Assingment 3

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Project Dependency

For this Exercise 3, the following dependencies are needed:

- IDE for development (Eclipse, VSCode or IntelliJ)
- JDK for Apache Jena library https:/dlcdn.apache.org/jena/binaries/apache-jena-4.3.0.tar.gz

This library is used Apache Jena is an open source Semantic Web framework for Java. It provides an API to extract data from and write to RDF graphs. It is used to write extract queries, create new classes, properties and instances.

- Java SDK – For this project is used 19.0.1 version because of errors which occurs in with newer versions.

For setting up our environment (on IntelliJ) we need to do the following things:

1. Setting up the SDK: File -> Project Structure -> Project and select our Oracle Open SDK

2. Setting up the JDK: File -> Project Structure -> Libraries -> and add the path of the JDK apache-jena-4.6.1\apache-jena-4.6.1\lib

Project Description

This application is helping the developers to operate ontology graphs with help of Apache Jena. The CLI application gives opportunity for the users to:

- load and export ontology graphs
- add classes, properties and instances
- execute query operations and extract knowledge.

The source of information is the film ontology: http://semantics.id/ns/example/film#

Basic Operation

By selecting the basic operation, initial ontology will be loaded and after that it will show a list with active reasoner choices. After user chose, it will ask about the export type for the RDF and after the selection will do the export and the main menu will show again.

Ontology Operation

If we select ontology operation in the main menu we will have the option to select one of the following operations.

- Add New Class

Possibility to add new class with the given name

- Add New Property

The user need to choose the name of the class that needs to connect the property with. New name and the property type has to follow.

- Add New Instance

User will be asked to add the class name then the instance name and after that if the user want to add another instance. User can add multiple instances.

Basic Query Operation

The user can chose which selection has to be selected. If the user selects simple queries those will be shown on the CLI but in the case that the queries have CONSTRUCT inside it will create a query-construct.ttf file that will write under ('src/query-construct.ttl).

Start Project

There are two main types to start the project.

1. Start the project form the **main.java** file
2. Navigate with the terminal to the project folder. After that execute the command:

java -jar ./out/artifacts/TeodorSemanticEx3_jar/kg_app.jar

Which will execute the project from the built jar file.

Files structure

From our project we have the main **src** folder where our code is situated

Then we have the following java files:

- Main.java – In this file we create the main structure of executions. We initialize the classes Basic, Ontology and Query.
- Basic.java – is showing the reasoners and we can choose what we want to use. Also exporting the rdf as ttl file.
- Ontology.java – allows us to add classes, properties and instances.
- Query.java – allows us to execute sparql file which is situated in the folder /src/query
- Out folder is having the executable jar file.