



Shri Vile Parle Kelavani Mandal's
DWARKADAS J. SANGHVI COLLEGE OF ENGINEERING
(Autonomous College Affiliated to the University of Mumbai)
NAAC Accredited with "A" Grade (CGPA : 3.18)



DEPARTMENT OF INFORMATION TECHNOLOGY

COURSE CODE: DJ19ITL801

DATE: 08-02-2024

COURSE NAME: Semantic Web Technology Laboratory

CLASS: BE IT

EXPERIMENT NO. 3

CO/LO: Apply Semantic Web Technologies in Real World Applications

AIM: To create repository, import RDF data from a file and explore data from the visual graph.

DESCRIPTION OF EXPERIMENT:

RDF is a standard model for data interchange on the Web. RDF has features that facilitate data merging even if the underlying schemas differ, and it specifically supports the evolution of schemas over time without requiring all the data consumers to be changed. RDF extends the linking structure of the Web to use URIs to name the relationship between things as well as the two ends of the link (this is usually referred to as a "triple").

Using this simple model, it allows structured and semi-structured data to be mixed, exposed, and shared across different applications. This linking structure forms a directed, labelled graph, where the edges represent the named link between two resources, represented by the graph nodes. This graph view is the easiest possible mental model for RDF and is often used in easy-to-understand visual explanations.

SOFTWARE/TOOLS USED: Graph DB

INPUT DATASET: Australian Local Government Dataset [2]

PROCEDURE:

1. Create a repository and activate it.
2. Download a .ttl RDF serialization.
3. Inspect the class hierarchy, visual graphs and gain an insight on what the dataset contains.



OBSERVATIONS:

localhost:7200/guides

GraphDB

Import

Explore

SPARQL

Monitor

Setup

Help

Interactive guides

Guide name

Guide level

Action

	Beginner	
	Beginner	

Showing 1 - 2 of 2 First 1 Last

Welcome to The Star Wars guide – 1/2

Throughout the guide you will see boxes like this one that will provide instructions on what to do.
The icon in the top left corner is a hint too:

- means the box provides information.
- asks you to do something with the mouse.
- tells you to type or paste something.

Next

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localhost:7200/repository/create

Import

Explore

SPARQL

Monitor

Setup

Repositories

Users and Access

My Settings

Connectors

Cluster

Plugins

Namespaces

Autocomplete

RDF Rank

JDBC

SPARQL Templates

License

Help

GraphDB Repository

Ontop Virtual SPARQL

FedX Virtual SPARQL

Create repository – 5/7

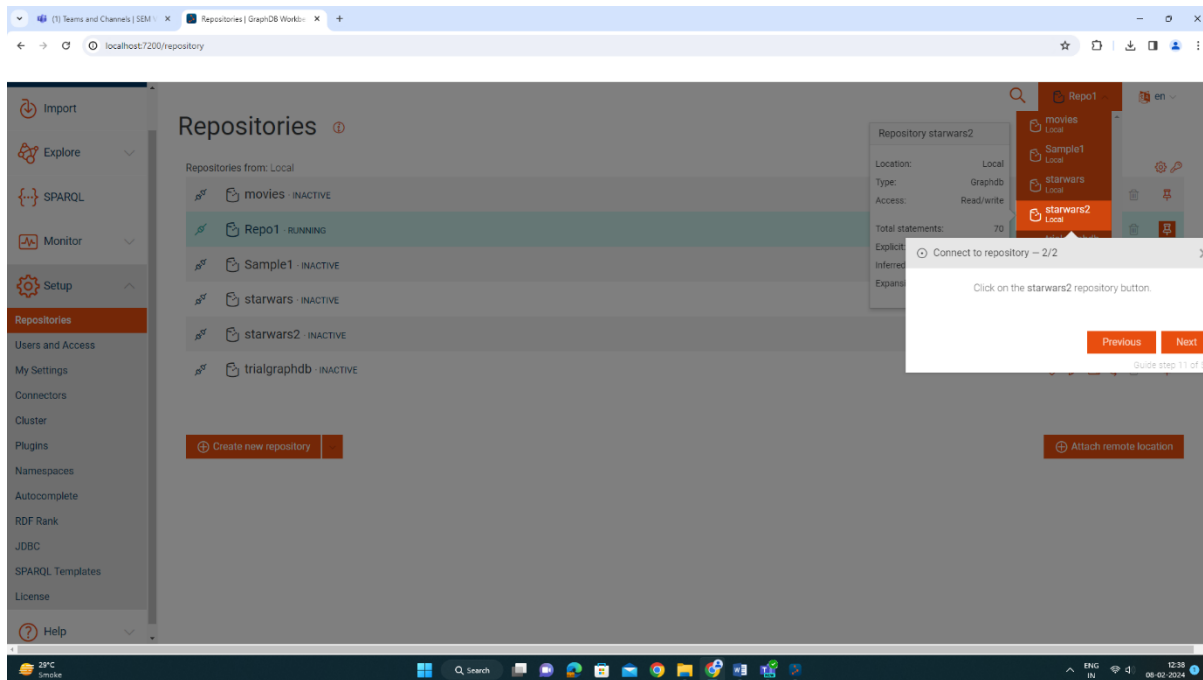
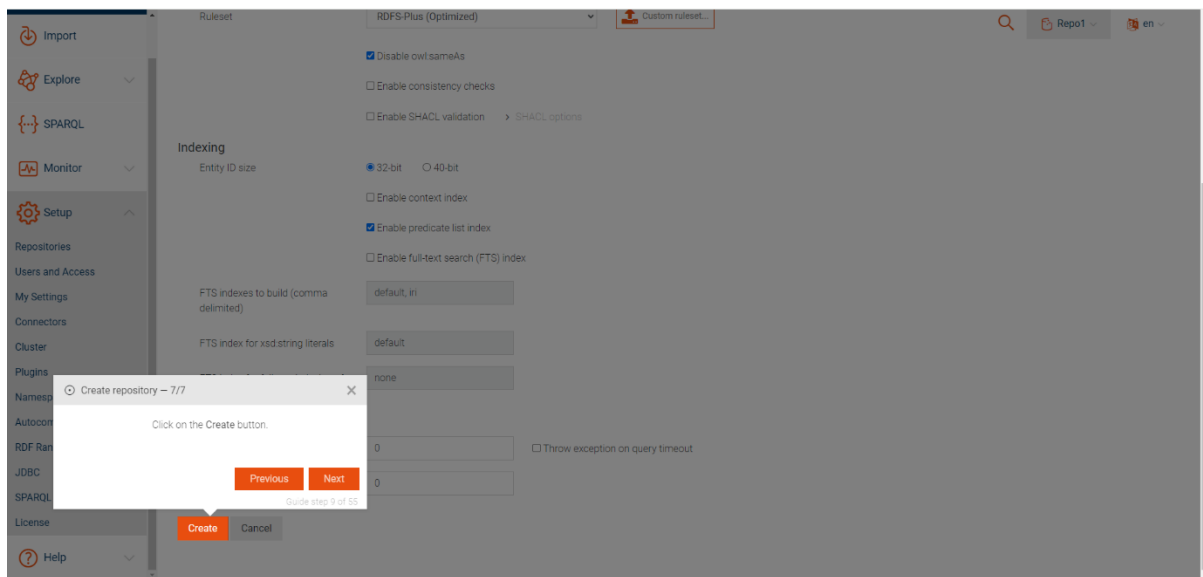
Click on the GraphDB Repository button.

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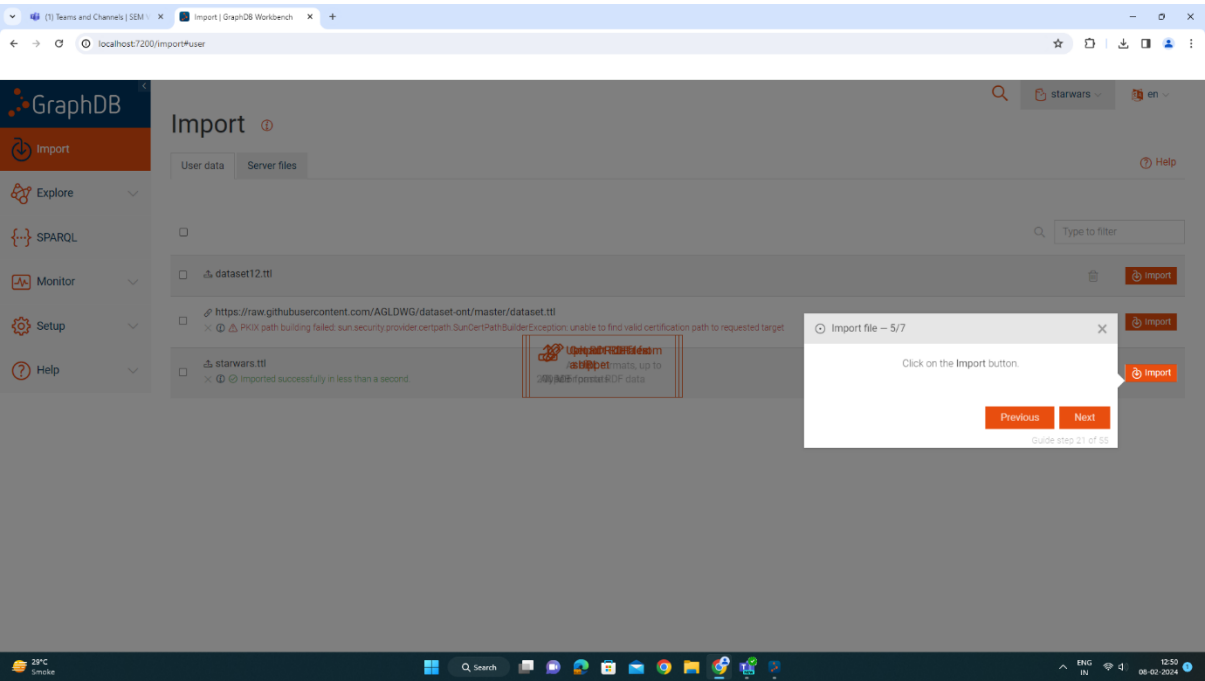
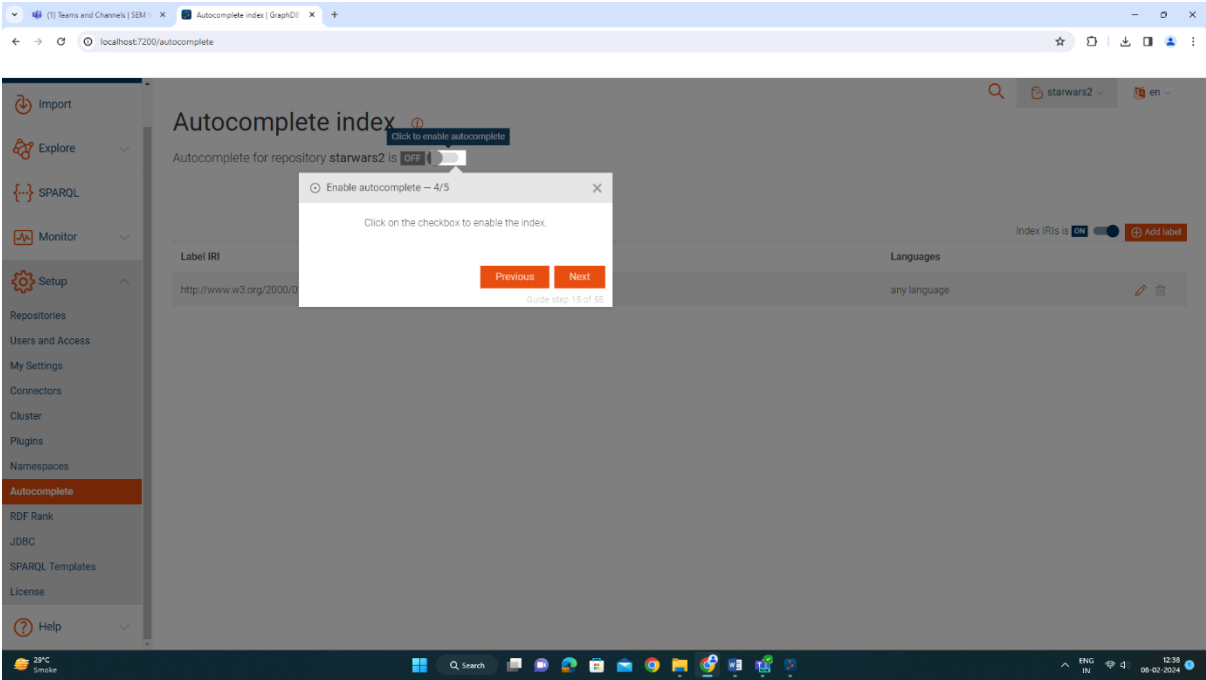


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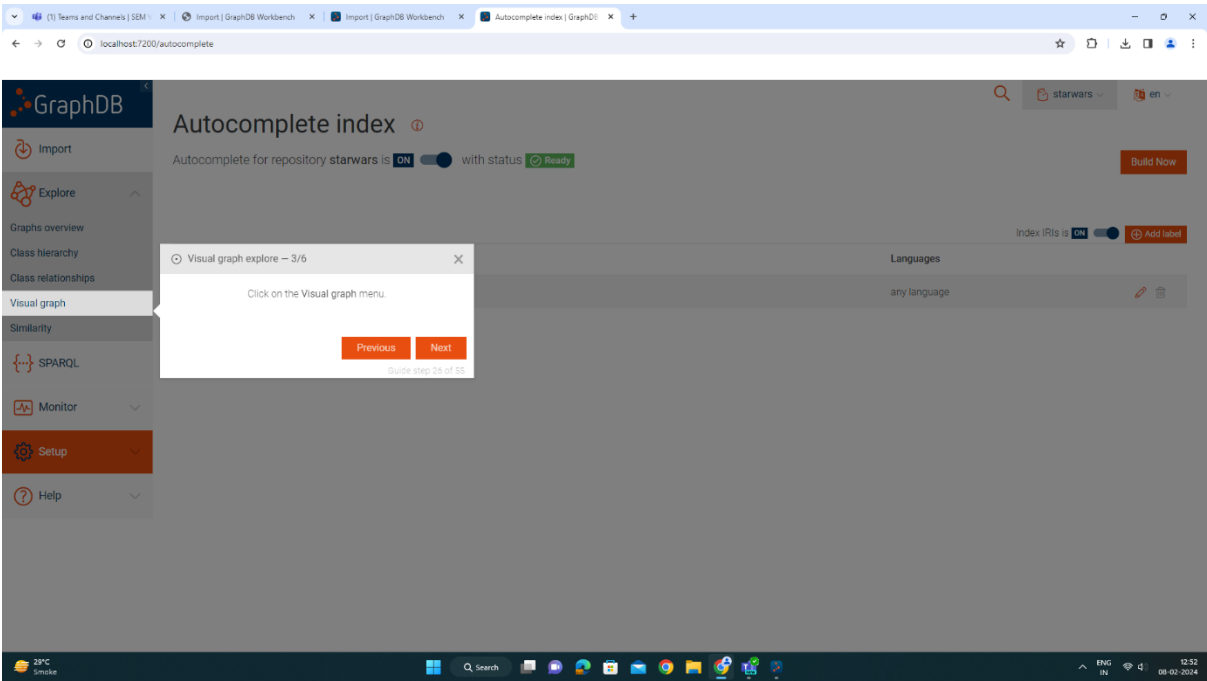
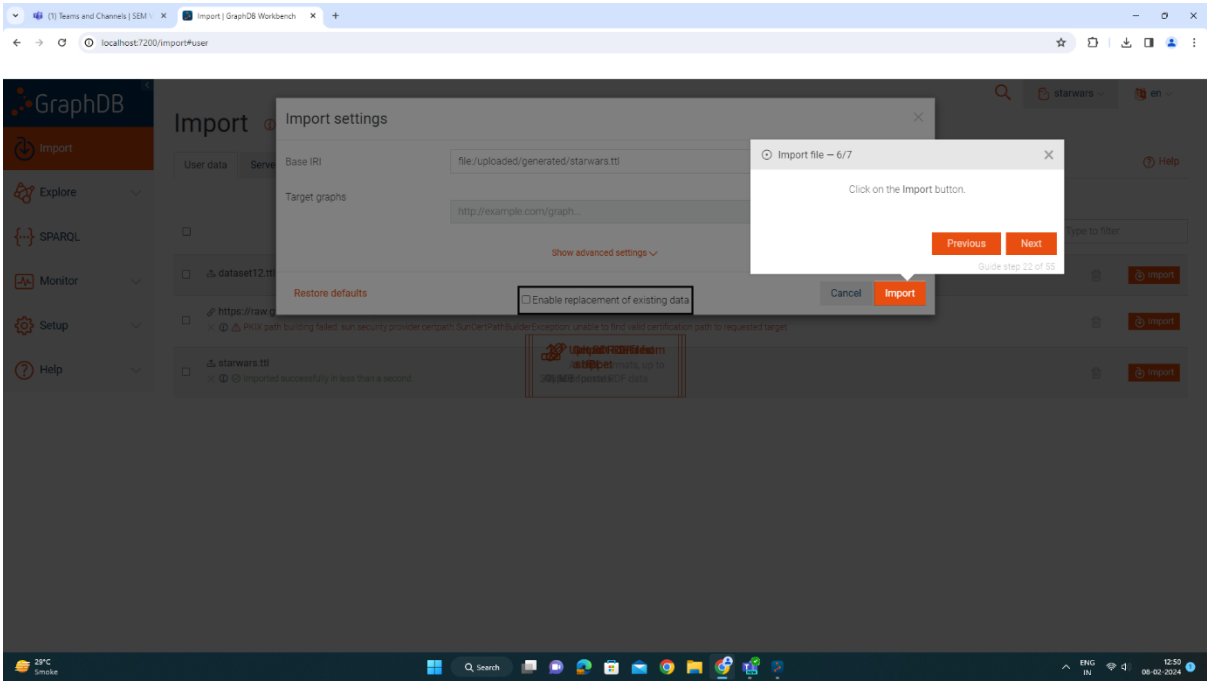


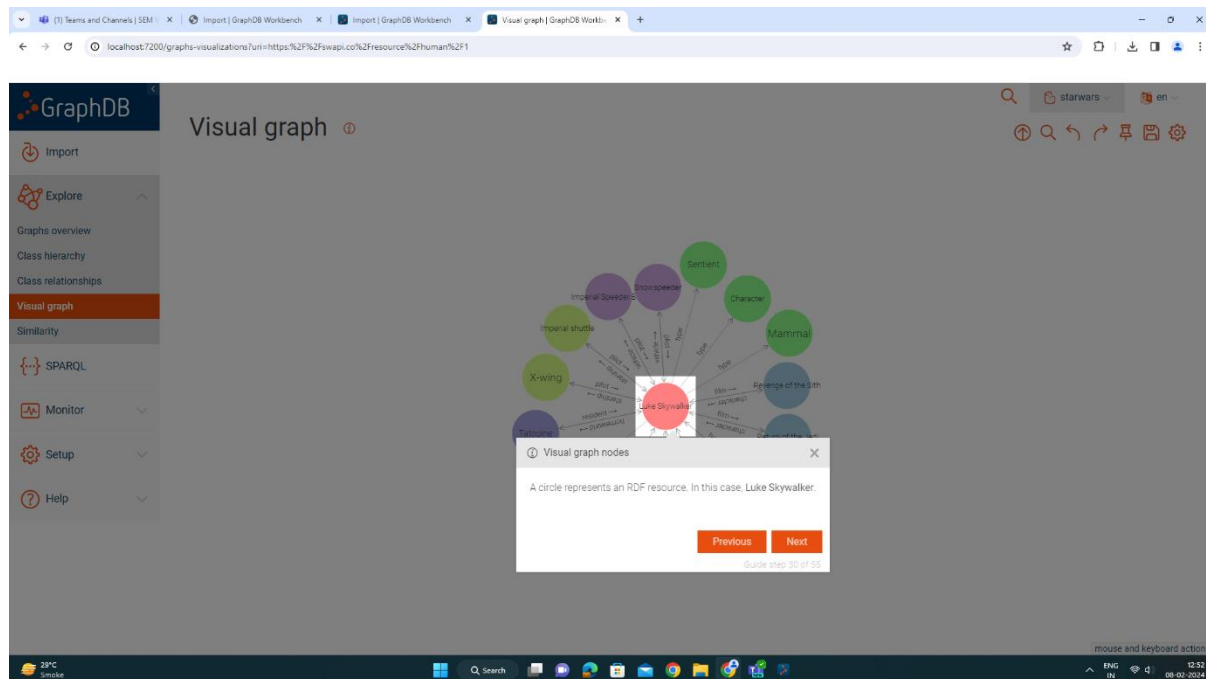
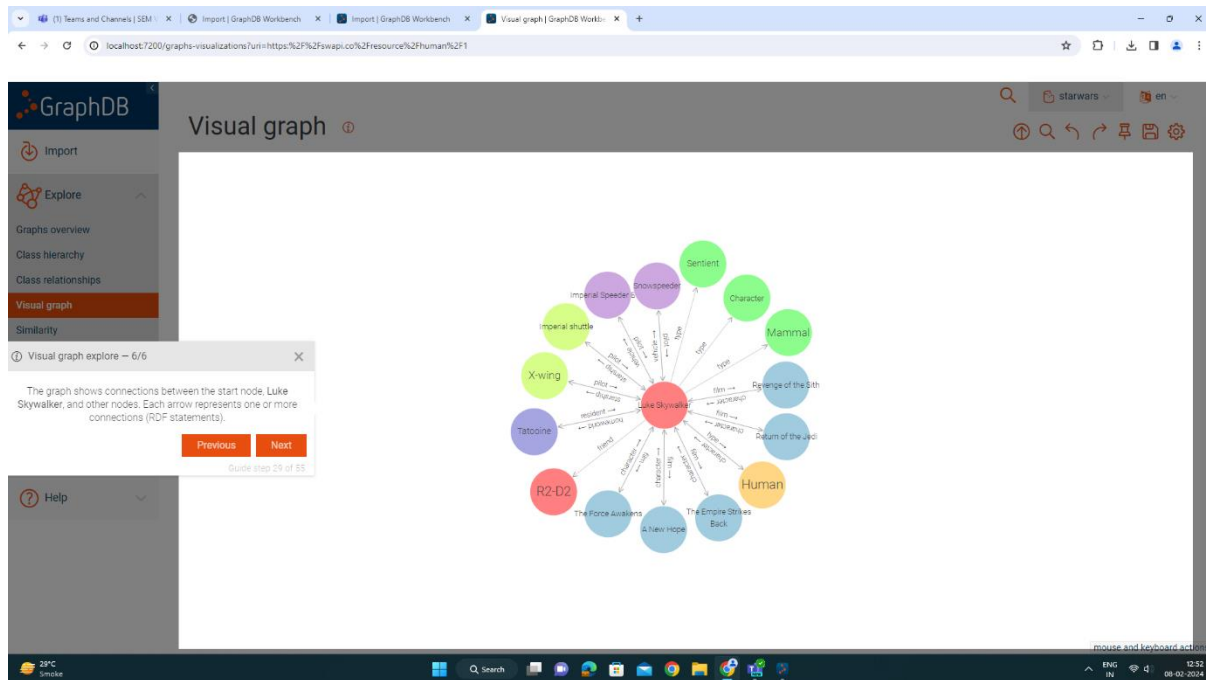
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Visual graph

Visual graph links

An arrow with a label represents one or more links between nodes. In this case, the arrow shows the relation Luke Skywalker → type → Character.

This tells us that one of the RDF types for Luke Skywalker is Character.

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Visual graph

Visual graph nodes


Mammal is another RDF type for Luke Skywalker.

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Visual graph

Visual graph properties – 2/6

The side panel shows the properties of the clicked node, A New Hope.

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A New Hope

Types:
voc:Film

RDF Rank:
0

Search instance properties

rdfs:label
A New Hope

voc:desc
'Star Wars (later retitled Star Wars: Episode IV – A New Hope) is a 1977 American epic space opera film written and directed by George Lucas. It is the first film in the original Star Wars trilogy, the first Star Wars movie in general, and the beginning of the Star Wars franchise. Starring Mark Hamill, Harrison Ford, Carrie Fisher, Peter Cushing, Alec Guinness, David Prowse, James Earl Jones, Anthony Daniels, Kenny Baker, and Peter Mayhew, the films plot focuses on the Rebel Alliance, led by Princess Leia (Fisher), and its attempt to destroy the Galactic Empire's space station, the Death Star. This conflict disrupts the isolated life of farmhand Luke Skywalker (Hamill), who inadvertently acquires a pair of droids that possess stolen architectural plans for the Death Star. When the Empire begins a destructive search for the missing droids, Skywalker accompanies Jedi Master Obi-Wan Kenobi (Guinness) on a mission to return the plans to the Rebel Alliance and rescue Leia from her imprisonment by

Visual graph

Visual graph nodes

Node expansion enriches the graph by showing nodes connected to the expanded node, such as the character C-3PO.

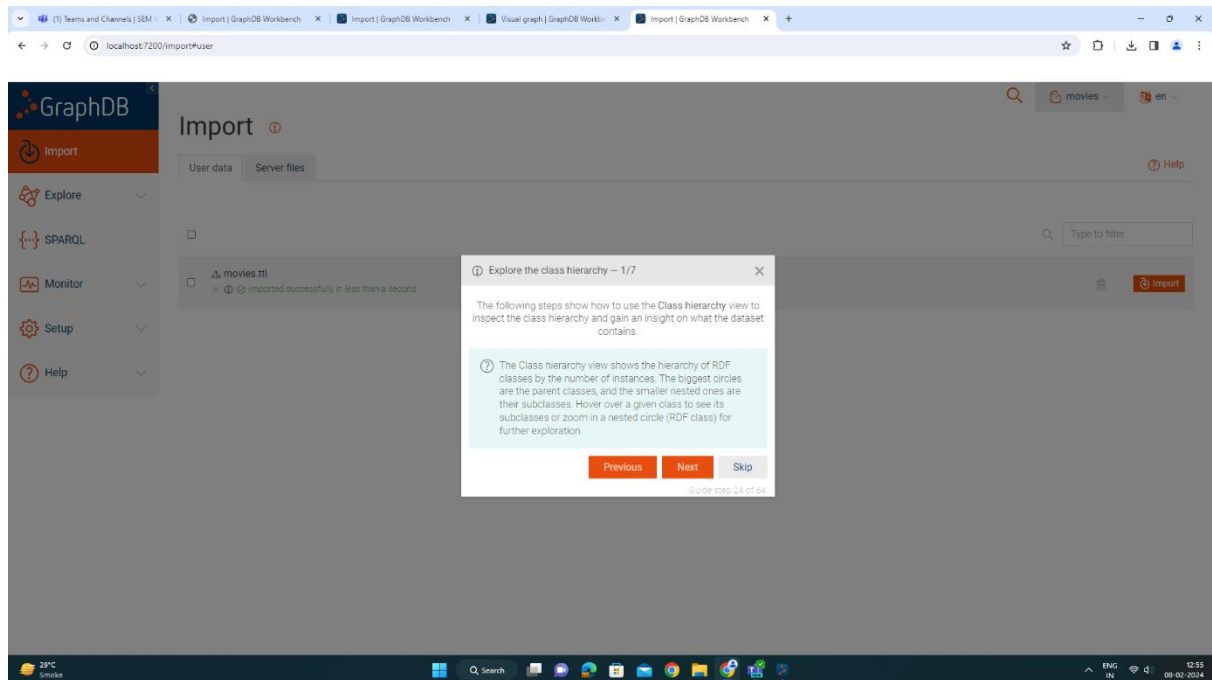
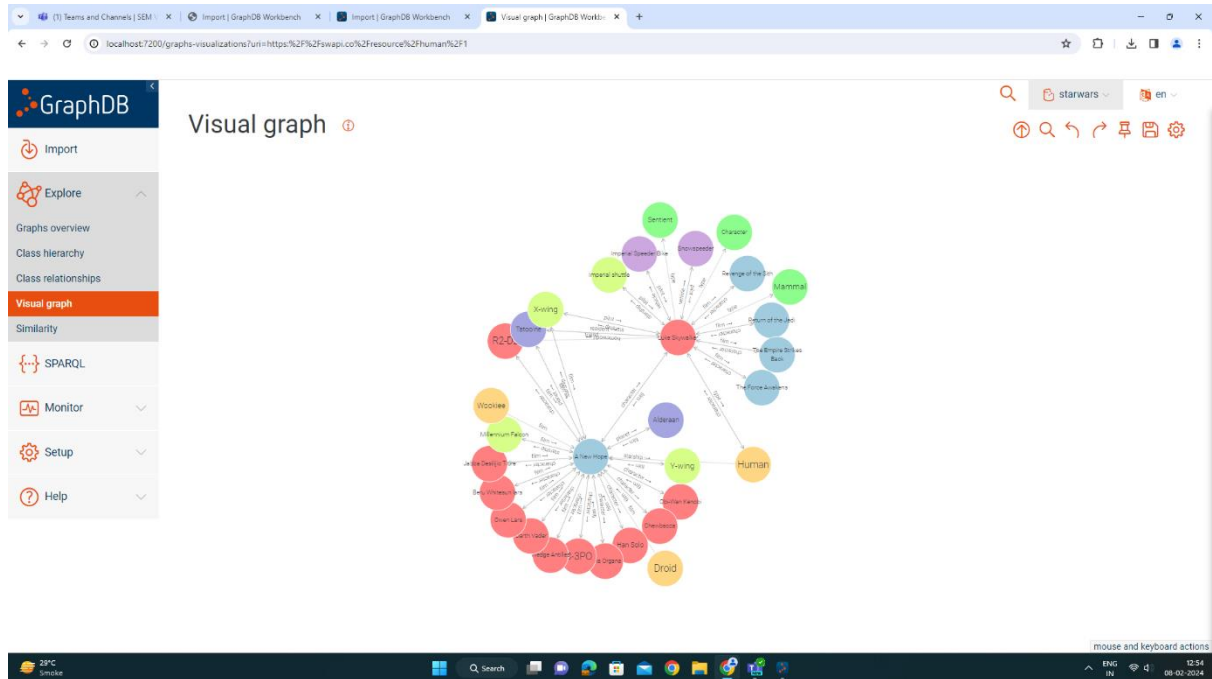
Previous Next

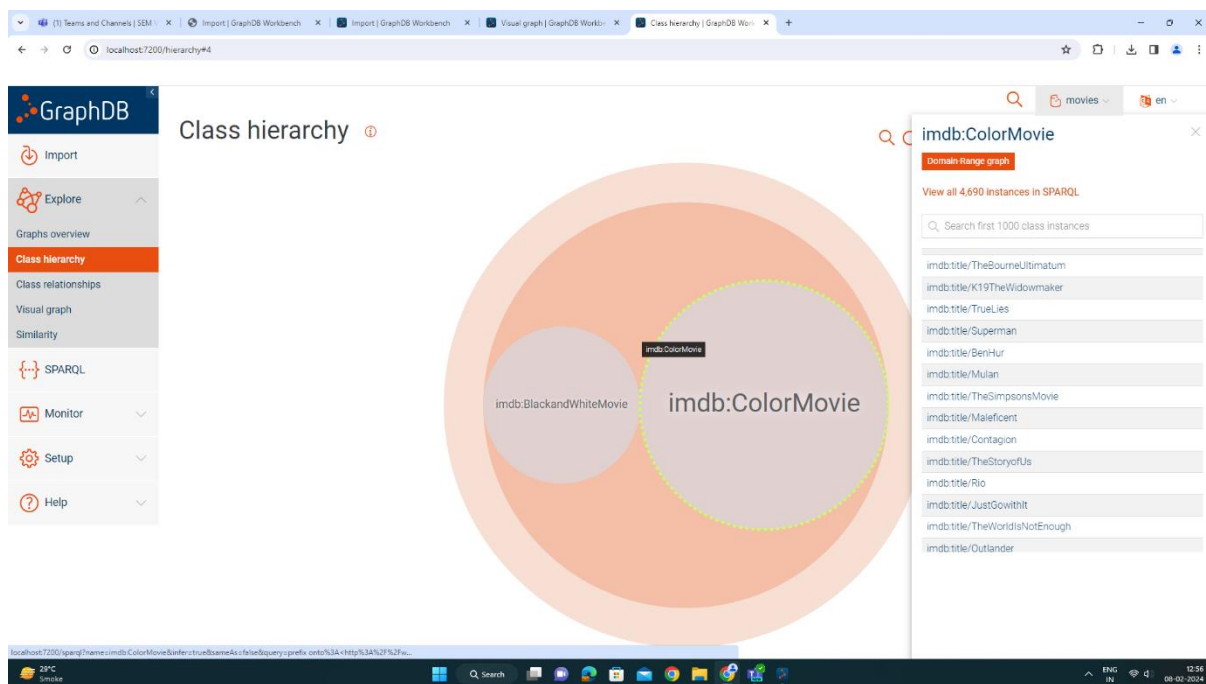
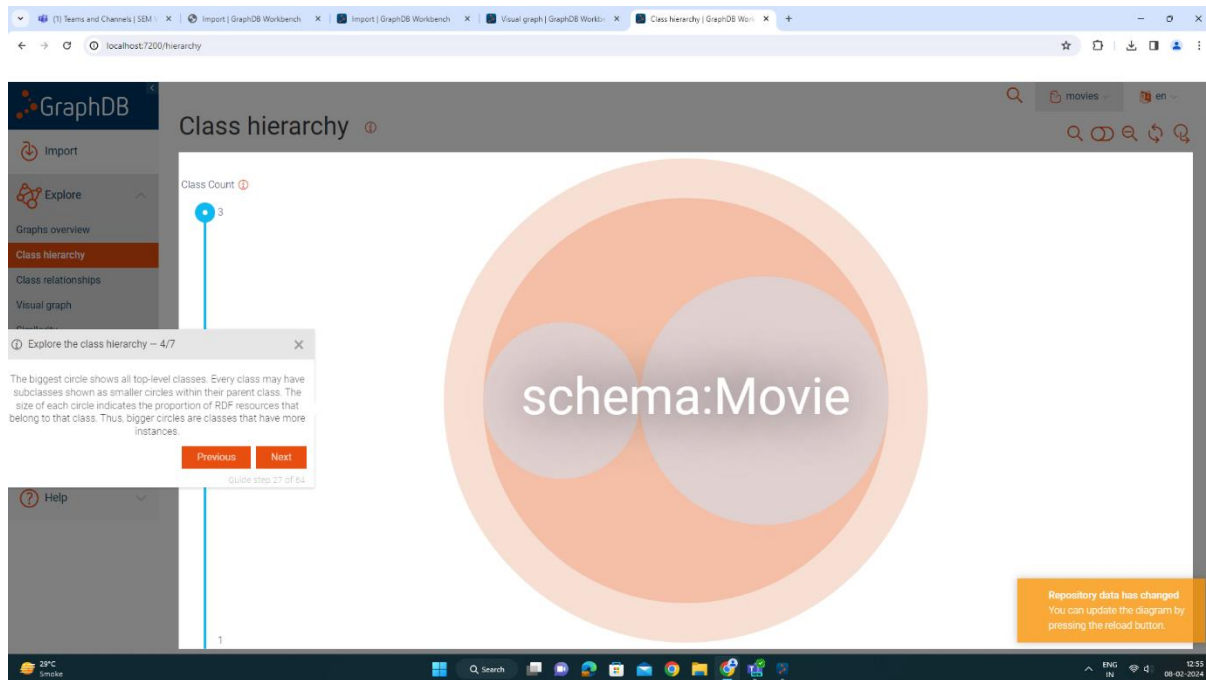
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Wookiee
Millennium Falcon
Jabba Desolijace
Bess Whiteburners
Obi-Wan
Luke Skywalker
Han Solo
Droid
Y-wing
Alderaan
The Force Awakens
The Empire Strikes Back
Return of the Jedi
Mammal



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CONCLUSION:

We have thus used GraphDB's RDF Parser to import RDF datasets and explore the different connections.

REFERENCES:

- [1] W3C RDF Recommendation, W3 Organization. Retrieved on 13th March 2023 from <https://www.w3.org/TR/rdf-syntax-grammar/>
- [2] The Australian Government Linked Data Working Group: <http://linked.data.gov.au>, retrieved on 13th March 2023 from <http://reference.data.gov.au/def/ont/dataset>