Solution – Exercise II

HiveQL, Create and work with External Tables on IMDb Data

Solution

Prerequisites:

- Setup Google Cloud SDK
- Start VM instance
- Pull docker container `marcelmittelstaedt/hive_base:latest`
- Start docker container: `docker run -dit --name hive_base_container -p 8088:8088 -p 9870:9870 -p 9864:9864 marcelmittelstaedt/hive_base:latest`
- Get into docker container
- Start Hadoop and Hive Shell:
  - `start-all.sh`
  - `hive`

Solution

Exercise 1-4:

1. Download and unzip https://datasets.imdbws.com/name.basics.tsv.gz

```
wget https://datasets.imdbws.com/name.basics.tsv.gz
gunzip name.basics.tsv.gz
```

2. Create HDFS directory **/user/hadoop/imdb/name_basics/** for file name.basics.tsv

```
hadoop fs -mkdir /user/hadoop/imdb/name_basics
```

3. Put TSV file to HDFS:

```
hadoop fs -put name.basics.tsv /user/hadoop/imdb/name_basics/name.basics.tsv
```

Solution

Exercise 1-4:

4. Create Hive Table **name_basics**:

```
hive > CREATE EXTERNAL TABLE IF NOT EXISTS name_basics(
    nconst STRING,
    primary_name STRING,
    birth_year INT,
    death_year STRING,
    primary_profession STRING,
    known_for_titles STRING
    ) COMMENT 'IMDb Actors' ROW FORMAT DELIMITED FIELDS TERMINATED BY '\t' ST
ORED AS TEXTFILE LOCATION '/user/hadoop/imdb/name_basics'
TBLPROPERTIES ('skip.header.line.count'='1');
```

Solution

Exercise 5:

a) How many movies and how many TV series are within the IMDB dataset?

```
hive >   SELECT m.title_type, count(*)
         FROM title_basics m GROUP BY m.title_type;

tvMovie 152520
movie  727439
tvEpisode 9200239
tvSeries 288488
[…]

Time taken: 32.908 seconds, Fetched: 11 row(s)
```

b) Who is the youngest actor/writer/… within the dataset?

```
hive >   SELECT * FROM name_basics n
         WHERE n.birth_year = ( SELECT MAX(birth_year) FROM name_basics);
```

Solution

Exercise 5:

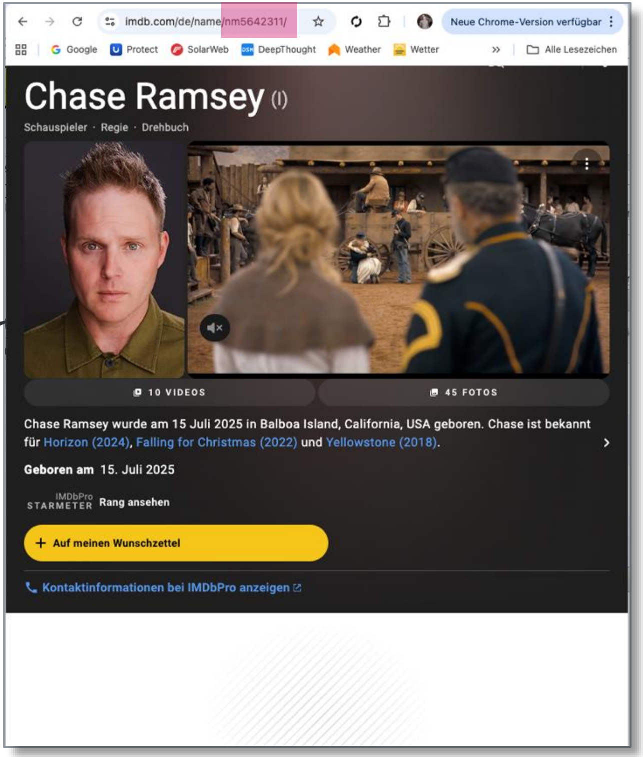
b) Who is the youngest actor/writer/… within the dataset?

```
hive >  SELECT * FROM name_basics n
        WHERE n.birth_year = ( SELECT MAX(birth_year)
                               FROM name_basics);
```

And it's **Chase Ramsey**, who is way older, so this one is actually shitty data in IMDB :D

```
nm5642311 Chase Ramsey 2025 NULL actor,director,writer tt17505010,tt14715170,t
t4236770,tt17062324


Time taken: 65.166 seconds, Fetched: 1 row(s)
```



imdb.com/de/name/nm5642311/

Chase Ramsey (I)

Schauspieler · Regie · Drehbuch

Chase Ramsey wurde am 15 Juli 2025 in Balboa Island, California, USA geboren. Chase ist bekannt für Horizon (2024), Falling for Christmas (2022) und Yellowstone (2018).

Geboren am 15. Juli 2025

Solution

Exercise 5:

c) Create a list (`m.tconst, m.original_title, m.start_year, r.average_rating, r.num_votes`) of movies which are:

- equal or newer than year 2010

- have an average rating equal or better than 8,1

- have been voted more than 100.000 times

```
hive >   SELECT m.tconst, m.original_title, m.start_year, r.average_rating, r.num_votes
         FROM title_basics m JOIN title_ratings r on (m.tconst = r.tconst)
         WHERE r.average_rating >= 8.1 and m.start_year >= 2010 and m.title_type = 'movie'
         and r.num_votes > 100000
         ORDER BY r.average_rating desc, r.num_votes DESC;

tt1375666 Inception 2010 8.8 2735466
tt0816692 Interstellar 2014 8.7 2412377
tt23849204 12th Fail 2023 8.7 156943
tt15097216 Jai Bhim 2021 8.6 229573
tt10189514 Soorarai Pottru 2020 8.6 129634
tt1853728 Django Unchained 2012 8.5 1826339
tt6751668 Gisaengchung 2019 8.5 1103669
tt2582802 Whiplash 2014 8.5 1102686
tt1675434 Intouchables 2011 8.5 996020
tt15239678 Dune: Part Two 2024 8.5 669858
[…]
```

Solution

Exercise 5:

d) How many movies are in list of c)?

```
hive >    SELECT count(*)
          FROM title_basics m JOIN title_ratings r on (m.tconst = r.tconst)
          WHERE r.average_rating >= 8.1 and m.start_year >= 2010 and m.title_type = 'movie'
          and r.num_votes > 100000;

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```

Solution

Exercise 5:

e) We want to know which years have been great for cinema.
Create a list with one row per year and a related count of movies which:
- have an average rating better than 8
- have been voted more than 100.000 times
ordered descending by count of movies.

```
hive >  SELECT m.start_year, count(*)
        FROM title_basics m JOIN title_ratings r on (m.tconst = r.tconst)
        WHERE r.average_rating > 8 AND m.title_type = 'movie'
        AND r.num_votes > 100000
        GROUP BY m.start_year
        ORDER BY count(*) DESC;

1995 8
2004 7
2018 6
2016 6
2015 6
[…]
```

Solution

Exercise 5:

So 1995 seems to be a really good year for cinema, 8 really good movies have been releases, but which are they?

```
hive > SELECT
            m.tconst, m.original_title, m.start_year, r.average_rating,
            r.num_votes
       FROM title_basics m JOIN title_ratings r ON (m.tconst = r.tconst)
       WHERE
            r.average_rating > 8 AND m.title_type = 'movie'
            AND r.num_votes > 100000 AND m.start_year = 1995
       ORDER BY r.average_rating DESC;

tt0114369 Se7en 1995 8.6 1954461
tt0114814 The Usual Suspects 1995 8.5 1208544
tt0113277 Heat 1995 8.3 775284
tt0114709 Toy Story 1995 8.3 1142717
tt0112573 Braveheart 1995 8.3 1141950
tt0112641 Casino 1995 8.2 603039
tt0112471 Before Sunrise 1995 8.1 366575
tt0113247 La haine 1995 8.1 217426

[…]
```