



BOARDGAMES

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STAREA ACTUALA

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- Am definit structura ontologiei folosind RDFLib
- Am implementat scripturi Python (RDFLib) pentru popularea automată a indivizilor.
- Ontologia este încărcată în GraphDB și interogabilă prin SPARQL.
- Datele provin dintr-un set structurat (~20.551 de instanțe).

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STATISTICI

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01

Clase definite: 6

- Game, Mechanic, Domain, Duration, PlayerCount, Complexity

02

Proprietăți definite:

- Object properties: 2 (hasMechanic, hasDomain)
- Datatype properties: 8 (minPlayers, maxPlayers, playTime, recommendedAge, averageRating, complexityRating, publishedYear, ratedByUsers)

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STATISTICI DESPRE INDIVIZI

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- **Total indivizi:** 20.551
- **Distribuție pe clase:**
 - Game: ~8.000
 - Mechanic: ~130
 - Domain: ~80
 - Restul: jucători, durate, complexitate (valori unice)
- Datele sunt generate automat din fișierul CSV prelucrat.

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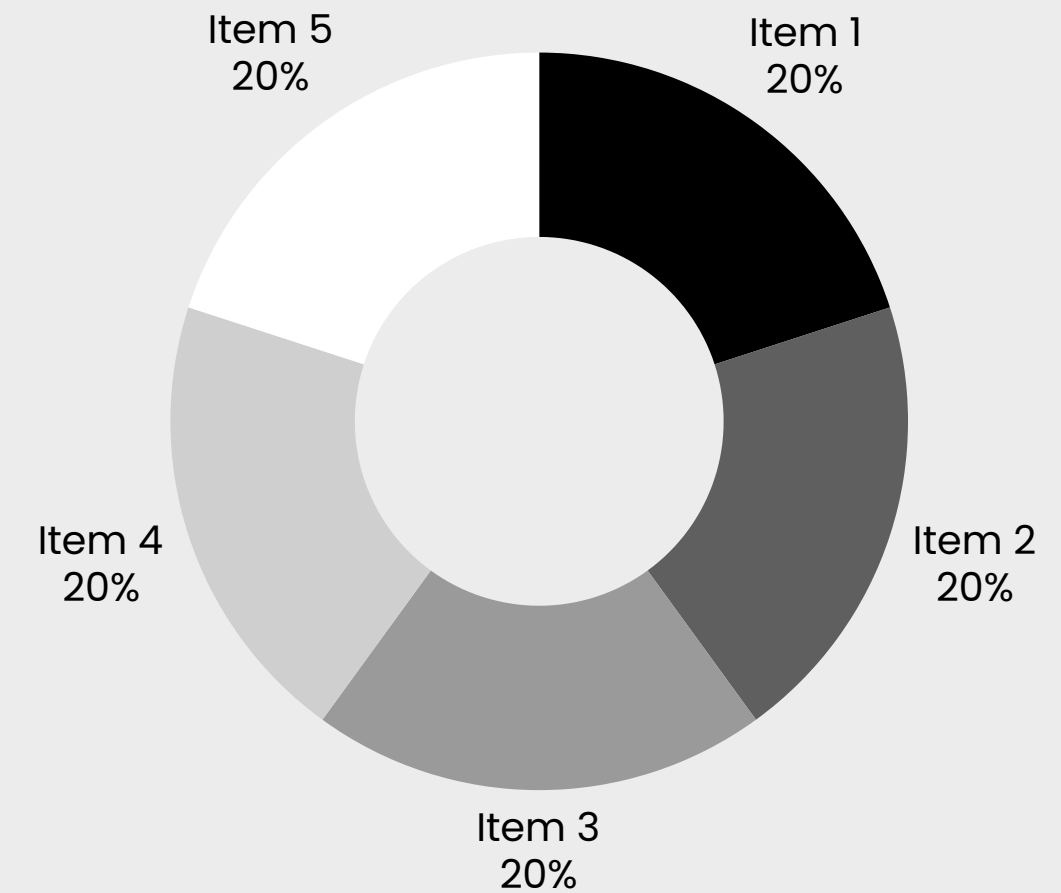
POPULAREA ONTOLOGIEI CU RDFLIB

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- Datele CSV sunt parcurse cu Pandas și RDFLib.
 - Indivizii sunt creați automat pe baza atributelor jocurilor.
 - Codul creează instanțe și relații (hasMechanic, hasDomain etc.)
 - Fișier rezultat: boardgame_ontology_populated.owl
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ÎNCĂRCAREA ÎN GRAPHDB

- Am creat un repository local: BoardGamesRepo
- Upload fișier RDF folosind interfața web GraphDB
- Vizualizare triplete și overview prin funcționalitățile native



INTEROGĂRI SPARQL (DEMO)

GamesOrderByRating X

NumberOfDistinctEntities X

HighComplexityGames X

GamesBasedOnRatingAnd... X

GamesWithSpecificCompl... X

Unnamed X

1 PREFIX bg: <http://example.org/boardgames#>

2

3 SELECT ?game ?rating

4 WHERE {

5 ?game a bg:Game ;

6 bg:averageRating ?rating .

7 }

8 ORDER BY DESC(?rating)

9 LIMIT 5

10

Table

Raw response

Pivot Table

Google Chart

Filter query results

Compact view ☐ Hide row numbers ☐

Showing results

	game	rating
1	bg:Game_275777.0	"9.58"^^xsd:float
2	bg:Game_322354.0	"9.54"^^xsd:float
3	bg:Game_275972.0	"9.46"^^xsd:float
4	bg:Game_281257.0	"9.43"^^xsd:float
5	bg:Game_228370.0	"9.43"^^xsd:float

INTEROGĂRI SPARQL (DEMO)

GamesOrderByRating × NumberOfDistinctEntities × HighComplexityGames × GamesBasedOnRatingAnd... × Game

```
1 PREFIX owl: <http://www.w3.org/2002/07/owl#>
2 SELECT (COUNT(DISTINCT ?individual) AS ?TotalIndividuals)
3 WHERE {
4   ?individual a ?type .
5   FILTER (?type != owl:Class && ?type != owl:ObjectProperty && ?type != owl:DatatypeProperty)
6 }
7
```

Table Raw response Pivot Table Google Chart

Filter query results Compact view ☐ Hide row numbers ☐

	TotalIndividuals
1	"20551"^^xsd:integer

INTEROGĂRI SPARQL (DEMO)

GamesOrderByRating × NumberOfDistinctEntities × HighComplexityGames × GamesBasedOnRatingAnd... × GamesWithSpecificCompl... × Unnamed ×

```
1 PREFIX bg: <http://example.org/boardgames#>
2
3 SELECT ?game ?complexity
4 WHERE {
5   ?game a bg:Game ;
6         bg:complexityRating ?complexity .
7   FILTER (?complexity >= 4.0)
8 }
9 ORDER BY DESC(?complexity)
10 LIMIT 10
11
```

Table Raw response Pivot Table Google Chart

Filter query results Compact view ☐ Hide row numbers ☐ Showing results 1

	game	complexity
1	bg:Game_8700.0	"5.0"^^xsd:float
2	bg:Game_190462.0	"4.93"^^xsd:float
3	bg:Game_2875.0	"4.91"^^xsd:float
4	bg:Game_5410.0	"4.91"^^xsd:float
5	bg:Game_4102.0	"4.9"^^xsd:float
6	bq:Game_158793.0	"4.89"^^xsd:float

INTEROGĂRI SPARQL (DEMO)

GamesOrderByRating ×

NumberOfDistinctEntities ×

HighComplexityGames ×

GamesBasedOnRatingAnd... ×

GamesWithSpecificCompl... ×

Unnamed ×

⊕

```
1 PREFIX bg: <http://example.org/boardgames#>
2
3 SELECT ?game ?rating ?age
4 WHERE {
5     ?game a bg:Game ;
6           bg:averageRating ?rating ;
7           bg:recommendedAge ?age .
8     FILTER (?age <= 10)
9 }
10 ORDER BY DESC(?rating)
11 LIMIT 5
12
```

Table

Raw response

Pivot Table

Google Chart

Filter query results

Compact view ☐ Hide row numbers ☐

⚠ Showing results from 0 to 5 of 5

	game	rating	age
1	bg:Game_228370.0	"9.43"xsd:float	"10"xsd:integer
2	bg:Game_260037.0	"9.19"xsd:float	"8"xsd:integer
3	bg:Game_310846.0	"9.18"xsd:float	"10"xsd:integer
4	bg:Game_290500.0	"9.14"xsd:float	"10"xsd:integer
5	bg:Game_173514.0	"9.13"xsd:float	"8"xsd:integer

INTEROGĂRI SPARQL (DEMO)

GamesOrderByRating ×

NumberOfDistinctEntities ×

HighComplexityGames ×

GamesBasedOnRatingAnd... ×

GamesWithSpecificCompl... ×

Unnamed ×

⊕

1

PREFIX bg: <http://example.org/boardgames#>

2

3

SELECT ?game ?rating ?complexity ?duration

4

WHERE {

5

?game a bg:Game ;

6

bg:averageRating ?rating ;

7

bg:complexityRating ?complexity ;

8

bg:playTime ?duration .

9

FILTER (?rating > 8.0 && ?complexity >= 2.0 && ?complexity <= 3.5 && ?duration <= 60)

10

}

11

ORDER BY DESC(?rating)

12

LIMIT 10

13

Table

Raw response

Pivot Table

Google Chart

Filter query results

Compact view ☐ Hide row numbers ☐

Showing results from 0 to 10 of 10. Query took

	game	rating	complexity	duration
1	bg:Game_275972.0	"9.46"^^xsd:float	"3.29"^^xsd:float	"30"^^xsd:integer
2	bg:Game_228370.0	"9.43"^^xsd:float	"2.5"^^xsd:float	"30"^^xsd:integer
3	bg:Game_211693.0	"9.21"^^xsd:float	"3.0"^^xsd:float	"60"^^xsd:integer
4	bg:Game_284111.0	"9.18"^^xsd:float	"2.0"^^xsd:float	"30"^^xsd:integer
5	bg:Game_310846.0	"9.18"^^xsd:float	"2.0"^^xsd:float	"45"^^xsd:integer
6	bg:Game_285853.0	"9.16"^^xsd:float	"3.5"^^xsd:float	"60"^^xsd:integer

PROBLEME ȘI SOLUȚII

Probleme întâlnite:

- Date necurate (ex. separatori inconsistenți în câmpurile multiple)
- Performanță inițială slabă la RDFLib in-memory

Soluții:

- Preprocesare riguroasă CSV cu Pandas
- Migrare la GraphDB pentru interogări eficiente

CONCLUZIE

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- Graful de cunoștințe este funcțional și interogabil
- Urmează integrarea cu aplicația web (etapa 3)
- Adăugarea de interfețe pentru recomandare și explorare vizuală



THANK YOU