

ASSIGNMENT 3

Himanshu goyal

- XML File

```
<EMPLOYEES>
  <Employee EmployeeId="1001" FirstName="Chris" LastName = "Church">
    <DeptName>IT</DeptName>
    <JobTitle>Developer</JobTitle>
    <Salary>85000</Salary>
    <JoiningYear>2011</JoiningYear>
  </Employee>
  <Employee EmployeeId="1002" FirstName="Augi" LastName = "Vitha">
    <DeptName>IT</DeptName>
    <JobTitle>Tester</JobTitle>
    <Salary>70000</Salary>
    <JoiningYear>2008</JoiningYear>
  </Employee>
  <Employee EmployeeId="1003" FirstName="Justin" LastName = "Fletcher">
    <DeptName>IT</DeptName>
    <JobTitle>Manager</JobTitle>
    <Salary>109000</Salary>
    <JoiningYear>2001</JoiningYear>
  </Employee>
  <Employee EmployeeId="1004" FirstName="Ankit" LastName = "Saxena">
    <DeptName>HR</DeptName>
    <JobTitle>Associate</JobTitle>
    <Salary>84000</Salary>
    <JoiningYear>2014</JoiningYear>
  </Employee>
  <Employee EmployeeId="1004" FirstName="Rahul" LastName = "Singh">
    <DeptName>HR</DeptName>
    <JobTitle>Lead</JobTitle>
    <Salary>95000</Salary>
    <JoiningYear>2004</JoiningYear>
  </Employee>
  <Employee EmployeeId="1005" FirstName="Vinay" LastName = "Sharma">
    <DeptName>Sales</DeptName>
    <JobTitle>SALESMAN</JobTitle>
    <Salary>6000</Salary>
    <JoiningYear>2009</JoiningYear>
  </Employee>
  <Employee EmployeeId="1006" FirstName="Mike" LastName = "Clark">
    <DeptName>Sales</DeptName>
    <JobTitle>Manager</JobTitle>
    <Salary>105000</Salary>
    <JoiningYear>1995</JoiningYear>
  </Employee>
```

```
<Employee EmployeeId="1007" FirstName="Pradeep" LastName = "Gade">
  <DeptName>Operations</DeptName>
  <JobTitle>Associate</JobTitle>
  <Salary>65000</Salary>
  <JoiningYear>2013</JoiningYear>
</Employee>
<Employee EmployeeId="1008" FirstName="Apoorva" LastName = "Kamath">
  <DeptName>Operations</DeptName>
  <JobTitle>Lead</JobTitle>
  <Salary>86000</Salary>
  <JoiningYear>2006</JoiningYear>
</Employee>
<Employee EmployeeId="1009" FirstName="Pranay" LastName = "Kumar">
  <DeptName>Research</DeptName>
  <JobTitle>ANALYST</JobTitle>
  <Salary>82000</Salary>
  <JoiningYear>2008</JoiningYear>
</Employee>
<Employee EmployeeId="1010" FirstName="Josh" LastName = "Kayser">
  <DeptName>Research</DeptName>
  <JobTitle>Lead</JobTitle>
  <Salary>108000</Salary>
  <JoiningYear>1989</JoiningYear>
</Employee>
</EMPLOYEES>
```

- XML File with Internal DTD

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE EMPLOYEES [
<!ELEMENT EMPLOYEES (Employee+)>
<!ELEMENT Employee (DeptName,JobTitle, Salary, JoiningYear)>
<!ATTLIST Employee EmployeeId CDATA #REQUIRED FirstName CDATA #REQUIRED
LastName CDATA
#REQUIRED>
<!ELEMENT DeptName (#PCDATA)>
<!ELEMENT JobTitle (#PCDATA)>
<!ELEMENT Grade (#PCDATA)>
<!ELEMENT Salary (#PCDATA)>
<!ELEMENT JoiningYear (#PCDATA)>
]>
<EMPLOYEES>
  <Employee EmployeeId="1001" FirstName="Chris" LastName = "Church">
    <DeptName>IT</DeptName>
    <JobTitle>Developer</JobTitle>
    <Salary>85000</Salary>
    <JoiningYear>2011</JoiningYear>
  </Employee>
  <Employee EmployeeId="1002" FirstName="Augi" LastName = "Vitha">
    <DeptName>IT</DeptName>
    <JobTitle>Tester</JobTitle>
    <Salary>70000</Salary>
    <JoiningYear>2008</JoiningYear>
  </Employee>
  <Employee EmployeeId="1003" FirstName="Justin" LastName = "Fletcher">
    <DeptName>IT</DeptName>
    <JobTitle>Manager</JobTitle>
    <Salary>109000</Salary>
    <JoiningYear>2001</JoiningYear>
  </Employee>
  <Employee EmployeeId="1004" FirstName="Ankit" LastName = "Saxena">
    <DeptName>HR</DeptName>
    <JobTitle>Associate</JobTitle>
    <Salary>84000</Salary>
    <JoiningYear>2014</JoiningYear>
  </Employee>
  <Employee EmployeeId="1004" FirstName="Rahul" LastName = "Singh">
    <DeptName>HR</DeptName>
    <JobTitle>Lead</JobTitle>
    <Salary>95000</Salary>
    <JoiningYear>2004</JoiningYear>
  </Employee>
  <Employee EmployeeId="1005" FirstName="Vinay" LastName = "Sharma">
```

```
<DeptName>Sales</DeptName>
<JobTitle>SALESMAN</JobTitle>
<Salary>6000</Salary>
<JoiningYear>2009</JoiningYear>
</Employee>
<Employee EmployeeId="1006" FirstName="Mike" LastName = "Clark">
  <DeptName>Sales</DeptName>
  <JobTitle>Manager</JobTitle>
  <Salary>105000</Salary>
  <JoiningYear>1995</JoiningYear>
</Employee>
<Employee EmployeeId="1007" FirstName="Pradeep" LastName = "Gade">
  <DeptName>Operations</DeptName>
  <JobTitle>Associate</JobTitle>
  <Salary>65000</Salary>
  <JoiningYear>2013</JoiningYear>
</Employee>
<Employee EmployeeId="1008" FirstName="Apoorva" LastName = "Kamath">
  <DeptName>Operations</DeptName>
  <JobTitle>Lead</JobTitle>
  <Salary>86000</Salary>
  <JoiningYear>2006</JoiningYear>
</Employee>
<Employee EmployeeId="1009" FirstName="Pranay" LastName = "Kumar">
  <DeptName>Research</DeptName>
  <JobTitle>ANALYST</JobTitle>
  <Salary>82000</Salary>
  <JoiningYear>2008</JoiningYear>
</Employee>
<Employee EmployeeId="1010" FirstName="Josh" LastName = "Kayser">
  <DeptName>Research</DeptName>
  <JobTitle>Lead</JobTitle>
  <Salary>108000</Salary>
  <JoiningYear>1989</JoiningYear>
</Employee>
</EMPLOYEES>
```

- XML File with External DTD

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE EMPLOYEES SYSTEM "External.dtd">
<EMPLOYEES>
  <Employee EmployeeId="1001" FirstName="Chris" LastName = "Church">
    <DeptName>IT</DeptName>
    <JobTitle>Developer</JobTitle>
    <Salary>85000</Salary>
    <JoiningYear>2011</JoiningYear>
  </Employee>
  <Employee EmployeeId="1002" FirstName="Augi" LastName = "Vitha">
    <DeptName>IT</DeptName>
    <JobTitle>Tester</JobTitle>
    <Salary>70000</Salary>
    <JoiningYear>2008</JoiningYear>
  </Employee>
  <Employee EmployeeId="1002" FirstName="Justin" LastName = "Fletcher">
    <DeptName>IT</DeptName>
    <JobTitle>Manager</JobTitle>
    <Salary>109000</Salary>
    <JoiningYear>2001</JoiningYear>
  </Employee>
  <Employee EmployeeId="1004" FirstName="Ankit" LastName = "Saxena">
    <DeptName>HR</DeptName>
    <JobTitle>Associate</JobTitle>
    <Salary>84000</Salary>
    <JoiningYear>2014</JoiningYear>
  </Employee>
  <Employee EmployeeId="1004" FirstName="Rahul" LastName = "Singh">
    <DeptName>HR</DeptName>
    <JobTitle>Lead</JobTitle>
    <Salary>95000</Salary>
    <JoiningYear>2004</JoiningYear>
  </Employee>
  <Employee EmployeeId="1005" FirstName="Vinay" LastName = "Sharma">
    <DeptName>Sales</DeptName>
    <JobTitle>SALESMAN</JobTitle>
    <Salary>6000</Salary>
    <JoiningYear>2009</JoiningYear>
  </Employee>
  <Employee EmployeeId="1006" FirstName="Mike" LastName = "Clark">
    <DeptName>Sales</DeptName>
    <JobTitle>Manager</JobTitle>
    <Salary>105000</Salary>
    <JoiningYear>1995</JoiningYear>
  </Employee>
</EMPLOYEES>
```

```
</Employee>
<Employee EmployeeId="1007" FirstName="Pradeep" LastName = "Gade">
  <DeptName>Operations</DeptName>
  <JobTitle>Associate</JobTitle>
  <Salary>65000</Salary>
  <JoiningYear>2013</JoiningYear>
</Employee>
<Employee EmployeeId="1008" FirstName="Apoorva" LastName = "Kamath">
  <DeptName>Operations</DeptName>
  <JobTitle>Lead</JobTitle>
  <Salary>86000</Salary>
  <JoiningYear>2006</JoiningYear>
</Employee>
<Employee EmployeeId="1009" FirstName="Pranay" LastName = "Kumar">
  <DeptName>Research</DeptName>
  <JobTitle>ANALYST</JobTitle>
  <Salary>82000</Salary>
  <JoiningYear>2008</JoiningYear>
</Employee>
<Employee EmployeeId="1010" FirstName="Josh" LastName = "Kayser">
  <DeptName>Research</DeptName>
  <JobTitle>Lead</JobTitle>
  <Salary>108000</Salary>
  <JoiningYear>1989</JoiningYear>
</Employee>
</EMPLOYEES>
```

- 5 Xpath Queries:

1) List the detail of employee with ID as 1003.

1 **//EMPLOYEES/Employee[@EmployeeId="1003"]**

Description - 1 item	XPath location
EmployeeId="1003" FirstName="Justin" LastName="Fletcher"	/EMPLOYEES[1]/Employee[3]

EmployeeId="1003" FirstName="Justin" LastName="Fletcher" /EMPLOYEES[1]/Employee[3] Employees.xml C:\Users\himan\Desktop\Employees.xml 27/5

2) List all the employee belongs to IT department.

1 **//EMPLOYEES/Employee[DeptName="IT"]**

Description - 3 items	XPath location
EmployeeId="1001" FirstName="Chris" LastName="Church"	/EMPLOYEES[1]/Employee[1]
EmployeeId="1002" FirstName="Augi" LastName="Vitha"	/EMPLOYEES[1]/Employee[2]
EmployeeId="1003" FirstName="Justin" LastName="Fletcher"	/EMPLOYEES[1]/Employee[3]

3) Find all the employees who joined the company in 2008.

1 **//EMPLOYEES/Employee[JoiningYear="2008"]**

EmployeeId="1002" FirstName="Augi" LastName="Vitha"	/EMPLOYEES[1]/Employee[2]
EmployeeId="1009" FirstName="Pranay" LastName="Kumar"	/EMPLOYEES[1]/Employee[10]

4) Find all the associate having job title as Associate.

```
1 //EMPLOYEES/Employee[JobTitle="Associate"]
```

Description - 2 items	XPath location
EmployeeId="1004" FirstName="Ankit" LastName="Saxena"	/EMPLOYEES[1]/Employee[4]
EmployeeId="1007" FirstName="Pradeep" LastName="Gade"	/EMPLOYEES[1]/Employee[8]

5) Find all the employees having salary more than 100000.

```
1 //EMPLOYEES/Employee[Salary>100000]
```

Description - 3 items	XPath location
EmployeeId="1003" FirstName="Justin" LastName="Fletcher"	/EMPLOYEES[1]/Employee[3]
EmployeeId="1006" FirstName="Mike" LastName="Clark"	/EMPLOYEES[1]/Employee[7]
EmployeeId="1010" FirstName="Josh" LastName="Kayser"	/EMPLOYEES[1]/Employee[11]

- 5 xQueries:

1) Return all the job title with salary more than 100000.

```
1 for $x in doc("EMPLOYEES.xml")//EMPLOYEES/Employee[Salary>100000]
2 return $x/JobTitle
```

```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <JobTitle>Manager</JobTitle>
3 <JobTitle>Manager</JobTitle>
4 <JobTitle>Lead</JobTitle>
```

2) Find all the employees having salary greater than avg salary.

```
1 <ul>
2 {
3 let $a := avg(doc("EMPLOYEES.xml")/EMPLOYEES/Employee/Salary)
4 for $b in doc("EMPLOYEES.xml")/EMPLOYEES/Employee
5 where $b/Salary > $a
6 return <li>{data($b/@FirstName)} {" "} {data($b/@LastName)}
7 </li>
8 }
9 </ul>
```

```

1 <?xml version="1.0" encoding="UTF-8"?>
2 <ul>
3   <li>Chris Church</li>
4   <li>Justin Fletcher</li>
5   <li>Ankit Saxena</li>
6   <li>Rahul Singh</li>
7   <li>Mike Clark</li>
8   <li>Apoorva Kamath</li>
9   <li>Pranay Kumar</li>
10  <li>Josh Kayser</li>
11 </ul>

```

3) Find all the employee having salary less than 80000.

```

1 <ul>
2 {
3   for $x in doc("EMPLOYEES.xml")/EMPLOYEES/Employee
4   where $x/Salary < 80000
5   order by $x/@FirstName
6   return <li>{data($x/@FirstName)} {" "}{data($x/@LastName)}
7 </li>
8
9 }
10 </ul>

```

```

1 <?xml version="1.0" encoding="UTF-8"?>
2 <ul>
3   <li>Augi Vitha</li>
4   <li>Pradeep Gade</li>
5   <li>Vinay Sharma</li>
6 </ul>

```

4) Find all the employees in HR department.

```
1 <ul>
2 {
3   for $x in doc("EMPLOYEES.xml")/EMPLOYEES/Employee
4   where $x/DeptName = "HR"
5   order by $x/@FirstName
6   return <li>{data($x/@FirstName)} {" "}{data($x/@LastName)}
7 </li>
8
9 }
10 </ul>
```

```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <ul>
3   <li>Ankit Saxena</li>
4   <li>Rahul Singh</li>
5 </ul>
```

5) Sort the employees last name in descending order.

```
1 <ul>
2 {
3   for $x in doc("EMPLOYEES.xml")/EMPLOYEES/Employee
4   order by $x/@LastName descending
5   return <li>{data($x/@FirstName)} {" "}{data($x/@LastName)}
6 </li>
7 }
8 </ul>
```

```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <ul>
3   <li>Augi Vitha</li>
4   <li>Rahul Singh</li>
5   <li>Vinay Sharma</li>
6   <li>Ankit Saxena</li>
7   <li>Pranay Kumar</li>
8   <li>Josh Kayser</li>
9   <li>Apoorva Kamath</li>
10  <li>Pradeep Gade</li>
11  <li>Justin Fletcher</li>
12  <li>Mike Clark</li>
13  <li>Chris Church</li>
14 </ul>
```