

Assignment 6

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Question One

Websites containing the following data representation and technologies used to create their web databases

a. JSON

Websites

- Google Maps
- Twitter
- GitHub
- OpenWeatherMap

Technologies/Methods

- Relational databases- MySQL, Oracle
 - NoSQL databases – MongoDB, Cassandra – store JSON data as docs
 - APIs like RESTful APIs – allow exchange of JSON data between client and server
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b. XML

Websites

- Amazon
- Apple iTunes
- World Wide Web
- US Census Bureau

Technologies/Methods

- Relational databases
 - store XML data in columns and support querying using SQL
 - XML databases – BaseX, MarkLogic
 - store XML data as docs and support querying it using Xpath
 - RESTful APIs – allow exchange of XML data
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Question Two

Part 1

Express the following query in SQL using no subqueries and no set operations.

```
select ID
from student
except
select s id
from advisor
where i_ID is not null
```

Solution

```
select ID
from student left join advisor
on student.ID = advisor.s_ID
where i_ID is null
```

Part 2

Using the university schema, write an SQL query to find the names and IDs of those instructors who teach every course taught in his or her department (i.e., every course that appears in the course relation with the instructor's department name). Order result by name.

Solution

```
select Distinct (name), ID  
from instructor natural join department natural join course  
order by name
```

Thank You!
