



Symbolic AI and reasoning

M2 Logiciel

2022-23

Apache Jena - RDF

1 Setting

Create a Scala project in IntelliJ and in its SBT add the following dependency

```
libraryDependencies += "org.apache.jena" % "jena-core" % "4.7.0"
```

You will then create different Scala classes/objects to address the following questions

2 RDF model creation

We will start by programmatically creating an RDF triple in a Jena model. For that, we will use `ModelFactory` and its `createDefaultModel` method. Then, we will create a statement composed of a subject (`http://upem.fr/example/macarron`), a property (`http://upem.fr/example/loves`) and an object (`http://upem.fr/example/cookies`). You will then need to add this statement to the model. Display the statements of the model and its size (number of triples)

3 Drugbank dataset

3.1

You will now load an RDF graph from the dataset available on the course elearning web page. How many triplets does the model contain?

3.2

Write of a method giving the number of triples with an `rdf:type` property

3.3

How many drugs does the model contain?

3.4

How many distinct properties does the model contain?

3.5

The properties obtained in the previous question belong to how many namespaces. Identify these namespaces.

3.6

Display the URIs of these properties in the drugbank namespace

3.7

From the study of the properties in the previous question, provide the names of the drugs. How many distinct names do you get?