

Nama : Jovidia Laviosa

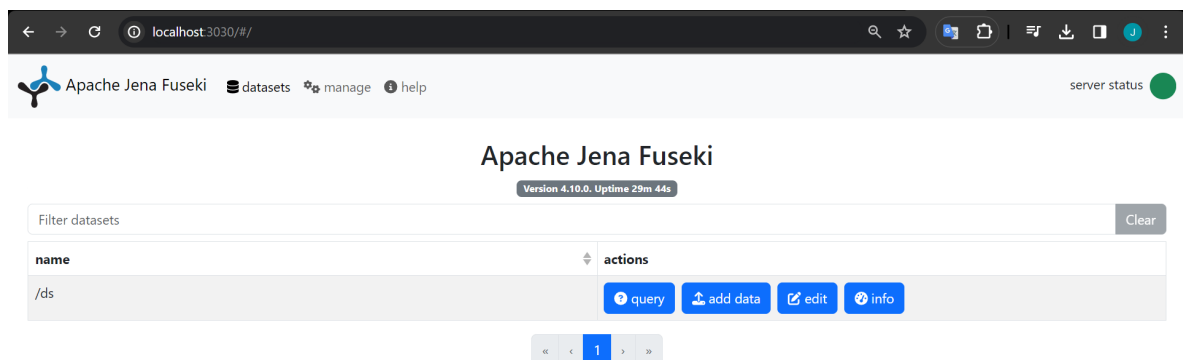
NIM : 1301204142

## 1. Instalasi Apache Jena Fuseki

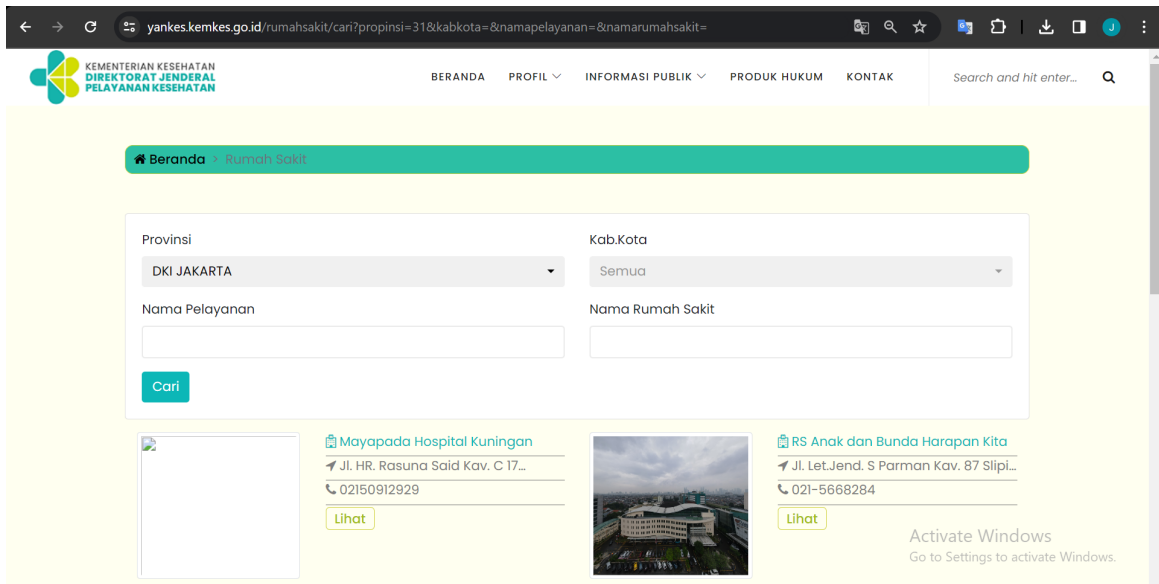
```
C:\Windows\System32\cmd.exe - fuseki-server --update --mem /ds
Microsoft Windows [Version 10.0.19045.3803]
(c) Microsoft Corporation. All rights reserved.

C:\apache-jena-fuseki-4.10.0>java -version
java version "20.0.1" 2023-04-18
Java(TM) SE Runtime Environment (build 20.0.1+9-29)
Java HotSpot(TM) 64-Bit Server VM (build 20.0.1+9-29, mixed mode, sharing)

C:\apache-jena-fuseki-4.10.0>fuseki-server --update --mem /ds
07:09:18 INFO Server      :: Apache Jena Fuseki 4.10.0
07:09:19 INFO Config      :: FUSEKI_HOME=C:\apache-jena-fuseki-4.10.0\
07:09:19 INFO Config      :: FUSEKI_BASE=C:\apache-jena-fuseki-4.10.0\run
07:09:19 INFO Config      :: Shiro file: file:///C:/apache-jena-fuseki-4.10.0/run/shiro.ini
07:09:19 INFO Config      :: Template file: templates/config-mem
07:09:20 INFO Server      :: Database: in-memory
07:09:20 INFO Server      :: Path = /ds
07:09:20 INFO Server      :: Memory: 1.2 GiB
07:09:20 INFO Server      :: Java: 20.0.1
07:09:20 INFO Server      :: OS: Windows 10 10.0 amd64
07:09:20 INFO Server      :: PID: 8864
07:09:20 INFO Server      :: Started 2023/12/20 07:09:20 WIB on port 3030
```



2. Crawling data dari web <https://yankes.kemkes.go.id/rumahsakit> menjadi DKIJakarta.json



The screenshot shows the website [yankes.kemkes.go.id/rumahsakit/cari?propinsi=31&kabkota=&namapelayanan=&namarumahsakit=](https://yankes.kemkes.go.id/rumahsakit/cari?propinsi=31&kabkota=&namapelayanan=&namarumahsakit=). The page has a header with the logo of the Indonesian Ministry of Health and navigation links: BERANDA, PROFIL, INFORMASI PUBLIK, PRODUK HUKUM, and KONTAK. A search bar is present on the right. Below the header, there is a breadcrumb trail: Beranda > Rumah Sakit. The main content area features a search form with the following fields: Provinsi (set to DKI JAKARTA), Kab.Kota (set to Semua), Nama Pelayanan, and Nama Rumah Sakit. A 'Cari' button is located below the form. Below the search form, there are two hospital listings. The first listing is for 'Mayapada Hospital Kuningan' with the address 'Jl. HR. Rasuna Said Kav. C 17...' and phone number '02150912929'. The second listing is for 'RS Anak dan Bunda Harapan Kita' with the address 'Jl. Let.Jend. S Parman Kav. 87 Slipi...' and phone number '021-5668284'. Both listings have a 'Lihat' button. At the bottom of the page, there is a watermark for 'Activate Windows'.

```
scrapingtojson.py > ...
1  import json
2  import requests
3  from bs4 import BeautifulSoup
4
5  base_url = 'https://yankes.kemkes.go.id/rumahsakit/cari/index/'
6  propinsi = '31'
7  pages_to_scrape = 32
8
9  data_rumah_sakit = []
10
11 for page_number in range(1, pages_to_scrape + 1):
12     url = f"{base_url}{page_number}?propinsi={propinsi}&kabkota=&namapelayanan=&namarumahsakit="
13     response = requests.get(url)
14
15     if response.status_code == 200:
16         soup = BeautifulSoup(response.content, 'html.parser')
17         rumah_sakits = soup.find_all('div', class_='col-md-7')
18
19         for rs in rumah_sakits:
20             nama_rs_elem = rs.find('td', style='color:#0CB7B7;padding-bottom:5px')
21             alamat_rs_elem = rs.find('td', style='color:grey;padding-bottom:5px')
22
23             # Cari tag <i> dengan class 'fa-phone' dan ambil teks dari parentnya (td)
24             telepon_rs_elem = rs.find('i', class_='fa fa-phone').parent if rs.find('i', class_='fa fa-
25
26             if nama_rs_elem and alamat_rs_elem and telepon_rs_elem:
27                 nama_rs = nama_rs_elem.text.strip()
28                 alamat_rs = alamat_rs_elem.text.strip()
```

```

30         # Pastikan telepon_rs_elem bukan None sebelum mengambil teksnya
31         telepon_rs = telepon_rs_elem.text.strip() if telepon_rs_elem else "N/A"
32
33         data_rumah_sakit.append({
34             'nama_rs': nama_rs,
35             'alamat_rs': alamat_rs,
36             'telepon_rs': telepon_rs,
37             'Jenis' : "",
38             'Kelas' : "",
39             'Kepemilikan' : "",
40             'Direktur' : "",
41             'Telp' : "",
42             'Provinsi' : "DKI JAKARTA",
43             'Kab/Kota' : "",
44             'Pelayanan' : ""
45         })
46     else:
47         print(f"Failed to fetch page {page_number}")
48
49     # Menyimpan data dalam format JSON
50     with open('DKIJakartas.json', 'w', encoding='utf-8') as file:
51         json.dump(data_rumah_sakit, file, ensure_ascii=False, indent=4)
52
53     print("File 'DKIJakartas' telah berhasil dibuat.")
54

```

menghasilkan,

```

{} DKIJakartas.json > {} 0 > [ ] Pelayanan
1  [
2      {
3          "nama_rs": "RS Gigi Dan Mulut Angkatan Udara",
4          "alamat_rs": "Jl.Puntodewo 1 Dirgantara 2, Halim Perdanakusuma",
5          "telepon_rs": "021-80879255/56",
6          "Jenis": "Rumah Sakit Khusus Gigi dan Mulut",
7          "Kelas": "B",
8          "Kepemilikan": "TNI AU",
9          "Direktur": "Kolonel Kes drg. Imelda Sriulina, Sp.Ort",
10         "Telp": "021-80879255/56",
11         "Provinsi": "DKI JAKARTA",
12         "Kab/Kota": "KOTA ADM. JAKARTA TIMUR",
13         "Pelayanan": ["Anestesi", "Bedah Mulut",
14             "Elektromedik diagnostik (EKG/EEG/EEG Brain Mapping)",
15             "Emergensi", "Konservasi / endodonsi", "Orthodonti", "Pedodonsi",
16             "Pelayanan Gawat Darurat Umum 24 jam & 7 hari seminggu",
17             "Pelayanan medik dasar / umum",
18             "Pelayanan medik gigi mulut"]
19     },
20     {
21         "nama_rs": "RS Gigi dan Mulut FKG Univ. Indonesia",
22         "alamat_rs": "Jl. Salemba Raya No. 4 Jakarta Pusat",
23         "telepon_rs": "3923145",
24         "Jenis": "",
25         "Kelas": "",

```

### 3. Membuat json menjadi rdf

```
jsontordf.py > value
1  from rdflib import Graph, Namespace, Literal
2  from rdflib.namespace import RDF, RDFS, XSD
3  import json
4
5  # Membuat grafik RDF
6  g = Graph()
7
8  # Namespace
9  ns = Namespace("http://example.org/")
10
11 # Membuka dan membaca file JSON
12 with open('DKIJakartas.json', 'r') as json_file:
13     data = json.load(json_file)
14
15 # Mapping properti dengan namespace
16 properties = {
17     "nama_rs": ns.hasname,
18     "alamat_rs": ns.hasaddress,
19     "telepon_rs": ns.hastelephone,
20     "Jenis": ns.hastype,
21     "Kelas": ns.hasclass,
22     "Kepemilikan": ns.hasownership,
23     "Direktur": ns.hasowner,
24     "Provinsi": ns.inprovince,
25     "Kab/Kota": ns.incity,
26     "Pelayanan": ns.subServiceOf
27 }
28
29 # Loop melalui data JSON dan membuat RDF triples
30 for entry in data:
31     subject = ns[entry['nama_rs'].replace(' ', '_')] # Subjek berdasarkan nama rumah sakit
32
33     for key, value in entry.items():
34         if key in properties and value:
35             predicate = properties[key]
36             if key == "Pelayanan":
37                 # Jika value adalah list, iterasi melalui list tersebut
38                 for service in value:
39                     object_value = ns[service.replace(' ', '_')]
40                     g.add((subject, predicate, object_value))
41             else:
42                 object_value = Literal(value)
43                 g.add((subject, predicate, object_value))
44
45 # Menyimpan grafik RDF ke file
46 g.serialize(destination='DKIJakartas.rdf', format='xml')
47
```

menghasilkan,

```
DKIJakartas.rdf
1  sion="1.0" encoding="utf-8"?>
2
3  ns1="http://example.org/"
4  rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
5  owl="http://www.w3.org/2002/07/owl#"
6
7  tatypeProperty rdf:about="http://example.org/hasname"/>
8  tatypeProperty rdf:about="http://example.org/hasaddress"/>
9  tatypeProperty rdf:about="http://example.org/hastelephone"/>
10 tatypeProperty rdf:about="http://example.org/inprovince"/>
11 tatypeProperty rdf:about="http://example.org/incity"/>
12 tatypeProperty rdf:about="http://example.org/hastype"/>
13 tatypeProperty rdf:about="http://example.org/hasclass"/>
14 tatypeProperty rdf:about="http://example.org/hasowner"/>
15 tatypeProperty rdf:about="http://example.org/hasownership"/>
16 tatypeProperty rdf:about="http://example.org/subServiceOf"/>
17
18 scription rdf:about="http://example.org/RS_Umum_Hermina_Jatinegara">
19 type rdf:resource="http://example.org/Hospital"/>
20 hasname>RS Umum Hermina Jatinegara</ns1:hasname>
21 hasaddress>Jl. Jatinegara Barat 126, Jakarta Timur</ns1:hasaddress>
22 hastelephone>021 8191223</ns1:hastelephone>
23 inprovince>DKI JAKARTA</ns1:inprovince>
24 hastype>SWASTA/LAINNYA</ns1:hastype>
25 hasclass>B</ns1:hasclass>
26 hasownership>TNI AU</ns1:hasownership>
27 hasowner>Dr. Nienne Aridayanthi Hainun, MARS, MH</ns1:hasowner>
28 inprovince>DKI JAKARTA</ns1:inprovince>
29 incity>KOTA ADM. JAKARTA TIMUR</ns1:incity>
30 subServiceOf rdf:resource="http://example.org/Alergi Imunologi"/>
```

```

29   incity>KOTA ADM. JAKARTA TIMUR</ns1:incity>
30   subServiceOf rdf:resource="http://example.org/Alergi Imunologi"/>
31   subServiceOf rdf:resource="http://example.org/Anestesi"/>
32   subServiceOf rdf:resource="http://example.org/Bank darah"/>
33   subServiceOf rdf:resource="http://example.org/Bedah"/>
34   subServiceOf rdf:resource="http://example.org/Bedah Anak"/>
35   subServiceOf rdf:resource="http://example.org/Bedah digestif"/>
36   subServiceOf rdf:resource="http://example.org/Bedah Katarak"/>
37   subServiceOf rdf:resource="http://example.org/Bedah Mulut"/>
38   subServiceOf rdf:resource="http://example.org/Bedah onkologi"/>
39   subServiceOf rdf:resource="http://example.org/Bedah Saraf"/>
40   escription>
41   scription rdf:about="http://example.org/RS_Khusus_JEC_@Menteng">
42   type rdf:resource="http://example.org/Hospital"/>
43   hasname>RS Khusus JEC @Menteng</ns1:hasname>
44   hasaddress>Jl. Teuku Cik Ditiro No.46 Jakarta Pusat</ns1:hasaddress>
45   hastelephone>021-29221000</ns1:hastelephone>
46   inprovince>DKI JAKARTA</ns1:inprovince>
47   escription>
48   scription rdf:about="http://example.org/RS_Khusus_THT_Prof_Nizar">
49   type rdf:resource="http://example.org/Hospital"/>
50   hasname>RS Khusus THT Prof Nizar</ns1:hasname>
51   hasaddress>Jl. Kesehatan No. 9 Jakpus</ns1:hasaddress>
52   hastelephone>3843596-3503435</ns1:hastelephone>
53   inprovince>DKI JAKARTA</ns1:inprovince>
54   escription>
55   scription rdf:about="http://example.org/RS_Umum_Patria_IKKT">
56   type rdf:resource="http://example.org/Hospital"/>
57   hasname>RS Umum Patria IKKT</ns1:hasname>
58   hasaddress>Jl. Cendrawasih No.1, Komplek Kemhan Mabes TNI&#x2013;</ns1:hasa

```

4. Add data, upload data RDF sesuai domain dan topik serta hasil ekstraksi dari web pages  
<https://yankes.kemkes.go.id/rumahsakit>

Apache Jena Fuseki

/ds

query add data edit info

### Upload files

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.

Dataset graph name

Leave blank for default graph

Files to upload

+ select files upload all

name	size	speed	status	actions
DKUJakartaRS.rdf	164.52kb	0 bytes/s	Triples uploaded: 0	upload now remove
DKUJakarta.rdf	64.15kb	0 bytes/s	Triples uploaded: 0	upload now remove

5. Upload ke triple store

Apache Jena Fuseki

/ds

query add data edit info

### Upload files

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.

Dataset graph name

Leave blank for default graph

Files to upload

+ select files upload all

name	size	speed	status	actions
DKUJakartaRS.rdf	164.52kb	164.71kb/s	100.00 Triples uploaded: 1828	upload now remove
DKUJakarta.rdf	64.15kb	64.34kb/s	100.00 Triples uploaded: 786	upload now remove

queryadd dataeditinfo

## SPARQL Query

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

Example Queries

Selection of triplesSelection of classes

Prefixes

rdfrdfowlxsd

SPARQL Endpoint

Content Type (SELECT)

Content Type (GRAPH)

/ds/queryJSONTurtle

```
1 PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
2 PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
3 SELECT * WHERE {
4   ?sub ?pred ?obj .
5 } LIMIT 10
```

TableResponse

10 results in 0.062 seconds

Simple viewEllipsisFilter query resultsPage size: 50

	sub	pred	obj
1	<http://www.co-ode.org/ontologies/ont.owl#Neurologi>	<http://www.w3.org/1999/02/22-rdf-syntax-ns#type>	<http://www.co-ode.org/ontologies/ont.owl#Services>
2	<http://www.co-ode.org/ontologies/ont.owl#Neurologi>	<http://www.w3.org/1999/02/22-rdf-syntax-ns#type>	<http://www.w3.org/2002/07/owl#NamedIndividual>
3	<http://example.org/inprovince>	<http://www.w3.org/2000/01/rdf-schema#domain>	<http://www.co-ode.org/ontologies/ont.owl#Province>
4	<http://example.org/inprovince>	<http://www.w3.org/1999/02/22-rdf-syntax-ns#type>	<http://www.w3.org/2002/07/owl#DatatypeProperty>
5	<http://example.org/inprovince>	<http://www.w3.org/2000/01/rdf-schema#range>	<http://www.w3.org/2001/XMLSchema#string>
6	<http://www.co-ode.org/ontologies/ont.owl#Pedodonsi>	<http://www.w3.org/1999/02/22-rdf-syntax-ns#type>	<http://www.co-ode.org/ontologies/ont.owl#Services>
7	<http://www.co-ode.org/ontologies/ont.owl#Pedodonsi>	<http://www.w3.org/1999/02/22-rdf-syntax-ns#type>	<http://www.w3.org/2002/07/owl#NamedIndividual>
8	<http://example.org/RS_Umum_Gading_Pluit>	<http://example.org/inprovince>	DKI JAKARTA
9	<http://example.org/RS_Umum_Gading_Pluit>	<http://example.org/hastelephone>	021-4521001
10	<http://example.org/RS_Umum_Gading_Pluit>	<http://www.w3.org/1999/02/22-rdf-syntax-ns#type>	<http://example.org/Hospital>

Showing 1 to 10 of 10 entries



[? query](#) [add data](#) [edit](#) [info](#)

## SPARQL Query

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

Example Queries

**Selection of triples**

**Selection of classes**

SPARQL Endpoint

Content

/ds/sparql

JSON

```
1 PREFIX owl: <http://www.w3.org/2002/07/owl#>
2 PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
3
4 SELECT DISTINCT ?class ?label ?description
5 WHERE {
6   ?class a owl:Class.
7   OPTIONAL { ?class rdfs:label ?label}
8   OPTIONAL { ?class rdfs:comment ?description}
9 }
10 LIMIT 25
```

[Table](#) [Response](#) 11 results in 0.048 seconds

	class
1	<http://example.org/Hospital>
2	<http://www.co-ode.org/ontologies/ont.owl#Services>
3	<http://www.co-ode.org/ontologies/ont.owl#SpecialtyHospital>
4	<http://www.co-ode.org/ontologies/ont.owl#GeneralHospital>
5	<http://www.co-ode.org/ontologies/ont.owl#City>
6	<http://www.co-ode.org/ontologies/ont.owl#DentalHospital>
7	<http://www.co-ode.org/ontologies/ont.owl#Eyehospital>
8	<http://www.co-ode.org/ontologies/ont.owl#Province>
9	<http://www.co-ode.org/ontologies/ont.owl#PsychiatricHospital>
10	<http://www.co-ode.org/ontologies/ont.owl#RehabilitationHospital>
11	<http://www.co-ode.org/ontologies/ont.owl#MaternityandPediatricHospital>

Showing 1 to 11 of 11 entries