

# Assignment 1: RDF and SPARQL

## Richiesta

Submit and query DBpedia Endpoint on <http://dbpedia.org/sparql>

Query DBpedia to find more information about your favorite actor / actress. (As actors may have been described using different properties and not all the queries below might have an answer for your favorite actor, please feel free to substitute a query with any query you are curious about. E.g., there might be no information in DBpedia to answer to query number 4 about the duration of the last film. You can substitute such query with another of your choice. For example: How old is your actor / actress 'partner? Or How old is his / her older child?)

1. Is your favorite actor / actress / married?
2. How many films did he / she starred in?
3. Which is the last film he /she performed and when?
4. Which is the duration of the last film he / she starred?
5. Give me the total number of actors that performed in the latest film of your favorite actor.

Provided that you satisfy the above queries, you can create the RDF graph considering the results obtained from the above questions. You can create only one RDF graph, which will contain all the results of the above queries. So, in the same graph, you have to represent the answer of the queries for his / her age, films, the year of the latest film, the budget and the female actress in the last film he starred in. Consider it as the complete RDF graph that you should query in order to answer to the above questions. The scope of this part of the assignment is to evaluate your ability to draw an RDF graph (complying with the RDF graph symbolic).

Remarks:

- At the exam, you may be asked questions about how you construct your queries.
- The queries might be saved in a pdf document while the RDF graph might be a photo of a hand drawing graph or whatever tool you might prefer to draw it.

## Risoluzione

Per la risoluzione dell'assignment è stato scelto come attore **Zach Galifianakis**, comico e attore statunitense, di origini greche.

Per rispondere alle domande è stato utilizzato l'endpoint SPARQL **DBpedia**.

Per lo svolgimento dei task è stato consultato anche <https://dbpedia.org/fct/facet.vsp>, utile per le ricerche per entità.

I **prefissi** utilizzati sono:

- PREFIX dbr: <http://dbpedia.org/resource/>
- PREFIX dbp: <http://dbpedia.org/property/>
- PREFIX dbo: <http://dbpedia.org/ontology/>

### Query 1: Is your favorite actor / actress / married?

Viene utilizzato il costrutto ASK che restituisce come output della query formulata TRUE o FALSE.

```
ASK
WHERE {
dbr:Zach_Galifianakis dbp:spouse ?sposa.
}
```

Listing 1: QUERY Is your favorite actor / actress / married?

```
true
```

Listing 2: OUTPUT Is your favorite actor / actress / married?

Se si volesse ottenere il nome della moglie di Zach Galifianakis si potrebbe eseguire la seguente query.

```
SELECT *
WHERE {
dbr:Zach_Galifianakis dbp:spouse ?spouse.
FILTER (strlen(str(?spouse)) > 0 && lang(?spouse) = 'en').
}
```

Listing 3: QUERY Who is Zach Galifianakis's wife?

```
Quinn Lundberg
```

Listing 4: OUTPUT Who is Zach Galifianakis's wife?

### Query 2: How many films did he / she starred in?

Viene utilizzato il costrutto COUNT.

```
SELECT COUNT(?films)
WHERE {
?films dbo:starring dbr:Zach_Galifianakis.
?films rdf:type dbo:Film.
}
```

Listing 5: QUERY How many films did he / she starred in?

```
29
```

Listing 6: OUTPUT How many films did he / she starred in?

### Query 3: Which is the last film he / she performed and when?

Viene utilizzato il costrutto ORDER BY DESC per ottenere il film la cui data di pubblicazione è più recente..

```
SELECT ?nome_film ?data_uscita
WHERE{
?films dbo:starring dbr:Zach_Galifianakis.
?films rdfs:type dbo:Film.
?films dbp:released ?data_uscita.
?films dbp:name ?nome_film
}
ORDER BY DESC (?data_uscita)
LIMIT 1
}
```

Listing 7: QUERY OUTPUT Which is the last film he / she performed and when?

```
"The_Lego_Batman_Movie"@en
2017-02-03
```

Listing 8: OUTPUT Which is the last film he / she performed and when?

Il risultato tuttavia non risulta essere corretto dal momento in cui in alcuni dei film presi in considerazione non compare alcun campo relativo alla data di pubblicazione (*dbp:released*).

Per identificare correttamente quale è l'ultimo film in cui ha recitato e in quale anno si ricavano le informazioni dall'abstract.

```
SELECT ?abstract
WHERE {
dbr:Zach_Galifianakis dbo:abstract ?abstract.
FILTER (lang(?abstract) = "en")
}
```

Listing 9: QUERY Which is the last film he / she performed and when?

```
Zachary Knight Galifianakis is an American actor, comedian, musician ...
```

Listing 10: OUTPUT Which is the last film he / she performed and when?

Analizzando il seguente output l'ultimo film a cui ha preso parte nel 2019 risulta essere: Missing Link.

### Query 4: Which is the duration of the last film he / she starred?

Si considera *The Lego Batman Movie*, pur non essendo l'ultimo film in cui Galifianakis ha recitato per i motivi sopra riportati.

```
SELECT ?durata
WHERE{
?films dbo:starring dbr:Zach_Galifianakis.
?films rdfs:type dbo:Film.
?films dbp:released ?data_uscita.
?films dbp:name ?nome_film.
?films dbo:runtime ?durata
}
```

```
}
ORDER BY DESC (?data_uscita)
LIMIT 1
```

Listing 11: QUERY Which is the duration of the last film he / she starred?

```
6240.0
```

Listing 12: OUTPUT Which is the duration of the last film he / she starred?

Si ottiene in questo modo la durata del film in secondi.

### Query 5: Give me the total number of actors that performed in the latest film of your favorite actor

In questo caso viene utilizzato il costrutto COUNT.

Si considera *The Lego Batman Movie*, pur non essendo l'ultimo film in cui Galifianakis ha recitato per i motivi sopra riportati.

```
SELECT ?nome_film ?data_uscita ?durata COUNT(?attori_film)
WHERE{
?films dbo:starring dbr:Zach_Galifianakis.
?films rdf:type dbo:Film.
?films dbp:released ?data_uscita.
?films dbp:name ?nome_film.
?films dbo:runtime ?durata.
?films dbo:starring ?attori_film.
}
ORDER BY DESC (?data_uscita)
LIMIT 1
```

Listing 13: QUERY Give me the total number of actors that performed in the latest film of your favorite actor

```
5
```

Listing 14: OUTPUT Give me the total number of actors that performed in the latest film of your favorite actor

Sono stati considerati per il conteggio gli attori principali.

### RDF graph

Viene creato il grafico RDF considerando i risultati delle query sopra riportate integrando informazioni aggiuntive. Vedi *rdfgraph.jpg*.

Inoltre viene utilizzato anche il costrutto CONSTRUCT come di seguito:

```
CONSTRUCT
WHERE {
dbr:Zach_Galifianakis dbp:spouse ?sposa.
?films dbo:starring dbr:Zach_Galifianakis.
?films rdf:type dbo:Film.
?films dbp:released ?data_uscita.
?films dbp:name ?nome_film.
```

```

?films dbo:runtime ?durata.
?films dbo:starring ?attori_film.
?films dbo:budget ?budget_film.
dbr:Zach_Galifianakis dbo:birthDate ?data_nascita.
}

```

Listing 15: RDF graph construction

Viene riportata qui di seguito una porzione di output ottenuta (vedi *output\_n\_triples.txt*):

```

<http://dbpedia.org/resource/Zach_Galifianakis> <http://dbpedia.org/property/spouse> "Quinn Lundberg"@en .
<http://dbpedia.org/resource/The_Hangover_Part_III> <http://dbpedia.org/ontology/starring> <http://dbpedia.org/resource/Heather_Graham> .
<http://dbpedia.org/resource/G-Force_(film)> <http://dbpedia.org/ontology/starring> <http://dbpedia.org/resource/Zach_Galifianakis> .
<http://dbpedia.org/resource/Puss_in_Boots_(2011_film)> <http://dbpedia.org/ontology/starring> <http://dbpedia.org/resource/Amy_Sedaris> .
<http://dbpedia.org/resource/G-Force_(film)> <http://dbpedia.org/ontology/starring> <http://dbpedia.org/resource/Sam_Rockwell> .
<http://dbpedia.org/resource/The_Hangover_Part_III> <http://dbpedia.org/ontology/starring> <http://dbpedia.org/resource/Zach_Galifianakis> .
<http://dbpedia.org/resource/G-Force_(film)> <http://dbpedia.org/ontology/starring> <http://dbpedia.org/resource/Jon_Favreau> .
<http://dbpedia.org/resource/Due_Date> <http://dbpedia.org/ontology/starring> <http://dbpedia.org/resource/Zach_Galifianakis> .
<http://dbpedia.org/resource/Puss_in_Boots_(2011_film)> <http://www.w3.org/1999/02/22-rdf-syntax-ns#type> <http://dbpedia.org/ontology/Film> .
<http://dbpedia.org/resource/The_Hangover> <http://www.w3.org/1999/02/22-rdf-syntax-ns#type> <http://dbpedia.org/ontology/Film> .
<http://dbpedia.org/resource/The_Lego_Batman_Movie> <http://dbpedia.org/ontology/runtime> "6240.0"^^<http://www.w3.org/2001/XMLSchema#double> .
<http://dbpedia.org/resource/G-Force_(film)> <http://dbpedia.org/property/released> "2009-05-01"^^<http://www.w3.org/2001/XMLSchema#date> .
<http://dbpedia.org/resource/The_Hangover_Part_III> <http://dbpedia.org/ontology/starring> <http://dbpedia.org/resource/Justin_Bartha> .
<http://dbpedia.org/resource/G-Force_(film)> <http://dbpedia.org/ontology/starring> <http://dbpedia.org/resource/Will_Arnett> .
<http://dbpedia.org/resource/Due_Date> <http://dbpedia.org/ontology/starring> <http://dbpedia.org/resource/Robert_Downey_Jr.> .
<http://dbpedia.org/resource/G-Force_(film)> <http://dbpedia.org/ontology/starring> <http://dbpedia.org/resource/Penelope_Cruz> .
<http://dbpedia.org/resource/The_Hangover_Part_III> <http://dbpedia.org/ontology/starring> <http://dbpedia.org/resource/Ken_Jeong> .
<http://dbpedia.org/resource/The_Lego_Batman_Movie> <http://www.w3.org/1999/02/22-rdf-syntax-ns#type> <http://dbpedia.org/ontology/Film> .
<http://dbpedia.org/resource/The_Hangover> <http://dbpedia.org/property/name> "The Hangover"@en .
<http://dbpedia.org/resource/The_Lego_Batman_Movie> <http://dbpedia.org/ontology/starring> <http://dbpedia.org/resource/Will_Arnett> .
<http://dbpedia.org/resource/G-Force_(film)> <http://www.w3.org/1999/02/22-rdf-syntax-ns#type> <http://dbpedia.org/ontology/Film> .
<http://dbpedia.org/resource/The_Lego_Batman_Movie> <http://dbpedia.org/property/name> "The Lego Batman Movie"@en .
<http://dbpedia.org/resource/The_Hangover> <http://dbpedia.org/property/name> "The Hangover: Original Motion Picture Soundtrack"@en .
<http://dbpedia.org/resource/Puss_in_Boots_(2011_film)> <http://dbpedia.org/ontology/runtime> "5400.0"^^<http://www.w3.org/2001/XMLSchema#double> .
<http://dbpedia.org/resource/The_Hangover_Part_III> <http://www.w3.org/1999/02/22-rdf-syntax-ns#type> <http://dbpedia.org/ontology/Film> .
<http://dbpedia.org/resource/The_Hangover> <http://dbpedia.org/ontology/runtime> "6000.0"^^<http://www.w3.org/2001/XMLSchema#double> .
<http://dbpedia.org/resource/Puss_in_Boots_(2011_film)> <http://dbpedia.org/ontology/starring> <http://dbpedia.org/resource/Billy_Bob_Thornton> .
<http://dbpedia.org/resource/G-Force_(film)> <http://dbpedia.org/ontology/runtime> "5400.0"^^<http://www.w3.org/2001/XMLSchema#double> .
<http://dbpedia.org/resource/G-Force_(film)> <http://dbpedia.org/ontology/starring> <http://dbpedia.org/resource/Tracy_Morgan> .
<http://dbpedia.org/resource/The_Lego_Batman_Movie> <http://dbpedia.org/ontology/starring> <http://dbpedia.org/resource/Rosario_Dawson> .
<http://dbpedia.org/resource/The_Hangover_Part_III> <http://dbpedia.org/ontology/starring> <http://dbpedia.org/resource/John_Goodman> .
<http://dbpedia.org/resource/The_Hangover> <http://dbpedia.org/property/released> "2009-06-09"^^<http://www.w3.org/2001/XMLSchema#date> .
<http://dbpedia.org/resource/Puss_in_Boots_(2011_film)> <http://dbpedia.org/property/name> "Puss in Boots"@en .
<http://dbpedia.org/resource/Due_Date> <http://dbpedia.org/ontology/starring> <http://dbpedia.org/resource/Michelle_Monaghan> .
<http://dbpedia.org/resource/The_Lego_Batman_Movie> <http://dbpedia.org/ontology/starring> <http://dbpedia.org/resource/Ralph_Fiennes> .
<http://dbpedia.org/resource/The_Hangover_Part_III> <http://dbpedia.org/property/released> "2013-05-21"^^<http://www.w3.org/2001/XMLSchema#date> .
<http://dbpedia.org/resource/The_Hangover_Part_III> <http://dbpedia.org/ontology/starring> <http://dbpedia.org/resource/Bradley_Cooper> .
<http://dbpedia.org/resource/The_Lego_Batman_Movie> <http://dbpedia.org/ontology/starring> <http://dbpedia.org/resource/Michael_Cera> .
<http://dbpedia.org/resource/Due_Date> <http://dbpedia.org/property/released> "2010-11-02"^^<http://www.w3.org/2001/XMLSchema#date> .
<http://dbpedia.org/resource/G-Force_(film)> <http://dbpedia.org/ontology/starring> <http://dbpedia.org/resource/Steve_Buscemi> .
<http://dbpedia.org/resource/The_Hangover_Part_III> <http://dbpedia.org/ontology/starring> <http://dbpedia.org/resource/Jeffrey_Tambor> .
<http://dbpedia.org/resource/Due_Date> <http://www.w3.org/1999/02/22-rdf-syntax-ns#type> <http://dbpedia.org/ontology/Film> .

```

Il risultato è stato anche analizzato graficamente (vedi *output\_graph\_1.pdf*).