



Exploring cultural data from UNESCO using semantic technologies: Predefined local queries

María Auxilio Medina Nieto¹, Gudelia Pilar Pérez Conde²

Universidad Politécnica de Puebla

¹Departamento de Posgrado

²Ingeniería en Tecnologías de la Información

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1. Start the server

The screenshot shows a web browser window with two tabs:

- CLIHC 2023. Exploring cultura
- Apache Jena Fuseki - manage

The address bar displays `localhost:3030/manage.html`, which is highlighted with a red box.

The main content area is titled "Manage datasets". It contains the following text:
Perform management actions on existing datasets, including backup, or add a new dataset.

Below this, there are two buttons:

- existing datasets
- add new dataset

A message states: "No datasets have been created yet." followed by a blue button labeled "add one".

2. Add the data

The screenshot shows a web browser window for the Apache Jena Fuseki management interface at localhost:3030/manage.html. The title bar says "localhost:3030/manage.html". The top navigation bar includes links for "dataset", "manage datasets" (which is highlighted), and "help". A red arrow labeled "1" points to the "manage datasets" link. The main content area is titled "Manage datasets" and contains instructions: "Perform management actions on existing datasets, including backup, or add a new dataset." Below this, there are two tabs: "existing datasets" (disabled) and "add new dataset" (selected). A red circle labeled "2" is placed over the "Dataset type" section. Under "Dataset type", three options are listed: "In-memory – dataset will be recreated when Fuseki restarts, but contents will be lost" (selected), "Persistent – dataset will persist across Fuseki restarts", and "Persistent (TDB2) – dataset will persist across Fuseki restarts". A red circle labeled "3" is placed over the "create dataset" button at the bottom left.

Manage datasets

Perform management actions on existing datasets, including backup, or add a new dataset.

existing datasets add new dataset

Dataset name dataset name

Dataset type

In-memory – dataset will be recreated when Fuseki restarts, but contents will be lost
 Persistent – dataset will persist across Fuseki restarts
 Persistent (TDB2) – dataset will persist across Fuseki restarts

create dataset

3. Create a dataset

The screenshot shows the Apache Jena Fuseki web interface under the 'manage datasets' tab. The top navigation bar includes links for 'dataset', 'manage datasets' (which is active), and 'help'. A green circular 'Server status' indicator is present. The main content area is titled 'Manage datasets' and contains instructions: 'Perform management actions on existing datasets, including backup, or add a new dataset.' Below this, there are two buttons: 'existing datasets' and '+ add new dataset'. A red circle with the number '1' highlights the '+ add new dataset' button. In the 'Name' section, the dataset name '/UNESCOdata' is entered in a text input field, which is also highlighted with a red box and a red circle with the number '2'. Below the input field are three buttons: 'remove', 'backup', and 'upload data'.

4. Select the files

The screenshot shows a user interface for managing datasets. At the top, there are navigation links: 'query' (disabled), 'upload files' (highlighted in blue), 'edit' (disabled), and 'info' (disabled). Below these, a section titled 'Upload files' contains instructions: 'Load data into the default graph of the currently selected dataset, or the given named graph. You may upload any RDF format, such as Turtle, RDF/XML or TRIG.' Underneath, there are two sections: 'Destination graph name' (with a placeholder 'Leave blank for default graph') and 'Files to upload'. The 'Files to upload' section contains four entries, each with a file name, size, and two buttons: 'upload now' and 'remove'. The first entry, 'countries.ttl', has a size of '30.2kb' and is highlighted with a red border. The other three entries are 'dataNational.ttl' (113.0kb), 'labels.ttl' (2.2kb), and 'metadata.ttl' (197.1kb).

File Name	Size	Action Buttons
countries.ttl	30.2kb	[upload now] [remove]
dataNational.ttl	113.0kb	[upload now] [remove]
labels.ttl	2.2kb	[upload now] [remove]
metadata.ttl	197.1kb	[upload now] [remove]

5. Upload of files

The screenshot shows the Apache Jena Fuseki interface for uploading files to the dataset '/UNESCOdata'. The 'upload files' tab is selected. The 'Destination graph name' field is empty. The 'Files to upload' section lists four files:

- countries.ttl** 30.2kb
Result: **success.** 482 triples
- dataNational.ttl** 113.0kb
Result: **success.** 2132 triples
- labels.ttl** 2.2kb
Result: **success.** 16 triples
- metadata.ttl** 197.1kb
Result: **success.** 3160 triples

Red arrows point from the left towards the first item in the list, highlighting the successful upload of 'countries.ttl'.

Types of content

The screenshot shows the Apache Jena Fuseki web interface. At the top, there is a navigation bar with the Apache Jena Fuseki logo, a home icon, a 'dataset' button, a 'manage datasets' button, a 'help' button, and a 'Server status:' indicator (green). Below the navigation bar, a dropdown menu labeled 'Dataset' is set to '/UNESCOdata'. A toolbar below the dataset selector contains buttons for 'query', 'upload files', 'edit', and 'info'.

SPARQL query

To try out some SPARQL queries against the selected dataset, enter your query here.

EXAMPLE QUERIES

Selection of triples Selection of classes

PREFIXES

rdf rdfs owl xsd +

SPARQL ENDPOINT CONTENT TYPE (SELECT) CONTENT TYPE (GRAPH)

/UNESCOdata/sparql JSON Turtle

A red box highlights the 'SPARQL ENDPOINT' input field and its associated dropdown menus for 'CONTENT TYPE (SELECT)' and 'CONTENT TYPE (GRAPH)'.

Writing SPARQL queries: retrieving 3 triplets

```
1 v PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
2 v PREFIX owl: <http://www.w3.org/2002/07/owl#>
3 v PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
4 v
5 v SELECT ?s ?p ?o
6 v WHERE
7 v {
8 v     ?s ?p ?o .
9 v }
10 v LIMIT 3
```

QUERY RESULTS

Table Raw Response ↻

Showing 1 to 3 of 3 entries Search: Show 50 entries

s	p	o
1 <http://localhost:3333/225>	<http://localhost:3333/METADAT A>	"Includes cultural heritage only"
2 <http://localhost:3333/225>	<http://localhost:3333/YEAR>	"2017"
3 <http://localhost:3333/225>	<http://localhost:3333/YEAR>	"2021"

Showing 1 to 3 of 3 entries

Number of triplets

The screenshot shows a SPARQL query interface with the following components:

- Query Editor (Top Panel):** Contains the following SPARQL code:

```
1 PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
2 PREFIX owl: <http://www.w3.org/2002/07/owl#>
3 PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
4
5 SELECT (COUNT(*) AS ?numberOfTriplets)
6 WHERE
7 {
8   ?s ?p ?o .
9 }
```

A red box highlights the entire SELECT clause.
- Query Results (Bottom Panel):** Shows the results of the executed query.

numberOfTriplets
1 "5333"^^xsd:integer

The results table has a header row labeled "numberOfTriplets". A red arrow points from this header to the value "5333" in the first row of the data.

Below the table, there is a message: "Showing 1 to 1 of 1 entries".

Query to retrieve the distinct predicates

```
1 PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
2 PREFIX owl: <http://www.w3.org/2002/07/owl#>
3 PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
4
5 SELECT DISTINCT ?p
6 WHERE
7 {
8     ?s ?p ?o.
9 }
10 ORDER BY ?p
```



Result of distinct predicates

QUERY RESULTS

[Table](#) [Raw Response](#) [Download](#)

Showing 1 to 10 of 10 entries

Search: Show 50 entries

p

1	< http://localhost:3333/COUNTRY_ID >
2	< http://localhost:3333/COUNTRY_NAME_EN >
3	< http://localhost:3333/INDICATOR_ID >
4	< http://localhost:3333/INDICATOR_LABEL_EN >
5	< http://localhost:3333/MAGNITUDE >
6	< http://localhost:3333/METADATA >
7	< http://localhost:3333/QUALIFIER >
8	< http://localhost:3333/TYPE >
9	< http://localhost:3333/VALUE >
10	< http://localhost:3333/YEAR >

Showing 1 to 10 of 10 entries

Cultural indicators in CSV format

SDG11_LABEL	
INDICATOR_ID	INDICATOR_LABEL_EN
HEXPCSTPPPCAP.CULHER	Total expenditure (public and private) per capita spent on cultural heritage (constant PPP\$ - 2017)
HEXPCSTPPPCAP.HER	Total expenditure per capita spent on the preservation, protection and conservation of all cultural and natural heritage (constant PPP\$ - 2017)
HEXPCSTPPPCAP.HER.PR	Total private expenditure per capita spent on cultural and natural heritage (constant PPP\$ - 2017)
HEXPCSTPPPCAP.HER.PU	Total public expenditure per capita spent on cultural and natural heritage (constant PPP\$ - 2017)
HEXPCSTPPPCAP.NATHER	Total expenditure (public and private) per capita spent on natural heritage (constant PPP\$ - 2017)
HEXPCSTPPPCAPGOV.LOC.HER.PU	Total public expenditure per capita at local/municipal level on cultural and natural heritage (constant PPP\$ - 2017)
HEXPCSTPPPCAPGOV.NTL.HER.PU	Total public expenditure per capita at national/federal level on cultural and natural heritage (constant PPP\$ - 2017)
HEXPCSTPPPCAPGOV.REG.HER.PU	Total public expenditure per capita at regional level on cultural and natural heritage (constant PPP\$ - 2017)

Query to retrieve the indicadores

```
1 v PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
2 v PREFIX owl: <http://www.w3.org/2002/07/owl#>
3 v PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
4
5 SELECT DISTINCT ?s ?o
6 WHERE
7 {
8     ?s <http://localhost:3333/INDICATOR_LABEL_EN> ?o.
9 }
10 ORDER BY ?s
```



List of indicators

QUERY RESULTS		
	Table	Raw Response
	Showing 1 to 8 of 8 entries	<input type="text"/> Search: <input type="button" value="Show 50 entries"/>
s	o	
1	<http://localhost:3333/0>	"Total expenditure (public and private) per capita spent on cultural heritage (constant PPP\$ - 2017)"
2	<http://localhost:3333/1>	"Total expenditure per capita spent on the preservation, protection and conservation of all cultural and natural heritage (constant PPP\$ - 2017)"
3	<http://localhost:3333/2>	"Total private expenditure per capita spent on cultural and natural heritage (constant PPP\$ - 2017)"
4	<http://localhost:3333/3>	"Total public expenditure per capita spent on cultural and natural heritage (constant PPP\$ - 2017)"

List of indicators in JSON format

QUERY RESULTS

Table Raw Response 

```
1 {
2   "head": {
3     "vars": [ "s" , "o" ]
4   },
5   "results": {
6     "bindings": [
7       {
8         "s": { "type": "uri" , "value": "http://localhost:3333/0" },
9         "o": { "type": "literal" , "value": "Total expenditure (public
and private) per capita spent on cultural heritage (constant PPP$ -
2017)" }
10      },
11      {
12        "s": { "type": "uri" , "value": "http://localhost:3333/1" },
13        "o": { "type": "literal" , "value": "Total expenditure per capita
spent on the preservation, protection and conservation of all cultural
and natural heritage (constant PPP$ - 2017)" }
14      }
15    }
16  }
```

Country ID for Mexico

```
1 PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
2 PREFIX owl: <http://www.w3.org/2002/07/owl#>
3 PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
4
5 SELECT DISTINCT ?s
6 WHERE
7 {
8     ?s <http://localhost:3333/COUNTRY_NAME_EN> "Mexico" .
9 }
10 ORDER BY ?s
```



QUERY RESULTS



Table

Raw Response



Showing 1 to 1 of 1 entries

Search:

Show 50 entries



s

1 <http://localhost:3333/129>



Thanks a lot! ☺



María Auxilio Medina Nieto

Departamento de Posgrado

maria.medina@uppuebla.edu.mx, mauxmedina@gmail.com

Gudelia Pilar Pérez Conde

Ingeniería en Tecnologías de la Información

gudelia.perez353@uppuebla.edu.mx

