Indian Institute of Technology, Madras
Chennai - 36

CS6852 : Theory and Applications of Ontologies

Assignment 1	:	Ontology Design XQueries and XPaths
Group	:	13
Domain	:	Hospital Management

Roll No	:	CS22M076
Name	:	Sai Sree Ram Putta

XQueries :

1) find all patient elements that have a billing element with a total_amount greater than 10000

for $patient in //patient where $patient/billing/bill/total_amount > 10000 return $patient/name

Result

<name>Karishma</name>
<name>Pranav</name>
<name>Shreya</name>
<name>Michael</name>
<name>Ashok Kumar</name>
<name>Aditi Sharma</name>
<name>John Doe</name>
<name>Jane Smith</name>
<name>Arpita Dasgupta</name>
<name>Anjali</name>
<name>Suraj</name>
<name>Paresh</name>
<name>Aniket</name>
<name>Lakshmi</name>
<name>Rahul Verma</name>
<name>Shweta Singh</name>

2) find the number of patients in a department

for $department in distinct-values(/hospital/staff/*/department) return <department name="{$department}">
<number-of-patients>{count(/hospital/staff/*[department=$department]/patient)}</number-of-patients> </department>

Result

<department
name="Emergency Room"><number-of-patients>1</number-of-patients></department>
<department
name="Dermatology"><number-of-patients>6</number-of-patients></department>
<department name="ICU"><number-of-patients>3</number-of-patients></department>
<department
name="Neurology"><number-of-patients>12</number-of-patients></department>
<department name="Oncology"><number-of-patients>4</number-of-patients></department>
<department
name="Orthopedics"><number-of-patients>2</number-of-patients></department>
<department
name="Opthamology"><number-of-patients>2</number-of-patients></department>
<department
name="Cardiology"><number-of-patients>26</number-of-patients></department>

<department
name="Pediatrics"><number-of-patients>4</number-of-patients></department>
<department name="Emergency
Department"><number-of-patients>1</number-of-patients></department>
<department name="Cancer"><number-of-patients>2</number-of-patients></department>
<department
name="Nephrology"><number-of-patients>2</number-of-patients></department>
<department
name="Orthology"><number-of-patients>2</number-of-patients></department>
<department
name="Emergency"><number-of-patients>2</number-of-patients></department>
<department
name="Radiology"><number-of-patients>2</number-of-patients></department>
<department name="Gynecology
Department"><number-of-patients>2</number-of-patients></department>
<department name="Pathology
Department"><number-of-patients>2</number-of-patients></department>
<department
name="Anesthesiology"><number-of-patients>3</number-of-patients></department>
<department name="Urology"><number-of-patients>2</number-of-patients></department>
<department
name="Hematology"><number-of-patients>1</number-of-patients></department>
<department
name="Endocrinologists"><number-of-patients>1</number-of-patients></department>
<department name="Front
Desk"><number-of-patients>0</number-of-patients></department>
<department
name="Administration"><number-of-patients>0</number-of-patients></department>
<department
name="Reception"><number-of-patients>0</number-of-patients></department>
<department name="Security"><number-of-patients>0</number-of-patients></department>

3) Find the doctors available in a time period 9:00 AM to 11:00 AM

for $doctor in //doctor where exists($doctor/schedule/Day[StartTime <= '9:00 AM' and EndTime >= '11:00 AM']) return $doctor/name

Result

<name>Johnson</name>
<name>Sumail</name>
<name>Jerax</name>
<name>John Smith</name>
<name>Arjun</name>
<name>Rajesh kangaroo</name>
<name>Shreya</name>
<name>Akash</name>
<name>Rajiv</name>

<name>Ashish</name>
<name>John</name>
<name>Jane</name>
<name>Akshay Sharma</name>
<name>John Smith</name>
<name>John Smith</name>
<name>Jane Doe</name>
<name>Dr. John Smith</name>
<name>John Smith</name>
<name>John Smith</name>
<name>John Smith</name>
<name>Amita Patel</name>
<name>Rahul Singh</name>
<name>Aravindan</name>
<name>Jessica Smith</name>
<name>Harmanpreet</name>
<name>Debjit Mukherjee</name>
<name>Sunil</name>
<name>Poorva</name>
<name>Archies</name>
<name>Sanskriti</name>
<name>Tushar</name>
<name>Aleksandr</name>
<name>Dr. Sarah Patel</name>
<name>Dr. Manoj Bajpayee</name>
<name>Dr. Anil Kumar</name>
<name>Ramana Reddy</name>
<name>Aditya</name>
<name>Dr. Priya Sharma</name>
<name>Dr. Anjali Sharma</name>
<name>Dr.Malla Reddy</name>

4) Find the patients name from city Guntur

for $patient in //patient[Address/City = 'Guntur'] return $patient/name

Result

<name>Smith</name>
<name>Alice Johnson</name>
<name>Notail</name>
<name>David Wilson</name>
<name>Ana</name>
<name>Lakshmi</name>

5)Find the patients who are admitted diagnosis

```
 for $patient in /hospital/staff//patient where $patient/@status = "admitted" return
$patient/diagnosis
```

Result

```
<diagnosis>Broken Arm</diagnosis>
<diagnosis>Heart Attack</diagnosis>
<diagnosis>Coronary Artery Disease</diagnosis>
<diagnosis>Cardiovascular Disease</diagnosis>
<diagnosis>Intestines infarction</diagnosis>
<diagnosis>Liver infarction</diagnosis>
<diagnosis>Migraine</diagnosis>
<diagnosis>Adrenal Cancer</diagnosis>
<diagnosis>Epilepsy</diagnosis>
<diagnosis>Myocardial Infarction</diagnosis>
<diagnosis>Amblyopia</diagnosis>
<diagnosis>Breast Cancer</diagnosis>
<diagnosis>Coronary Artery Disease</diagnosis>
<diagnosis>Heart Attack</diagnosis>
<diagnosis>Myocardial Infarction</diagnosis>
<diagnosis>Heart disease</diagnosis>
<diagnosis>Heart attack</diagnosis>
<diagnosis>Arrhythmia</diagnosis>
<diagnosis>Ear infection</diagnosis>
<diagnosis>Myocardial Infarction</diagnosis>
<diagnosis>Appendicitis</diagnosis>
<diagnosis>Coronary Artery Disease</diagnosis>
<diagnosis>Myocardial Infarction</diagnosis>
<diagnosis>Migraine</diagnosis>
<diagnosis>Coronary Artery Disease</diagnosis>
<diagnosis>Stroke</diagnosis>
<diagnosis>Heart Attack</diagnosis>
<diagnosis>Coronary Artery Disease</diagnosis>
<diagnosis>Heart Attack</diagnosis>
<diagnosis>Coronary Artery Disease</diagnosis>
<diagnosis>Tumor</diagnosis>
<diagnosis>Kidney Stone</diagnosis>
<diagnosis>Knee fracture</diagnosis>
<diagnosis>Car accident</diagnosis>
<diagnosis>Chemotherapy</diagnosis>
<diagnosis>Stroke</diagnosis>
<diagnosis>Kidney stones</diagnosis>
<diagnosis>Pregnancy</diagnosis>
<diagnosis>Cancer</diagnosis>
<diagnosis>Diabetics</diagnosis>
<diagnosis>Acute Respiratory Distress Syndrome</diagnosis>
<diagnosis>Maleria</diagnosis>
<diagnosis>Paralysis</diagnosis>
<diagnosis>Psoriasis</diagnosis>
```

<diagnosis>Eczema</diagnosis>
<diagnosis>Coronary artery disease</diagnosis>
<diagnosis>Asthma</diagnosis>
<diagnosis>Fever</diagnosis>
<diagnosis>Fractured leg</diagnosis>
<diagnosis>Kidney stones</diagnosis>

XPaths:

1) find all patient elements that have a billing element with a total_amount greater than 10000

//patient[billing/bill/total_amount > 100]/name/text()
Result
Karishma
Pranav
Shreya
Michael
Ashok Kumar
Aditi Sharma
John Doe
Jane Smith
Arpita Dasgupta
Anjali
Suraj
Paresh
Aniket
Lakshmi
Rahul Verma
Shweta Singh

2) Find the count of all patient elements that have a department with the value "Anesthesiology"

count(//doctor[department='Anesthesiology'])/name
Result
2
Explanation
<name>Johnson</name>
<name>Dr. Anjali Sharma</name>

3) Find the doctors available in a time period 9:00 AM to 11:00 AM

//doctor[schedule/Day[StartTime <= '9:00 AM' and EndTime >= '11:00 AM']]/name

Result

<name>Johnson</name>
<name>Sumail</name>
<name>Jerax</name>
<name>John Smith</name>
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<name>Akshay Sharma</name>
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<name>John Smith</name>
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<name>Aravindan</name>
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<name>Sunil</name>
<name>Poorva</name>
<name>Archies</name>
<name>Sanskriti</name>
<name>Tushar</name>
<name>Aleksandr</name>
<name>Dr. Sarah Patel</name>
<name>Dr. Manoj Bajpayee</name>
<name>Dr. Anil Kumar</name>
<name>Ramana Reddy</name>
<name>Aditya</name>
<name>Dr. Priya Sharma</name>
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4) Find the patients name from city Guntur

```
//patient[Address/City = 'Guntur']/name
```

Result
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<name>Ana</name>
<name>Lakshmi</name>

5)Find the patients who are admitted diagnosis

```
//patient[@status='admitted']/diagnosis
```

Result
<diagnosis>Broken Arm</diagnosis>
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<diagnosis>Migraine</diagnosis>
<diagnosis>Adrenal Cancer</diagnosis>
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<diagnosis>Myocardial Infarction</diagnosis>
<diagnosis>Amblyopia</diagnosis>
<diagnosis>Breast Cancer</diagnosis>
<diagnosis>Coronary Artery Disease</diagnosis>
<diagnosis>Heart Attack</diagnosis>
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<diagnosis>Coronary Artery Disease</diagnosis>

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<diagnosis>Kidney stones</diagnosis>