

SDXML

Assignment 1

GROUP 9

XQuery

Group members.

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Summary:

Use DB : Movie.XML

Software : Query 1.0 – Xquisitor / Query 3.0 – BaseX

Question 01

Show the number of different people that have worked for each production company! One element per production company with attributes for the name and number. Everything inside a root element.

SOLUTION IN XQUERY 1.0

```
element Result {  
  for $p in distinct-values(//ProductionCompany)  
  let $people := count(distinct-values(//Movie[ProductionCompany=$p]/Actor/@Name |  
    //Movie[ProductionCompany=$p]/Director/@Name ))  
  return element ProductionCompany {attribute Name {$p}, attribute Number {$people}}  
}
```

RESULT

Query Result

```
<?xml version="1.0" encoding="UTF-8"?>  
<Result>  
  <ProductionCompany Name="Tri-Star" Number="13"/>  
  <ProductionCompany Name="Universal" Number="17"/>  
  <ProductionCompany Name="October Films" Number="4"/>  
  <ProductionCompany Name="Millennium Films" Number="3"/>  
  <ProductionCompany Name="20th Century Fox" Number="5"/>  
  <ProductionCompany Name="Warner Bros" Number="8"/>  
  <ProductionCompany Name="Phoenix Pictures" Number="4"/>  
</Result>
```

SOLUTION IN XQUERY 3.0

```
element Result {  
  for $pc in //ProductionCompany  
  group by $gpc := $pc  
  let $people := for $personName in distinct-values($pc/../Actor/@Name | $pc/../Director/@Name)  
  return element Person {$personName}  
  return element ProductionCompany {  
    attribute Name {$gpc},  
    attribute Number {count($people)}  
  }  
}
```

RESULT



```
<Result>  
  <ProductionCompany Name="Tri-Star" Number="13"/>  
  <ProductionCompany Name="Universal" Number="17"/>  
  <ProductionCompany Name="October Films" Number="4"/>  
  <ProductionCompany Name="Millennium Films" Number="3"/>  
  <ProductionCompany Name="20th Century Fox" Number="5"/>  
  <ProductionCompany Name="Warner Bros" Number="8"/>  
  <ProductionCompany Name="Phoenix Pictures" Number="4"/>  
</Result>|
```

Question 02

Show the number of actors per country in each movie! The result shall have the following structure:

SOLUTION IN XQUERY 1.0

```
element Result {
  for $m in //Movie
  let $countries := for $country in distinct-values($m/Actor/@Country)
                    let $count := count($m/Actor[@Country=$country])
                    return element Country {attribute name {$country}, attribute
numberofactors {$count}}
  return element Movie {
    attribute title {$m/@Title},
    $countries
  }
}
```

RESULT

Query Result
<pre><?xml version="1.0" encoding="UTF-8"?> <Result> <Movie title="Driven"> <Country name="USA" numberofactors="2"/> <Country name="Canada" numberofactors="1"/> </Movie> <Movie title="Antz"> <Country name="USA" numberofactors="3"/> </Movie> <Movie title="The Muse"> <Country name="USA" numberofactors="3"/> </Movie> <Movie title="End Game"> <Country name="USA" numberofactors="2"/> </Movie> <Movie title="Picking Up the Pieces"> <Country name="USA" numberofactors="3"/> </Movie> <Movie title="Anything Else"> <Country name="USA" numberofactors="3"/> </Movie> <Movie title="Catwoman"> <Country name="USA" numberofactors="2"/> </Movie> <Movie title="The Specialist"> <Country name="USA" numberofactors="3"/> </Movie> ... </pre>

SOLUTION IN XQUERY 3.0

```
element Result {  
  for $m in //Movie  
  let $countries := for $a in $m/Actor  
  group by $ag := $a/@Country  
  return element Country {  
    attribute name {$ag},  
    attribute numberofactors {count($a)}  
  }  
  return element Movie {  
    attribute title {$m/@Title},  
    $countries  
  }  
}
```

RESULT



```
<Result>  
  <Movie title="Driven">  
    <Country name="USA" numberofactors="2"/>  
    <Country name="Canada" numberofactors="1"/>  
  </Movie>  
  <Movie title="Antz">  
    <Country name="USA" numberofactors="3"/>  
  </Movie>  
  <Movie title="The Muse">  
    <Country name="USA" numberofactors="3"/>  
  </Movie>  
  <Movie title="End Game">  
    <Country name="USA" numberofactors="2"/>  
  </Movie>  
  <Movie title="Picking Up the Pieces">  
    <Country name="USA" numberofactors="3"/>  
  </Movie>  
  <Movie title="Anything Else">  
    <Country name="USA" numberofactors="3"/>  
  </Movie>  
  <Movie title="Catwoman">  
    <Country name="USA" numberofactors="2"/>  
  </Movie>  
  <Movie title="The Specialist">  
    <Country name="USA" numberofactors="3"/>  
  </Movie>
```

Question 03

Show which actors each director has directed at least twice! Only directors with at least one such actor shall be included in the result.

SOLUTION IN XQUERY 1.0

element Result {

for \$d in distinct-values(//Director/@Name)

let \$disAcNam := distinct-values(//Movie[Director/@Name=\$d]/Actor/@Name)

let \$duplicateActors := for \$ac in \$disAcNam

where count(//Movie[Director/@Name=\$d and Actor/@Name=\$ac])>=2

return \$ac

where count(\$duplicateActors) > 0

return element Director {

attribute Name {\$d},

attribute Country {distinct-values(//Director[@Name=\$d]/@Country)},

attribute YearOfBirth {distinct-values(//Director[@Name=\$d]/@YearOfBirth)},

for \$dupAc in \$duplicateActors

return element Actor {

attribute Name {\$dupAc},

attribute Country {distinct-values(//Actor[@Name=\$dupAc][1]/@Country)}

}

}

}

RESULT

```
Query Result
<?xml version="1.0" encoding="UTF-8"?>
<Result>
  <Director Name="Eric Darnell" Country="Ireland" YearOfBirth="1961">
    <Actor Name="Woody Allen" Country="USA"/>
    <Actor Name="Silvester Stallone" Country="USA"/>
    <Actor Name="Sharon Stone" Country="USA"/>
  </Director>
  <Director Name="Pitof" Country="France" YearOfBirth="1970">
    <Actor Name="Sharon Stone" Country="USA"/>
  </Director>
  <Director Name="Marco Brambilla" Country="Italy" YearOfBirth="1960">
    <Actor Name="Hiro Kanagawa" Country="Japan"/>
  </Director>
</Result>
```

SOLUTION IN XQUERY 3.0

```
element Result {  
  for $d in distinct-values(//Director/@Name)  
  let $disAcNam := distinct-values(//Movie[Director/@Name=$d]/Actor/@Name)  
  let $duplicateActors := for $ac in $disAcNam  
    where count(//Movie[Director/@Name=$d and Actor/@Name=$ac])>=2  
    return $ac  
  where count($duplicateActors) > 0  
  let $acList := for $dupAc in $duplicateActors  
  return element Actor {  
    attribute Name {$dupAc},  
    attribute Country {distinct-values(//Actor[@Name=$dupAc][1]/@Country)}  
  }  
  return element Director {  
    attribute Name {$d},  
    attribute Country {distinct-values(//Director[@Name=$d]/@Country)},  
    attribute YearOfBirth {distinct-values(//Director[@Name=$d]/@YearOfBirth)},  
    $acList  
  }  
}
```

RESULT



```
<Result>  
  <Director Name="Eric Darnell" Country="Ireland" YearOfBirth="1961">  
    <Actor Name="Woody Allen" Country="USA"/>  
    <Actor Name="Silvester Stallone" Country="USA"/>  
    <Actor Name="Sharon Stone" Country="USA"/>  
  </Director>  
  <Director Name="Pitof" Country="France" YearOfBirth="1970">  
    <Actor Name="Sharon Stone" Country="USA"/>  
  </Director>  
  <Director Name="Marco Brambilla" Country="Italy" YearOfBirth="1960">  
    <Actor Name="Hiro Kanagawa" Country="Japan"/>  
  </Director>  
</Result>
```

Question 04

Show all the movies grouped by year according to the following structure:

SOLUTION IN XQUERY 1.0

```
element Result {  
  for $year in distinct-values(//Movie/@Year)  
  let $mov := for $m in //Movie[@Year=$year]  
  return element Movie {  
    element Title {data($m/@Title)},  
    element Director {data($m/Director/@Name)},  
    element Actors {count(data($m/Actor/@Name))}  
  }  
  let $mov_count := count($mov)  
  order by $year  
  return element Movies {attribute Year {$year}, attribute NumberOfMovies {$mov_count}, $mov}  
}
```

RESULT

Query Result

```
<?xml version="1.0" encoding="UTF-8"?>  
<Result>  
  <Movies Year="1993" NumberOfMovies="5">  
    <Movie>  
      <Title>Sliver</Title>  
      <Director>Phillip Noyce</Director>  
      <Actors>3</Actors>  
    </Movie>  
    <Movie>  
      <Title>Last Action Hero</Title>  
      <Director>John McTiernan</Director>  
      <Actors>2</Actors>  
    </Movie>  
    <Movie>  
      <Title>Demolition Man</Title>  
      <Director>Marco Brambilla</Director>  
      <Actors>4</Actors>  
    </Movie>  
    <Movie>  
      <Title>Cliffhanger</Title>  
      <Director>Renny Harlin</Director>  
      <Actors>1</Actors>  
    </Movie>  
    <Movie>  
      <Title>The Kid And I</Title>  
      <Director>Penelope Spheeris</Director>  
      <Actors>2</Actors>
```


SOLUTION IN XQUERY 3.0

```
element Result {  
  for $m in //Movie  
  order by $m/@Year  
  group by $yg := $m/@Year  
  let $movieList := for $movie in $m  
  return element Movie {  
    element Title {data($movie/@Title)},  
    element Director {data($movie/Director/@Name)},  
    element Actors {count($movie/Actor)}  
  }  
  return element Movies {  
    attribute Year {$yg},  
    attribute NumberOfMovies {count($movieList)},  
    $movieList  
  }  
}
```

RESULT



```
<Result>  
  <Movies Year="1993" NumberOfMovies="5">  
    <Movie>  
      <Title>Sliver</Title>  
      <Director>Phillip Noyce</Director>  
      <Actors>3</Actors>  
    </Movie>  
    <Movie>  
      <Title>Last Action Hero</Title>  
      <Director>John McTiernan</Director>  
      <Actors>2</Actors>  
    </Movie>  
    <Movie>  
      <Title>Demolition Man</Title>  
      <Director>Marco Brambilla</Director>  
      <Actors>4</Actors>  
    </Movie>  
    <Movie>  
      <Title>Cliffhanger</Title>  
      <Director>Renny Harlin</Director>  
      <Actors>1</Actors>  
    </Movie>  
    <Movie>  
      <Title>The Kid And I</Title>  
      <Director>Penelope Spheeris</Director>
```

Question 05

Change the title of "Picking Up the Pieces" to "Picking up all the Pieces" and change the name of the production company "Warner Bros" to "Warner Brothers" (for all relevant movies).

SOLUTION IN XQUERY 1.0

```
copy $copy := (/)
modify (for $director in $copy//Movie/ProductionCompany[text()='Warner Bros'] return replace
value of node $director with "Warner Brothers",
for $movie in $copy//Movie[@Title='Picking Up the Pieces']/@Title return replace value of node
$movie with "Picking Up the all the Pieces")
return $copy
```

RESULT



```
<Actor Name="Arnold Schwarzenegger" YearOfBirth="1947" Country="Austria"/>
<Actor Name="Hiro Kanagawa" YearOfBirth="1963" Country="Japan"/>
<Actor Name="Robert Duvall" YearOfBirth="1931" Country="USA"/>
<Director Name="Roger Spottiswoode" YearOfBirth="1945" Country="Canada"/>
<ProductionCompany>Phoenix Pictures</ProductionCompany>
</Movie>
<Movie Title="Cliffhanger" Year="1993">
  <Actor Name="Silvester Stallone" YearOfBirth="1946" Country="USA"/>
  <Director Name="Renny Harlin" YearOfBirth="1960" Country="Italy"/>
  <ProductionCompany>Warner Brothers</ProductionCompany>
</Movie>
<Movie Title="The Kid And I" Year="1993">
  <Actor Name="Tom Arnold" YearOfBirth="1959" Country="USA"/>
  <Actor Name="Arnold Schwarzenegger" YearOfBirth="1947" Country="Austria"/>
  <Director Name="Penelope Spheeris" YearOfBirth="1945" Country="USA"/>
  <ProductionCompany>Universal</ProductionCompany>
</Movie>
<Movie Title="True Lies" Year="1994">
```

SOLUTION IN XQUERY 3.0

```
let $doc := (/)
return $doc transform with {
  replace value of node //Movie[@Title='Picking Up the Pieces']/@Title with "Picking Up all the
Pieces",
  for $pc in //Movie/ProductionCompany[text()='Warner Bros'] return replace value of node $pc with
"Warner Brothers"
}
```

RESULT

```
<Actor Name="Sandra Bullock" YearOfBirth="1964" Country="USA" />
<Actor Name="Hiro Kanagawa" YearOfBirth="1963" Country="Japan"/>
<Director Name="Marco Brambilla" YearOfBirth="1960" Country="Italy"/>
<ProductionCompany>Warner Brothers</ProductionCompany>
</Movie>
<Movie Title="Excess Baggage" Year="1997">
  <Actor Name="Alicia Silverstone" YearOfBirth="1976" Country="USA"/>
  <Actor Name="Benicio Del Toro" YearOfBirth="1967" Country="Puerto Rico"/>
  <Actor Name="Hiro Kanagawa" YearOfBirth="1963" Country="Japan"/>
  <Director Name="Marco Brambilla" YearOfBirth="1960" Country="Italy"/>
  <ProductionCompany>Warner Brothers</ProductionCompany>
</Movie>
<Movie Title="The 6th Day" Year="2000">
  <Actor Name="Arnold Schwarzenegger" YearOfBirth="1947" Country="Austria"/>
  <Actor Name="Hiro Kanagawa" YearOfBirth="1963" Country="Japan"/>
  <Actor Name="Robert Duvall" YearOfBirth="1931" Country="USA"/>
  <Director Name="Roger Spottiswoode" YearOfBirth="1945" Country="Canada"/>
  <ProductionCompany>Phoenix Pictures</ProductionCompany>
</Movie>
<Movie Title="Cliffhanger" Year="1993">
```