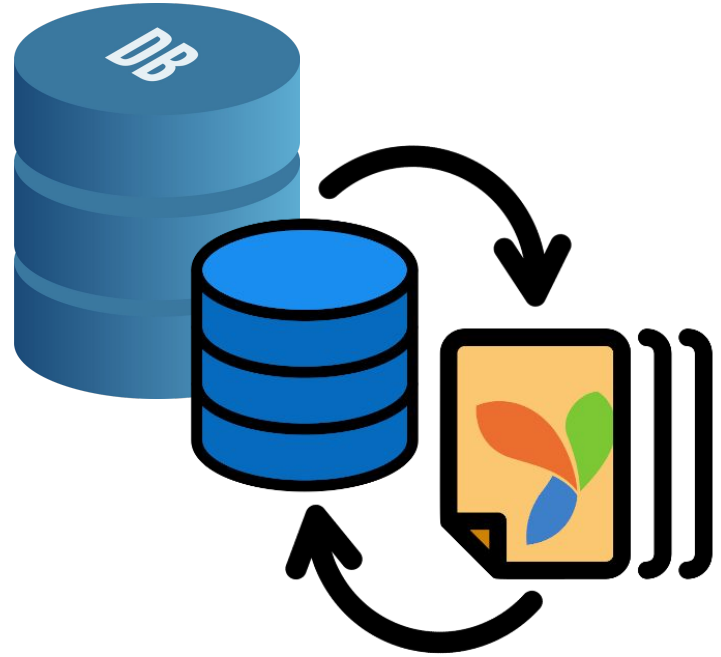


BASES DE DADOS

PARADIGMAS, APLICAÇÕES E IMPLEMENTAÇÃO

Grupo 2

Beatriz Rocha
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Pedro Machado



Conteúdo

**1. Base de dados
Oracle**



**2. Base de dados
MongoDB**



**3. Base de
dados Neo4j**



**4. Análise de
resultados**

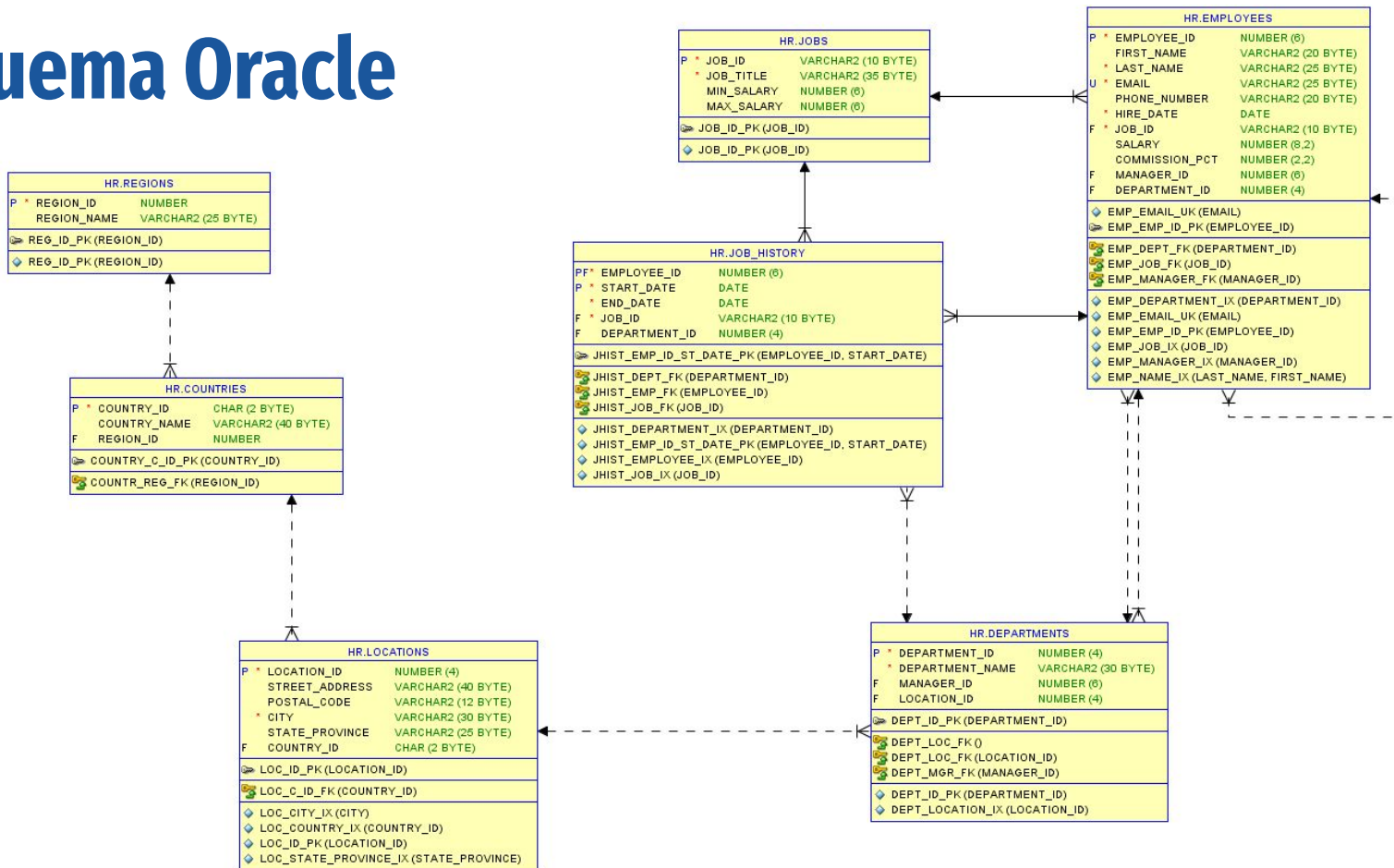


1.

Base de datos Oracle

ORACLE

Esquema Oracle



Consultas

1

```
select
    count(*) as
        "Number of employees who work in
        Canada"
from countries c
join locations l
    on c.country_id = l.country_id
join departments d
    on l.location_id = d.location_id
join employees e
    on d.department_id = e.department_id
where country_name = 'Canada';
```

6

```
select
    region_name,
    count(*) as "Number of departments"
from regions r
join countries c
    on r.region_id = c.region_id
join locations l
    on l.country_id = c.country_id
join departments d
    on d.location_id = l.location_id
group by region_name
order by "Number of departments" desc
fetch first 1 rows only;
```

2.

Base de datos MongoDB



Esquema MongoDB

```
{  
  first_name: String,  
  last_name: String,  
  email: String,  
  ...  
  job_title: String,  
  job_min_salary: Double,  
  ...  
  curr_dep_manager_email: String,  
  curr_dep_name: String,  
  curr_dep_loc_st_addr: String,  
  curr_dep_loc_pt_code: String,  
  ...  
  curr_dep_country_name: String,  
  curr_dep_region_name: String,  
  hist: [ ... ]  
}
```

```
{  
  hist_start_date: Date,  
  hist_end_date: Date,  
  hist_job_title: String,  
  hist_dep_name: String,  
  hist_dep_loc_st_addr: String,  
  hist_dep_loc_pt_code: String,  
  hist_dep_loc_city: String,  
  hist_dep_loc_st_prov: String,  
  hist_dep_country_name: String,  
  hist_dep_region_name: String  
}
```

Consultas

1

```
db.employees.find (  
  {  
    "curr_dep_country_name": "Canada"  
  }).size()
```

6

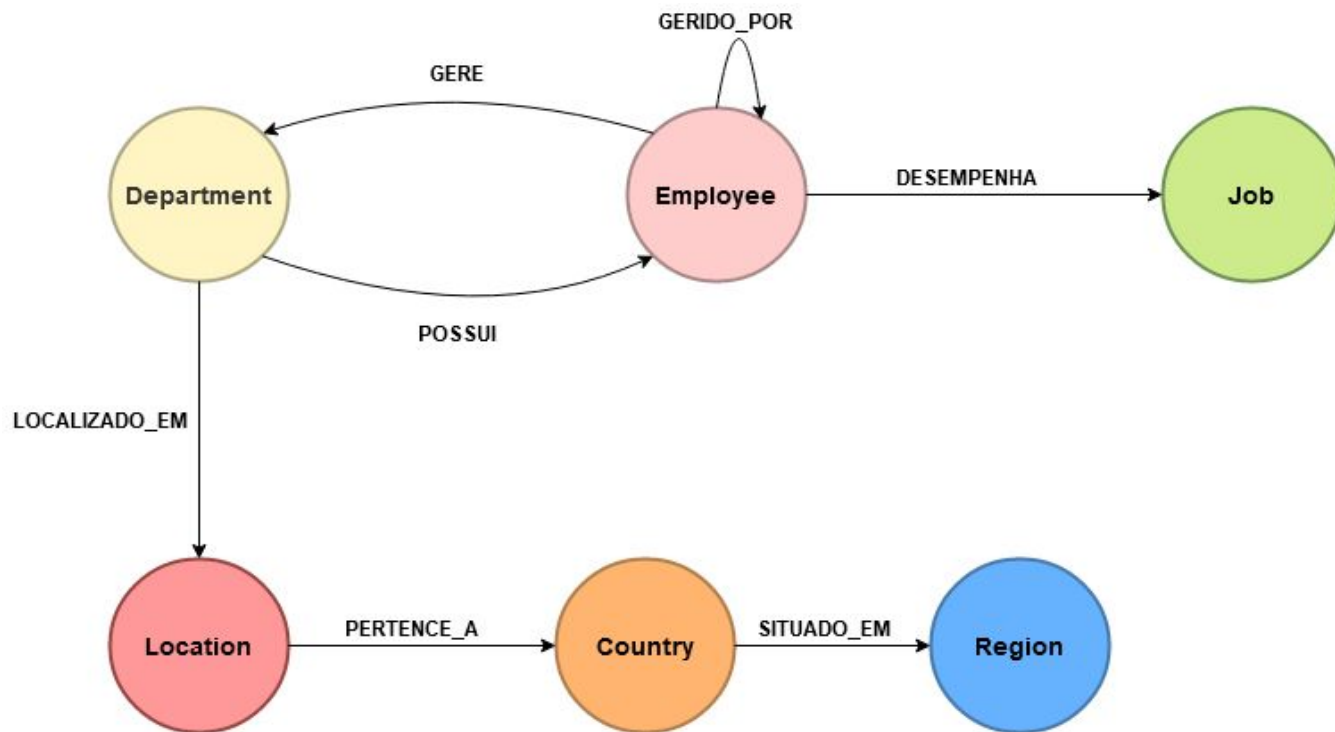
```
db.employees.aggregate (  
  [  
    {  
      $group:  
        {  
          _id: "$curr_dep_region_name",  
          dep_name:  
            {  
              $addToSet: "$curr_dep_name"  
            }  
        }  
    }  
  ])
```


3.

Base de datos Neo4j

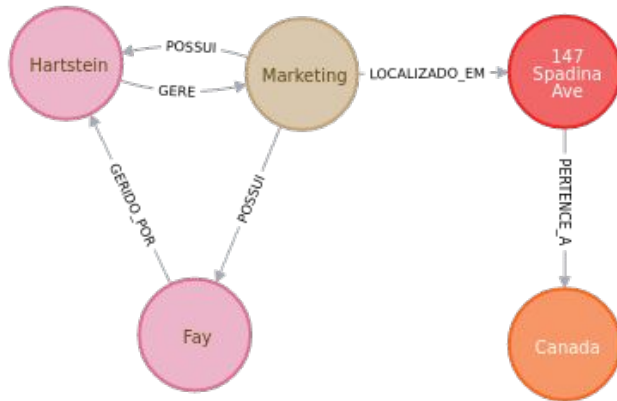


Esquema Neo4j

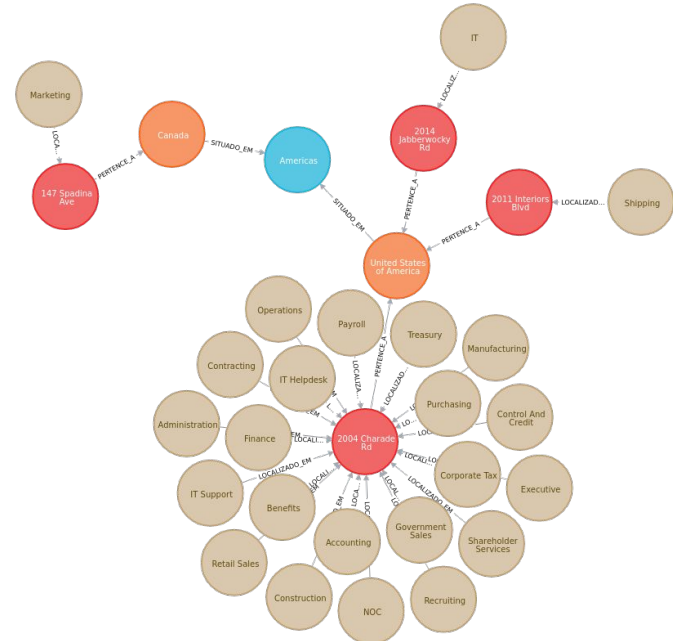


Consultas

1



6



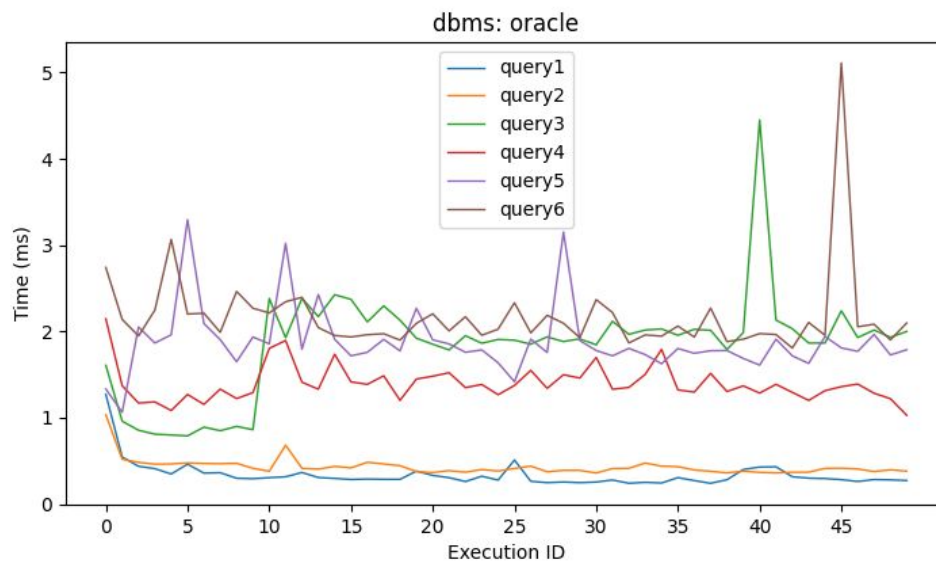
4.

Análise de resultados



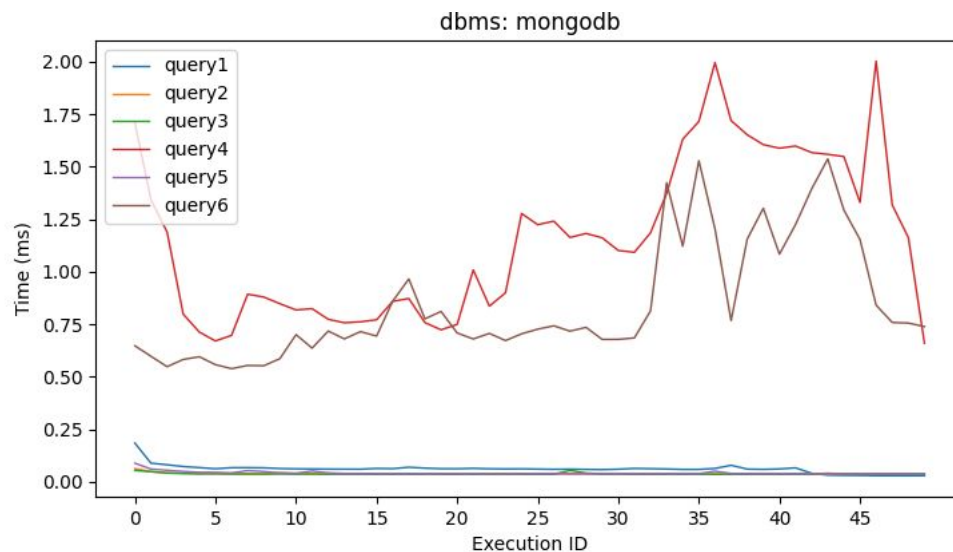
Oracle

N.º da consulta	1	2	3	4	5	6
Tempo médio (ms)	0.336	0.431	1.849	1.396	1.879	2.168



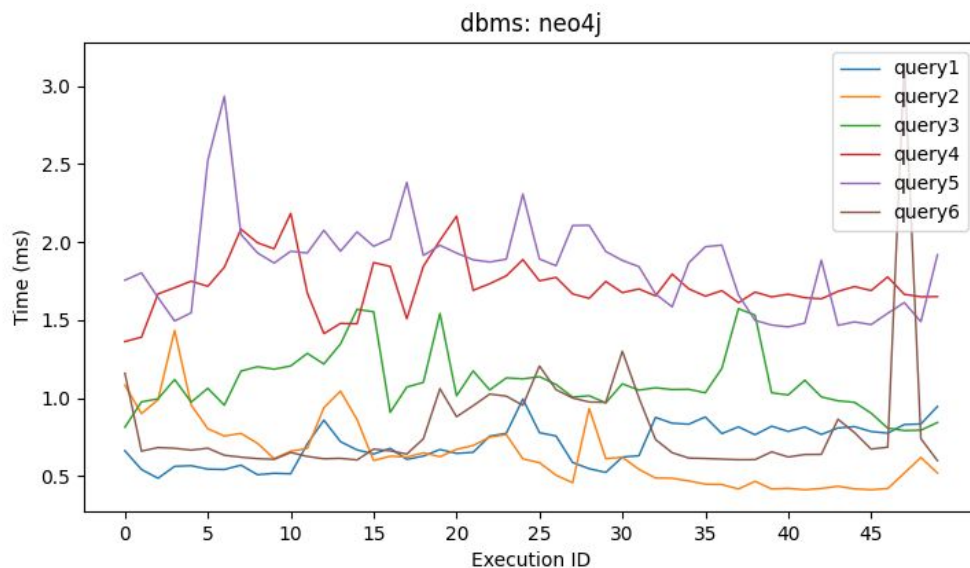
MongoDB

N.º da consulta	1	2	3	4	5	6
Tempo médio (ms)	0.060	0.037	0.037	1.156	0.041	0.837



Neo4j

N.º da consulta	1	2	3	4	5	6
Tempo médio (ms)	0.704	0.646	1.097	1.724	1.856	0.813



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