# SPARQL Queries

First, we list the different queries of the benchmark. Second, we present the queries applied on non-aggregated data. Finally, we present the queries used to define the aggregates and the analysis queries applied on these aggregates.

# Queries of the Benchmark



# Queries for non-aggregated data

1--

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

SELECT ?station ?sensor ?year (avg(?so2) AS ?avgSo2)

WHERE {

?obs schema:SO2 ?so2 .

?obs schema:station ?station .

?obs schema:sensor ?sensor.

?obs schema:year ?year}

Group by ?station ?sensor ?year

2--

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

SELECT ?station ?component ?year (avg(?so2) AS ?avgSo2)

WHERE {

?obs schema:SO2 ?so2 .

?obs schema:station ?station .

?obs schema:sensor ?sensor.

?obs schema:year ?year.

?sensor schema:measures ?component}

Group by ?station ?component ?year

3--

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

SELECT ?station ?sensor (avg(?so2) AS ?avgSo2)

WHERE {

?obs schema:SO2 ?so2 .

?obs schema:station ?station .

?obs schema:sensor ?sensor}

Group by ?station ?sensor

4--

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

SELECT ?station ?component (avg(?so2) AS ?avgSo2)

WHERE {

?obs schema:SO2 ?so2 .

?obs schema:station ?station .

?obs schema:sensor ?sensor.

?sensor schema:measures ?component}

Group by ?station ?component

5--

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

SELECT ?station (avg(?so2) AS ?avgSo2)

WHERE {

?obs schema:SO2 ?so2.

?obs schema:station ?station.

}

Group by ?station

6--

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

SELECT ?city ?component (avg(?so2) AS ?avgSo2)

WHERE {

?obs schema:SO2 ?so2 .

?obs schema:station ?station .

?obs schema:sensor ?sensor.

?sensor schema:measures ?component.

?station schema:inCity ?city}

Group by ?city ?component

7--

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

SELECT ?city (avg(?so2) AS ?avgSo2)

WHERE {

?obs schema:SO2 ?so2 .

?obs schema:station ?station .

?station schema:inCity ?city}

Group by ?city

8--

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

SELECT ?country ?component (avg(?so2) AS ?avgSo2)

WHERE {

?obs schema:SO2 ?so2 .

?obs schema:station ?station .

?obs schema:sensor ?sensor.

?sensor schema:measures ?component.

?station schema:inCity ?city.

?city schema:locatedIn ?country}

Group by ?country ?component

9--

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

SELECT ?country (avg(?so2) AS ?avgSo2)

WHERE {

?obs schema:SO2 ?so2 .

?obs schema:station ?station .

?station schema:inCity ?city.

?city schema:locatedIn ?country}

Group by ?country

10--

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

SELECT (avg(?so2) AS ?avgSo2)

WHERE {

?obs schema:SO2 ?so2.}

11--

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

SELECT ?city ?year (avg(?so2) AS ?avgSo2)

WHERE {

?obs schema:SO2 ?so2 .

?obs schema:station ?station.

?station schema:inCity ?city.

?obs schema:year ?year}

Group by ?city ?year

12--

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

SELECT ?country ?year (avg(?so2) AS ?avgSo2)

WHERE {

?obs schema:SO2 ?so2 .

?obs schema:station ?station.

?station schema:inCity ?city.

?city schema:locatedIn ?country.

?obs schema:year ?year}

Group by ?country ?year

--13

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

SELECT ?station ?sensor ?year (avg(?so2) AS ?avgSo2)

WHERE {

?obs schema:SO2 ?so2 .

?obs schema:station ?station .

?obs schema:sensor ?sensor.

?obs schema:year ?year.

FILTER(?year in (<http://qweb.cs.aau.dk/airbase/data/year/2006/>,<http://qweb.cs.aau.dk/airbase/data/year/2007/>,<http://qweb.cs.aau.dk/airbase/data/year/2008/>,<http://qweb.cs.aau.dk/airbase/data/year/2009/>,<http://qweb.cs.aau.dk/airbase/data/year/2010/>)).

}

Group by ?station ?sensor ?year

--14

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

SELECT ?station (avg(?so2) AS ?avgSo2)

WHERE {

?obs schema:SO2 ?so2 .

?obs schema:station ?station.

FILTER(?station=<http://qweb.cs.aau.dk/airbase/data/station/GB0690A\_SCUN/>)}

Group by ?station

--15

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

SELECT ?station (avg(?so2) AS ?avgSo2)

WHERE {

?obs schema:SO2 ?so2 .

?obs schema:station ?station.

FILTER(?station in (<http://qweb.cs.aau.dk/airbase/data/station/GB0690A\_SCUN/>,

<http://qweb.cs.aau.dk/airbase/data/station/GB0917A\_STEW/>,

<http://qweb.cs.aau.dk/airbase/data/station/GB0037R\_LB/>))

}

Group by ?station

--16

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

SELECT ?city (avg(?so2) AS ?avgSo2)

WHERE {

?obs schema:SO2 ?so2 .

?obs schema:station ?station.

?station schema:inCity ?city.

FILTER(?city=<http://qweb.cs.aau.dk/airbase/data/city/LONDON/> )

}

Group by ?city

--17

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

SELECT ?country (avg(?so2) AS ?avgSo2)

WHERE {

?obs schema:SO2 ?so2 .

?obs schema:station ?station.

?station schema:inCity ?city.

?city schema:locatedIn ?country.

FILTER(?country=<http://qweb.cs.aau.dk/airbase/data/country/United\_Kingdom/>)

}

Group by ?country

--18

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

SELECT ?city ?year (avg(?so2) AS ?avgSo2)

WHERE {

?obs schema:SO2 ?so2 .

?obs schema:year ?year.

?obs schema:station ?station.

?station schema:inCity ?city.

FILTER(?city=<http://qweb.cs.aau.dk/airbase/data/city/LONDON/>).

FILTER(?year=<http://qweb.cs.aau.dk/airbase/data/year/2010/>).

}

Group by ?city ?year

--19

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

SELECT ?city ?year (avg(?so2) AS ?avgSo2)

WHERE {

?obs schema:SO2 ?so2 .

?obs schema:year ?year.

?obs schema:station ?station.

?station schema:inCity ?city.

FILTER(?city=<http://qweb.cs.aau.dk/airbase/data/city/LONDON/>).

FILTER(?year in (<http://qweb.cs.aau.dk/airbase/data/year/2006/>,<http://qweb.cs.aau.dk/airbase/data/year/2007/>,<http://qweb.cs.aau.dk/airbase/data/year/2008/>,<http://qweb.cs.aau.dk/airbase/data/year/2009/>,<http://qweb.cs.aau.dk/airbase/data/year/2010/>)).

}

Group by ?city ?year

--20

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

SELECT ?city (avg(?so2) AS ?avgSo2)

WHERE {

?obs schema:SO2 ?so2 .

?obs schema:year ?year.

?obs schema:station ?station.

?station schema:inCity ?city.

FILTER(?city=<http://qweb.cs.aau.dk/airbase/data/city/LONDON/>).

FILTER(?year=<http://qweb.cs.aau.dk/airbase/data/year/2010/>).

}

Group by ?city

--21

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

SELECT ?year ?station ?component (avg(?so2) AS ?avgSo2)

WHERE {

?obs schema:SO2 ?so2 .

?obs schema:year ?year.

?obs schema:sensor ?sensor.

?sensor schema:measures ?component.

?obs schema:station ?station.

FILTER(?station=<http://qweb.cs.aau.dk/airbase/data/station/GB0841A\_SCN2/>).

FILTER(?year=<http://qweb.cs.aau.dk/airbase/data/year/2010/>).

FILTER(?component=<http://qweb.cs.aau.dk/airbase/data/component/1/>).

}

Group by ?year ?station ?component

--22

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

SELECT ?city ?year (avg(?so2) AS ?avgSo2)

WHERE {

?obs schema:SO2 ?so2 .

?obs schema:year ?year.

?obs schema:station ?station.

?station schema:inCity ?city.

}

Group by ?year ?city

Having (avg(?so2)>150)

--23

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

SELECT ?city (avg(?so2) AS ?avgSo2)

WHERE {

?obs schema:SO2 ?so2 .

?obs schema:station ?station.

?station schema:inCity ?city

FILTER(?city in (<http://qweb.cs.aau.dk/airbase/data/city/LONDON/>,<http://qweb.cs.aau.dk/airbase/data/city/RUGELEY/>,<http://qweb.cs.aau.dk/airbase/data/city/BELFAST/> )).

}

Group by ?city

Having (avg(?so2)>100)

-- 24

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

SELECT ?city (avg(?so2) AS ?avgSo2) (count(?so2) AS ?num)

WHERE {

?obs schema:SO2 ?so2.

?obs2 schema:NO2 ?no2.

?obs2 schema:station ?station.

?obs schema:station ?station.

?station schema:inCity ?city

FILTER(?city in (<http://qweb.cs.aau.dk/airbase/data/city/LONDON/>,<http://qweb.cs.aau.dk/airbase/data/city/RUGELEY/>,<http://qweb.cs.aau.dk/airbase/data/city/BELFAST/> )).

}

Group by ?city

Having (avg(?no2)>100)

# Queries for aggregated data

## Aggreates creation

Aggregate 2 --

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

PREFIX qb: <http://purl.org/linked-data/cube#>

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

INSERT { GRAPH <http://qweb.cs.aau.dk/airbase/data/aggregates> {

[] rdf:type qb:Observation;

schema:SO2 ?avgSo2;

schema:stationDimAgg ?station;

schema:sensorDimAgg ?component;

schema:yearDimAgg ?year;

schema:lvlStation "Station"^^xsd:String;

schema:lvlSensor "Component"^^xsd:String;

schema:lvlYear "Year"^^xsd:String.}

}

WHERE {

{

SELECT ?station ?component ?year (avg(?so2) AS ?avgSo2)

WHERE {

?obs schema:SO2 ?so2 .

?obs schema:station ?station .

?obs schema:sensor ?sensor.

?obs schema:year ?year.

?sensor schema:measures ?component}

Group by ?station ?component ?year

}

}

Aggregate 3 --

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

PREFIX qb: <http://purl.org/linked-data/cube#>

PREFIX ab: <http://qweb.cs.aau.dk/airbase/data/observation/>

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

INSERT { GRAPH <http://qweb.cs.aau.dk/airbase/data/aggregates> {

[] rdf:type qb:Observation;

schema:SO2 ?avgSo2;

schema:stationDimAgg ?station;

schema:sensorDimAgg ?sensor;

schema:lvlStation "Station"^^xsd:String;

schema:lvlSensor "Sensor"^^xsd:String;

schema:lvlYear "ALL"^^xsd:String.}

}

WHERE {

{

SELECT ?station ?sensor (avg(?so2) AS ?avgSo2)

WHERE {

?obs schema:SO2 ?so2 .

?obs schema:station ?station .

?obs schema:sensor ?sensor}

Group by ?station ?sensor

}

}

Aggregate 4--

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

PREFIX qb: <http://purl.org/linked-data/cube#>

PREFIX ab: <http://qweb.cs.aau.dk/airbase/data/observation/>

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

INSERT { GRAPH <http://qweb.cs.aau.dk/airbase/data/aggregates> {

[] rdf:type qb:Observation;

schema:SO2 ?avgSo2;

schema:stationDimAgg ?station;

schema:sensorDimAgg ?component;

schema:lvlStation "Station"^^xsd:String;

schema:lvlSensor "Component"^^xsd:String;

schema:lvlYear "ALL"^^xsd:String.}

}

WHERE {

{

SELECT ?station ?component (avg(?so2) AS ?avgSo2)

WHERE {

?obs schema:SO2 ?so2 .

?obs schema:station ?station .

?obs schema:sensor ?sensor.

?sensor schema:measures ?component}

Group by ?station ?component

}

}

Aggregate 5 --

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

PREFIX qb: <http://purl.org/linked-data/cube#>

PREFIX ab: <http://qweb.cs.aau.dk/airbase/data/observation/>

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

INSERT { GRAPH <http://qweb.cs.aau.dk/airbase/data/aggregates> {

[] rdf:type qb:Observation;

schema:SO2 ?avgSo2;

schema:stationDimAgg ?station;

schema:lvlStation "Station"^^xsd:String;

schema:lvlSensor "ALL"^^xsd:String;

schema:lvlYear "ALL"^^xsd:String.}

}

WHERE {

{

SELECT ?station (avg(?so2) AS ?avgSo2)

WHERE {

?obs schema:SO2 ?so2.

?obs schema:station ?station.

}

Group by ?station

}

}

Aggregate 6 --

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

PREFIX qb: <http://purl.org/linked-data/cube#>

PREFIX ab: <http://qweb.cs.aau.dk/airbase/data/observation/>

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

INSERT { GRAPH <http://qweb.cs.aau.dk/airbase/data/aggregates> {

[] rdf:type qb:Observation;

schema:SO2 ?avgSo2;

schema:stationDimAgg ?city;

schema:sensorDimAgg ?component;

schema:lvlStation "City"^^xsd:String;

schema:lvlSensor "Component"^^xsd:String;

schema:lvlYear "ALL"^^xsd:String.}

}

WHERE {

{

SELECT ?city ?component (avg(?so2) AS ?avgSo2)

WHERE {

?obs schema:SO2 ?so2 .

?obs schema:station ?station .

?obs schema:sensor ?sensor.

?sensor schema:measures ?component.

?station schema:inCity ?city}

Group by ?city ?component

}

}

Aggregate 7--

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

PREFIX qb: <http://purl.org/linked-data/cube#>

PREFIX ab: <http://qweb.cs.aau.dk/airbase/data/observation/>

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

INSERT { GRAPH <http://qweb.cs.aau.dk/airbase/data/aggregates> {

[] rdf:type qb:Observation;

schema:SO2 ?avgSo2;

schema:stationDimAgg ?city;

schema:lvlStation "City"^^xsd:String;

schema:lvlSensor "ALL"^^xsd:String;

schema:lvlYear "ALL"^^xsd:String.}

}

WHERE {

{

SELECT ?city (avg(?so2) AS ?avgSo2)

WHERE {

?obs schema:SO2 ?so2 .

?obs schema:station ?station .

?station schema:inCity ?city}

Group by ?city

}

}

Aggregate 8--

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

PREFIX qb: <http://purl.org/linked-data/cube#>

PREFIX ab: <http://qweb.cs.aau.dk/airbase/data/observation/>

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

INSERT { GRAPH <http://qweb.cs.aau.dk/airbase/data/aggregates> {

[] rdf:type qb:Observation;

schema:SO2 ?avgSo2;

schema:stationDimAgg ?country;

schema:sensorDimAgg ?component;

schema:lvlStation "Country"^^xsd:String;

schema:lvlSensor "Component"^^xsd:String;

schema:lvlYear "ALL"^^xsd:String.}

}

WHERE {

{

SELECT ?country ?component (avg(?so2) AS ?avgSo2)

WHERE {

?obs schema:SO2 ?so2 .

?obs schema:station ?station .

?obs schema:sensor ?sensor.

?sensor schema:measures ?component.

?station schema:inCity ?city.

?city schema:locatedIn ?country}

Group by ?country ?component

}

}

Aggregate 9--

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

PREFIX qb: <http://purl.org/linked-data/cube#>

PREFIX ab: <http://qweb.cs.aau.dk/airbase/data/observation/>

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

INSERT { GRAPH <http://qweb.cs.aau.dk/airbase/data/aggregates> {

[] rdf:type qb:Observation;

schema:SO2 ?avgSo2;

schema:stationDimAgg ?country;

schema:lvlStation "Country"^^xsd:String;

schema:lvlSensor "ALL"^^xsd:String;

schema:lvlYear "ALL"^^xsd:String.}

}

WHERE {

{

SELECT ?country (avg(?so2) AS ?avgSo2)

WHERE {

?obs schema:SO2 ?so2 .

?obs schema:station ?station .

?station schema:inCity ?city.

?city schema:locatedIn ?country}

Group by ?country

}

}

Aggregate 10--

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

PREFIX qb: <http://purl.org/linked-data/cube#>

PREFIX ab: <http://qweb.cs.aau.dk/airbase/data/observation/>

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

INSERT { GRAPH <http://qweb.cs.aau.dk/airbase/data/aggregates> {

[] rdf:type qb:Observation;

schema:SO2 ?avgSo2;

schema:lvlStation "ALL"^^xsd:String;

schema:lvlSensor "ALL"^^xsd:String;

schema:lvlYear "ALL"^^xsd:String.}

}

WHERE {

{

SELECT (avg(?so2) AS ?avgSo2)

WHERE {

?obs schema:SO2 ?so2.}

}

}

Aggregate 11--

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

PREFIX qb: <http://purl.org/linked-data/cube#>

PREFIX ab: <http://qweb.cs.aau.dk/airbase/data/observation/>

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

INSERT { GRAPH <http://qweb.cs.aau.dk/airbase/data/aggregates> {

[] rdf:type qb:Observation;

schema:SO2 ?avgSo2;

schema:stationDimAgg ?city;

schema:yearDimAgg ?year;

schema:lvlStation "City"^^xsd:String;

schema:lvlSensor "ALL"^^xsd:String;

schema:lvlYear "Year"^^xsd:String.}

}

WHERE {

{

SELECT ?city ?year (avg(?so2) AS ?avgSo2)

WHERE {

?obs schema:SO2 ?so2 .

?obs schema:station ?station.

?station schema:inCity ?city.

?obs schema:year ?year}

Group by ?city ?year

}

}

Aggregate 12 --

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

PREFIX qb: <http://purl.org/linked-data/cube#>

PREFIX ab: <http://qweb.cs.aau.dk/airbase/data/observation/>

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

INSERT { GRAPH <http://qweb.cs.aau.dk/airbase/data/aggregates> {

[] rdf:type qb:Observation;

schema:SO2 ?avgSo2;

schema:stationDimAgg ?country;

schema:yearDimAgg ?year;

schema:lvlStation "Country"^^xsd:String;

schema:lvlSensor "ALL"^^xsd:String;

schema:lvlYear "Year"^^xsd:String.}

}

WHERE {

{

SELECT ?country ?year (avg(?so2) AS ?avgSo2)

WHERE {

?obs schema:SO2 ?so2 .

?obs schema:station ?station.

?station schema:inCity ?city.

?city schema:locatedIn ?country.

?obs schema:year ?year}

Group by ?country ?year

}

}

## Queries on aggregated data

--1

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

SELECT ?station ?sensor ?year ?avgSo2

WHERE {

?obs schema:SO2 ?so2 .

?obs schema:station ?station .

?obs schema:sensor ?sensor.

?obs schema:year ?year

}

2--

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

PREFIX qb: <http://purl.org/linked-data/cube#>

PREFIX ab: <http://qweb.cs.aau.dk/airbase/data/observation/>

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

SELECT ?station ?component ?year ?avgSo2

WHERE {

?newOb rdf:type qb:Observation;

schema:SO2 ?avgSo2;

schema:stationDimAgg ?station;

schema:sensorDimAgg ?component;

schema:yearDimAgg ?year;

schema:lvlStation "Station"^^xsd:String;

schema:lvlSensor "Component"^^xsd:String;

schema:lvlYear "Year"^^xsd:String.

}

3--

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

PREFIX qb: <http://purl.org/linked-data/cube#>

PREFIX ab: <http://qweb.cs.aau.dk/airbase/data/observation/>

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

SELECT ?station ?sensor ?avgSo2

WHERE {

?newOb rdf:type qb:Observation.

?newOb schema:SO2 ?avgSo2.

?newOb schema:stationDimAgg ?station.

?newOb schema:sensorDimAgg ?sensor.

?newOb schema:lvlStation "Station"^^xsd:String.

?newOb schema:lvlSensor "Sensor"^^xsd:String.

?newOb schema:lvlYear "ALL"^^xsd:String.

}

4--

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

PREFIX qb: <http://purl.org/linked-data/cube#>

PREFIX ab: <http://qweb.cs.aau.dk/airbase/data/observation/>

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

SELECT ?station ?component ?avgSo2

WHERE{

?newOb rdf:type qb:Observation.

?newOb schema:SO2 ?avgSo2.

?newOb schema:stationDimAgg ?station.

?newOb schema:sensorDimAgg ?component.

?newOb schema:lvlStation "Station"^^xsd:String.

?newOb schema:lvlSensor "Component"^^xsd:String.

?newOb schema:lvlYear "ALL"^^xsd:String.

}

--5

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

PREFIX qb: <http://purl.org/linked-data/cube#>

PREFIX ab: <http://qweb.cs.aau.dk/airbase/data/observation/>

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

SELECT ?station ?avgSo2

WHERE {

?newOb rdf:type qb:Observation.

?newOb schema:SO2 ?avgSo2.

?newOb schema:stationDimAgg ?station.

?newOb schema:lvlStation "Station"^^xsd:String.

?newOb schema:lvlSensor "ALL"^^xsd:String.

?newOb schema:lvlYear "ALL"^^xsd:String.

}

--6

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

PREFIX qb: <http://purl.org/linked-data/cube#>

PREFIX ab: <http://qweb.cs.aau.dk/airbase/data/observation/>

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

SELECT ?city ?component ?avgSo2

WHERE {

?newOb rdf:type qb:Observation.

?newOb schema:SO2 ?avgSo2.

?newOb schema:stationDimAgg ?city.

?newOb schema:sensorDimAgg ?component.

?newOb schema:lvlStation "City"^^xsd:String.

?newOb schema:lvlSensor "Component"^^xsd:String.

?newOb schema:lvlYear "ALL"^^xsd:String.

}

--7

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

PREFIX qb: <http://purl.org/linked-data/cube#>

PREFIX ab: <http://qweb.cs.aau.dk/airbase/data/observation/>

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

SELECT ?city ?avgSo2

WHERE {

?newOb rdf:type qb:Observation.

?newOb schema:SO2 ?avgSo2.

?newOb schema:stationDimAgg ?city.

?newOb schema:lvlStation "City"^^xsd:String.

?newOb schema:lvlSensor "ALL"^^xsd:String.

?newOb schema:lvlYear "ALL"^^xsd:String.

}

--8

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

PREFIX qb: <http://purl.org/linked-data/cube#>

PREFIX ab: <http://qweb.cs.aau.dk/airbase/data/observation/>

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

SELECT ?country ?component ?avgSo2

WHERE

{

?newOb rdf:type qb:Observation.

?newOb schema:SO2 ?avgSo2.

?newOb schema:stationDimAgg ?country.

?newOb schema:sensorDimAgg ?component.

?newOb schema:lvlStation "Country"^^xsd:String.

?newOb schema:lvlSensor "Component"^^xsd:String.

?newOb schema:lvlYear "ALL"^^xsd:String.

}

--9

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

PREFIX qb: <http://purl.org/linked-data/cube#>

PREFIX ab: <http://qweb.cs.aau.dk/airbase/data/observation/>

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

SELECT ?country ?avgSo2

WHERE {

?newOb rdf:type qb:Observation.

?newOb schema:SO2 ?avgSo2.

?newOb schema:stationDimAgg ?country.

?newOb schema:lvlStation "Country"^^xsd:String.

?newOb schema:lvlSensor "ALL"^^xsd:String.

?newOb schema:lvlYear "ALL"^^xsd:String.

}

--10

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

PREFIX qb: <http://purl.org/linked-data/cube#>

PREFIX ab: <http://qweb.cs.aau.dk/airbase/data/observation/>

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

SELECT ?avgSo2

WHERE {

?newOb rdf:type qb:Observation.

?newOb schema:SO2 ?avgSo2.

?newOb schema:lvlStation "ALL"^^xsd:String.

?newOb schema:lvlSensor "ALL"^^xsd:String.

?newOb schema:lvlYear "ALL"^^xsd:String.

}

--11

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

PREFIX qb: <http://purl.org/linked-data/cube#>

PREFIX ab: <http://qweb.cs.aau.dk/airbase/data/observation/>

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

SELECT ?city ?year ?avgSo2

WHERE {

?newOb rdf:type qb:Observation.

?newOb schema:SO2 ?avgSo2.

?newOb schema:stationDimAgg ?city.

?newOb schema:yearDimAgg ?year.

?newOb schema:lvlStation "City"^^xsd:String.

?newOb schema:lvlSensor "ALL"^^xsd:String.

?newOb schema:lvlYear "Year"^^xsd:String.

}

--12

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

PREFIX qb: <http://purl.org/linked-data/cube#>

PREFIX ab: <http://qweb.cs.aau.dk/airbase/data/observation/>

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

SELECT ?country ?year ?avgSo2

WHERE {

?newOb rdf:type qb:Observation.

?newOb schema:SO2 ?avgSo2.

?newOb schema:stationDimAgg ?country.

?newOb schema:yearDimAgg ?year.

?newOb schema:lvlStation "Country"^^xsd:String.

?newOb schema:lvlSensor "ALL"^^xsd:String.

?newOb schema:lvlYear "Year"^^xsd:String.

}

--13

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

SELECT ?station ?sensor ?year ?avgSo2

WHERE {

?obs schema:SO2 ?avgSo2 .

?obs schema:station ?station .

?obs schema:sensor ?sensor.

?obs schema:year ?year.

FILTER(?year in (<http://qweb.cs.aau.dk/airbase/data/year/2006/>,<http://qweb.cs.aau.dk/airbase/data/year/2007/>,<http://qweb.cs.aau.dk/airbase/data/year/2008/>,<http://qweb.cs.aau.dk/airbase/data/year/2009/>,<http://qweb.cs.aau.dk/airbase/data/year/2010/>)).

}

--14

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

PREFIX qb: <http://purl.org/linked-data/cube#>

PREFIX ab: <http://qweb.cs.aau.dk/airbase/data/observation/>

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

SELECT ?avgSo2 ?station

WHERE {

[] rdf:type qb:Observation;

schema:SO2 ?avgSo2;

schema:stationDimAgg ?station;

schema:lvlStation "Station"^^xsd:String;

schema:lvlSensor "ALL"^^xsd:String;

schema:lvlYear "ALL"^^xsd:String.

FILTER(?station=<http://qweb.cs.aau.dk/airbase/data/station/GB0690A\_SCUN/>)

}

--15

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

PREFIX qb: <http://purl.org/linked-data/cube#>

PREFIX ab: <http://qweb.cs.aau.dk/airbase/data/observation/>

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

SELECT ?avgSo2 ?station

WHERE {

[] rdf:type qb:Observation;

schema:SO2 ?avgSo2;

schema:stationDimAgg ?station;

schema:lvlStation "Station"^^xsd:String;

schema:lvlSensor "ALL"^^xsd:String;

schema:lvlYear "ALL"^^xsd:String.

FILTER(?station in (<http://qweb.cs.aau.dk/airbase/data/station/GB0690A\_SCUN/>,

<http://qweb.cs.aau.dk/airbase/data/station/GB0917A\_STEW/>,

<http://qweb.cs.aau.dk/airbase/data/station/GB0037R\_LB/>))

}

--16

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

PREFIX qb: <http://purl.org/linked-data/cube#>

PREFIX ab: <http://qweb.cs.aau.dk/airbase/data/observation/>

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

SELECT ?avgSo2 ?city

WHERE {

[] rdf:type qb:Observation;

schema:SO2 ?avgSo2;

schema:stationDimAgg ?city;

schema:lvlStation "City"^^xsd:String;

schema:lvlSensor "ALL"^^xsd:String;

schema:lvlYear "ALL"^^xsd:String.

FILTER(?city=<http://qweb.cs.aau.dk/airbase/data/city/LONDON/> )

}

--17

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

PREFIX qb: <http://purl.org/linked-data/cube#>

PREFIX ab: <http://qweb.cs.aau.dk/airbase/data/observation/>

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

SELECT ?avgSo2 ?country

WHERE {

[] rdf:type qb:Observation;

schema:SO2 ?avgSo2;

schema:stationDimAgg ?country;

schema:lvlStation "Country"^^xsd:String;

schema:lvlSensor "ALL"^^xsd:String;

schema:lvlYear "ALL"^^xsd:String.

FILTER(?country=<http://qweb.cs.aau.dk/airbase/data/country/United\_Kingdom/>)

}

--18

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

PREFIX qb: <http://purl.org/linked-data/cube#>

PREFIX ab: <http://qweb.cs.aau.dk/airbase/data/observation/>

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

SELECT ?avgSo2 ?city ?year

WHERE {

?s rdf:type qb:Observation;

schema:SO2 ?avgSo2;

schema:stationDimAgg ?city;

schema:yearDimAgg ?year;

schema:lvlStation "City"^^xsd:String;

schema:lvlSensor "ALL"^^xsd:String;

schema:lvlYear "Year"^^xsd:String.

FILTER(?city=<http://qweb.cs.aau.dk/airbase/data/city/LONDON/>).

FILTER(?year=<http://qweb.cs.aau.dk/airbase/data/year/2010/>).

}

--19

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

PREFIX qb: <http://purl.org/linked-data/cube#>

PREFIX ab: <http://qweb.cs.aau.dk/airbase/data/observation/>

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

SELECT ?avgSo2 ?year

WHERE {

[] rdf:type qb:Observation;

schema:SO2 ?avgSo2;

schema:stationDimAgg ?city;

schema:yearDimAgg ?year;

schema:lvlStation "City"^^xsd:String;

schema:lvlSensor "ALL"^^xsd:String;

schema:lvlYear "Year"^^xsd:String.

FILTER(?city=<http://qweb.cs.aau.dk/airbase/data/city/LONDON/>).

FILTER(?year in (<http://qweb.cs.aau.dk/airbase/data/year/2006/>,<http://qweb.cs.aau.dk/airbase/data/year/2007/>,<http://qweb.cs.aau.dk/airbase/data/year/2008/>,<http://qweb.cs.aau.dk/airbase/data/year/2009/>,<http://qweb.cs.aau.dk/airbase/data/year/2010/>)).

}

--20

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

PREFIX qb: <http://purl.org/linked-data/cube#>

PREFIX ab: <http://qweb.cs.aau.dk/airbase/data/observation/>

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

SELECT ?avgSo2 ?city

WHERE {

?s rdf:type qb:Observation;

schema:SO2 ?avgSo2;

schema:stationDimAgg ?city;

schema:yearDimAgg ?year;

schema:lvlStation "City"^^xsd:String;

schema:lvlSensor "ALL"^^xsd:String;

schema:lvlYear "Year"^^xsd:String.

FILTER(?city=<http://qweb.cs.aau.dk/airbase/data/city/LONDON/>).

FILTER(?year=<http://qweb.cs.aau.dk/airbase/data/year/2010/>).

}

--21

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

PREFIX qb: <http://purl.org/linked-data/cube#>

PREFIX ab: <http://qweb.cs.aau.dk/airbase/data/observation/>

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

SELECT ?year ?station ?component ?avgSo2

WHERE {

[] rdf:type qb:Observation;

schema:SO2 ?avgSo2;

schema:stationDimAgg ?station;

schema:sensorDimAgg ?component;

schema:yearDimAgg ?year;

schema:lvlStation "Station"^^xsd:String;

schema:lvlSensor "Component"^^xsd:String;

schema:lvlYear "Year"^^xsd:String.

FILTER(?station=<http://qweb.cs.aau.dk/airbase/data/station/GB0841A\_SCN2/>).

FILTER(?year=<http://qweb.cs.aau.dk/airbase/data/year/2010/>).

FILTER(?component=<http://qweb.cs.aau.dk/airbase/data/component/1/>).

}

--22

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

PREFIX qb: <http://purl.org/linked-data/cube#>

PREFIX ab: <http://qweb.cs.aau.dk/airbase/data/observation/>

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

SELECT ?avgSo2 ?city ?year

WHERE {

[] rdf:type qb:Observation;

schema:SO2 ?avgSo2;

schema:stationDimAgg ?city;

schema:yearDimAgg ?year;

schema:lvlStation "City"^^xsd:String;

schema:lvlSensor "ALL"^^xsd:String;

schema:lvlYear "Year"^^xsd:String.

FILTER(?avgSo2>150).

}

--23

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

PREFIX qb: <http://purl.org/linked-data/cube#>

PREFIX ab: <http://qweb.cs.aau.dk/airbase/data/observation/>

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

SELECT ?avgSo2 ?city ?jj

WHERE {

?s rdf:type qb:Observation;

schema:SO2 ?avgSo2;

schema:stationDimAgg ?city;

schema:lvlStation "City"^^xsd:String;

schema:lvlSensor "ALL"^^xsd:String;

schema:lvlYear "ALL"^^xsd:String.

FILTER(?city in (<http://qweb.cs.aau.dk/airbase/data/city/LONDON/>,<http://qweb.cs.aau.dk/airbase/data/city/RUGELEY/>,<http://qweb.cs.aau.dk/airbase/data/city/BELFAST/> )).

FILTER(?avgSo2>150).

}

--24

PREFIX schema: <http://qweb.cs.aau.dk/airbase/schema/>

PREFIX property: <http://qweb.cs.aau.dk/airbase/property/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

PREFIX qb: <http://purl.org/linked-data/cube#>

PREFIX ab: <http://qweb.cs.aau.dk/airbase/data/observation/>

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

SELECT ?avgSo2 ?city

WHERE {

?s rdf:type qb:Observation;

schema:SO2 ?avgSo2;

schema:NO2 ?avgNo2;

schema:stationDimAgg ?city;

schema:lvlStation "City"^^xsd:String;

schema:lvlSensor "ALL"^^xsd:String;

schema:lvlYear "ALL"^^xsd:String.

FILTER(?city in (<http://qweb.cs.aau.dk/airbase/data/city/LONDON/>,<http://qweb.cs.aau.dk/airbase/data/city/RUGELEY/>,<http://qweb.cs.aau.dk/airbase/data/city/BELFAST/> )).

FILTER(?avgNo2>100).

}