>  
    <Translation Language="Chinese" Publisher="Shou-Ling" Price="280"/>  
  </Edition>  
  <Edition Year="1999" Price="280">  
    <Translation Language="French" Publisher="ABC International" Price="320"/>  
    <Translation Language="Italian" Publisher="KLC" Price="320"/>  
    <Translation Language="Turkish" Publisher="Turk And Turk" Price="300"/>  
    <Translation Language="Spanish" Price="300"/>  
  </Edition>  
</Book>
```

## Question 05

The author Sam Davis is actually called Samuel Davies. Make the appropriate change in the database!

### SOLUTION IN XQUERY 1.0

```
copy $root := (/)
```

```
modify(for $author in $root//Author[@Name='Sam Davis'] return replace value of node  
$author/@Name with 'Samuel Davies' )
```

```
return $root
```

### RESULT

```
<Book Title="Music Now and Before" OriginalLanguage="English" Genre="Educational">  
  <Author Name="Samuel Davies" Email="sd@music.com" YearOfBirth="1939" Country="Mexico"/>  
  <Author Name="Mimi Pappas" Email="mimi@music.com" YearOfBirth="1972" Country="USA"/>  
  <Edition Year="1997" Price="300">  
    <Translation Language="German" Publisher="ABC International" Price="310"/>  
    <Translation Language="French" Price="310"/>  
    <Translation Language="Russian" Price="300"/>  
    <Translation Language="Italian" Publisher="KLC" Price="300"/>  
  </Edition>  
  <Edition Year="1999" Price="315">  
    <Translation Language="German" Publisher="ABC International" Price="320"/>  
    <Translation Language="French" Publisher="ABC International" Price="330"/>  
  </Edition>  
  <Edition Year="2001" Price="335">  
    <Translation Language="German" Publisher="ABC International" Price="350"/>  
  </Edition>  
</Book>
```