Introduction

In this project which is the continuation of Project-1, Netflix Data analysis. It is required to identify the source of Data sets, perform Extraction, Transformation and Loading ( ETL) on these data sets.

ETL comprises of three methods:

1. Extraction
2. Transformation
3. Loading

The member of this projects are:

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Extract Method

Data extraction includes the following tasks:

1. Extract relevant data from data sources:

* <https://www.kaggle.com/shivamb/netflix-shows?select=netflix_titles.csv>

The result of extracted data is in the form of CSV and it has the following fields:



* Public movie APIs:
  + 1. OMDB - OMDB to obtain information and metadata about movies.
    2. TMDB - TMDB for movie discovery.

Both API outputs and Netflix CSV merged into one CSV which conclude the following fields:





1. Reconcile records with the source data
2. Make sure that no spam/unwanted data loaded
3. Data type check
4. Remove all types of duplicate/fragmented data

Extract: your original data sources and how the data was formatted (CSV, JSON, pgAdmin 4, etc).

Transform: what data cleaning or transformation was required.

Load: the final database, tables/collections, and why this was chosen.

Extracting of Netflix data from www.kaggle.com

https://www.kaggle.com/shivamb/netflix-shows?select=netflix\_titles.csv

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Field Name: | Description: | Example: | Data Type: | Unique: | Null: | Comments: |
| show\_id | Unique ID for every Movie / Tv Show | 81145628 | String | Yes | No |  |
| type | Identifier - A Movie or TV Show | Movie | String | No | No |  |
| title | Title of the Movie / Tv Show | Norm of the North: King Sized Adventure | String | No | No |  |
| director | Director of the Movie | Richard Finn, Tim Maltby | String | No | yes | Multiple names in each field |
| cast | Actors involved in the movie / show | Alan Marriott, Andrew Toth, Brian Dobson, Cole Howard, Jennifer Cameron, Jonathan Holmes, Lee Tockar... | String | No | Yes | Multiple names in each field |
| country | Country where the movie / show was produced | United States, India, South Korea, China | String | No | yes | Multiple names in each field |
| date\_added | Date it was added on Netflix | September 9, 2019 | Date | No | yes |  |
| release\_year | Actual Release year of the move / show  text\_formatratingsort  TV Rating of the movie / | 2019 | Integer | No | No |  |
| rating | TV Rating of the movie / show | TV-PG | String | No | Yes |  |
| duration | Total Duration - in minutes or number of seasons | 90 min | String | No | No |  |
| listed\_in | Genre | Children & Family Movies, Comedies | String | No | No | Multiple names in each field |
| description | The summary description | Before planning an awesome wedding for his grandfather, a polar bear king must | String | No | No |  |

Extracting data via API to OMDB and TMDB

This is OMDB API extract:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Field Name: | Description: | Example: | Data Type: | Unique: | Null: | Comments: |
| Title | Title of the Movie / Tv Show | Man of Steel | String | No | No |  |
| Year | Actual Release year of the move / show  text\_formatratingsort  TV Rating of the movie / | 2013 | Integer | No | No |  |
| Rated | TV Rating of the movie / show | PG-13 | String | No | Yes |  |
| Released | Release date | 14 Jun 2013 | String | No | Yes |  |
| Runtime | Duration | 143 min | String | No | Yes |  |
| Genre | Type of movie | Action,Adventure, Sci-Fi | String | No | No |  |
| Director | Director | Zack Snyder | String | No | No |  |
| Writer | Author | David S. Goyer (screenplay)  David S. Goyer (story) | String | No | No |  |
| Actors | Actor and Actress | Henry Cavill  Amy Adams  Michael Shannon  Diane Lane | String | No | No |  |
| Plot | Description | An alien child is evacuated from his dying world and sent to Earth to live among humans. His peace is threatened  when other survivors of his home planet invade Earth | String | Yes | No |  |
| Language |  | English | String | No | No |  |
| Country | Country of producing the product | UA, UK | String | No | No |  |
| Awards | Received Awards for the product | 7 wins & 46 nominations | String | No | Yes |  |
| Poster | create by the studio used to promote or advertise the title | N/A | String | No | No |  |
| Source | IMDb registered users who casts a vote | N/A | String | No | Yes |  |
| Value | Accurate Percentage of the Rating of respected critics | 56% | Float | No | Yes |  |
| Source | Rating of critics | Rotten Tomatoes | String | No | Yes |  |
| Value | Percentage of the Rating of respected critics | 55/100 | Float | No | Yes |  |
| Metascore | Rating of respected critics | 55 | Int | No | Yes |  |
| imdbRating | Rating on IMDB | 7.0 | Int | No | Yes |  |
| imdbVotes | Number of votes for the product | 92 | Int | No | Yes |  |
| imdbID | IMDB Movie ID Number | tt0770828 | String | Yes | No |  |
| Type | Movie or TV-Series | movie | Float | No | No |  |
| DVD | If the product is available on DVD | N/A | String | No | Yes |  |
| BoxOffice | Box Office receives data from a variety of sources, including film studios, distributors, and production companies from around the world | N/A | String | No | Yes |  |
| Production | Production company | Syncopy | String | No | Yes |  |

This is TMDB extracted fields

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Field Name: | Description: | Example | Data Type | Unique | Null | Comments |
|
| adult: TRUE/FALSE |  |  | Boolean |  |  |  |
| backdrop\_path: varchar(255) |  |  | String |  |  |  |
| genre\_ids: Numbers (series) | The type of movie, Comeddy,… |  |  |  |  |  |
| id: varchar (10) | The Movie or Show ID |  | String |  |  |  |
| original\_language: char (2) | Original Language that the movie is produced |  | String |  |  |  |
| original\_title: varchar (255) |  |  | String |  |  |  |
| overview: varchar (1500) |  |  | String |  |  |  |
| popularity: float |  |  | Float |  |  |  |
| poster\_path: varchar(255) |  |  | String |  |  |  |
| release\_date: date | The Release date of the product |  |  |  |  |  |
| title: varchar (255) | The title of the movie ot TV-Series |  | String |  |  |  |
| video: TRUE/FALSE |  |  | Boolean |  |  |  |
| vote\_average: float | Average of Votes for the movie |  | Float |  |  |  |
| vote\_count: int (edited) | Number of Votes |  | Int |  |  |  |

# Data Aggregation of different sources to one.

The result of this process is “Title” table, that is the main feed for creating other tables.

There were some fields that have more than one information, such as Director or the Country of movie that is Released. We normalized this information and added properly to the table. In this process, we removed the duplicates, NaN and configured the proper indexing as well.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Field Name: | Description: | Example | Data Type | Unique | Null | Comments |
|
| show ID |  |  |  |  |  |  |
| Show type |  |  |  |  |  |  |
| Title | Title of the Movie / Tv Show | Man of Steel | String | No | No |  |
| Date Added |  |  |  |  |  |  |
| Netflix release year | Release date | 14 Jun 2013 | String | No | Yes |  |
| rating | TV Rating of the movie / show | TV-PG | String | No | Yes |  |
| director | Director | Zack Snyder | String | No | No |  |
| cast | Actors involved in the movie / show | Alan Marriott, Andrew Toth, Brian Dobson, Cole Howard, Jennifer Cameron, Jonathan Holmes, Lee Tockar... | String | No | Yes | Multiple names in each field |
| duration | Total Duration - in minutes or number of seasons | 90 min | String | No | No |  |
| listed\_in | Genre | Children & Family Movies, Comedies | String | No | No | Multiple names in each field |
| description | The summary description | Before planning an awesome wedding for his grandfather, a polar bear king must | String | No | No |  |
| IMDB rating | Rating on IMDB | 7.0 | Int | No | Yes |  |
| Rotten Tomatoes rating |  |  |  |  |  |  |
| Award | Received Awards for the product | 7 wins & 46 nominations | String | No | Yes |  |
| Released Date |  |  |  |  |  |  |
| Budget |  |  |  |  |  |  |
| Movie ID |  |  |  |  |  |  |
| Revenue |  |  |  |  |  |  |

# Transformation

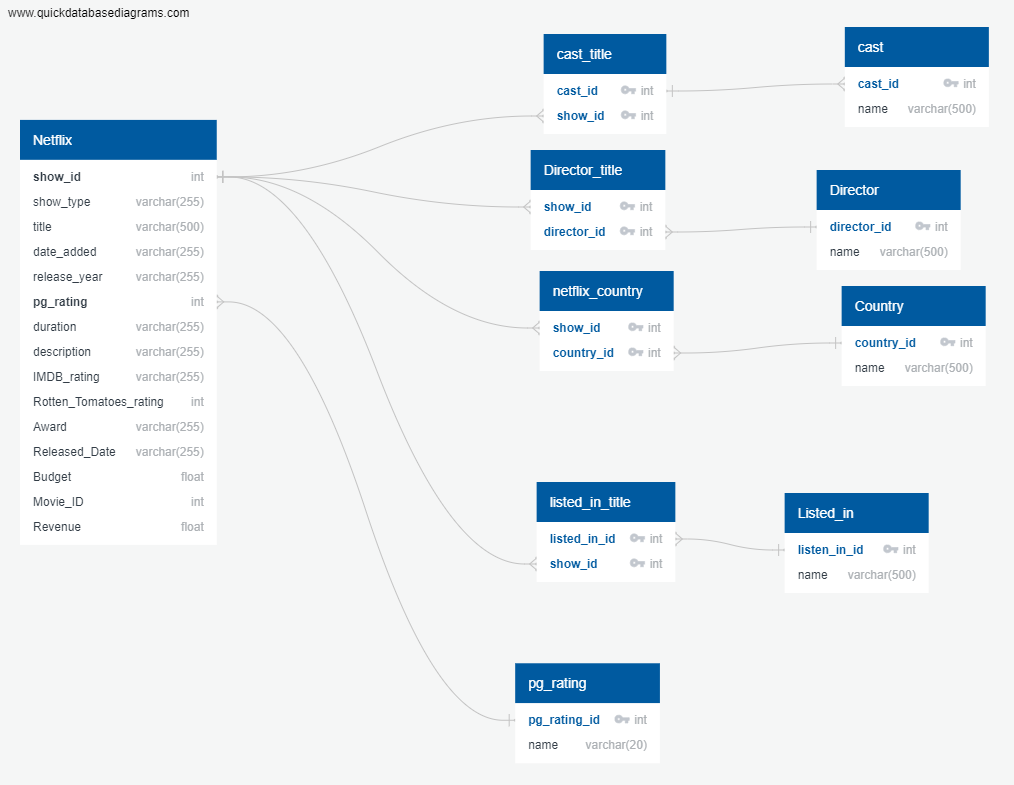
Data transformation will include following tasks:

Necessary tables and the relations between them was designed.

The following were considered to separate the related data from each other and have proper connections between the tables.

Ex: Movie Director data is kept separate from Budget data in two different tables.

# Schema Design:



There are some fields that have more than one information, such as Director or the Country of movie that is Released.

We normalized this information and added properly to the table. In this process, we removed the duplicates, NaN and configured the proper indexing as well.



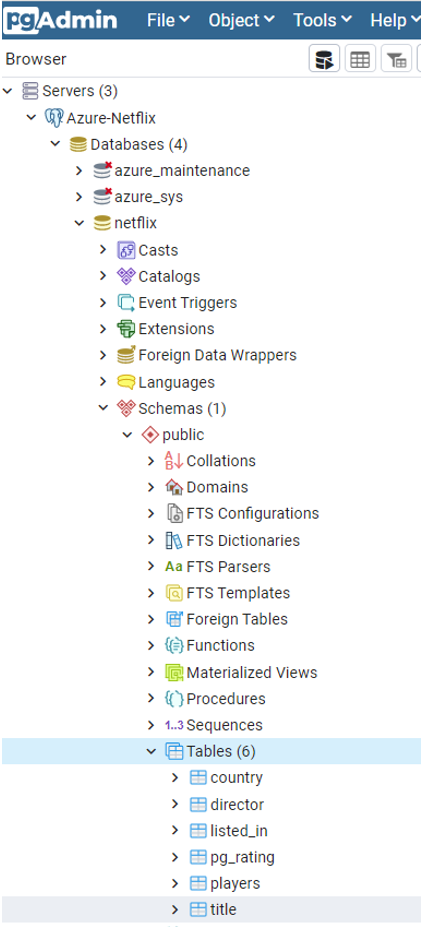
The Result is:



## Creating Data Base Tables:

We used Azure PostgreSQL for creating the tables.



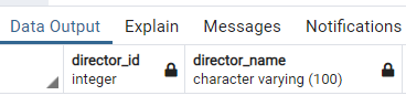


Tables:

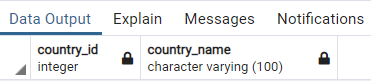
### Title Table:



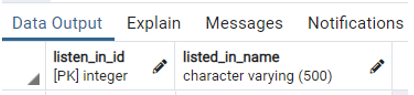
### Director Table:



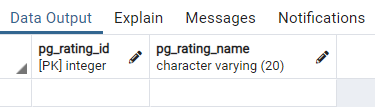
### Country Table:



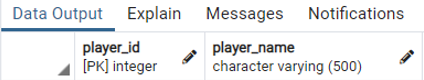
### Listed\_in Table:



### PG\_Rating Table:



### Player Table:



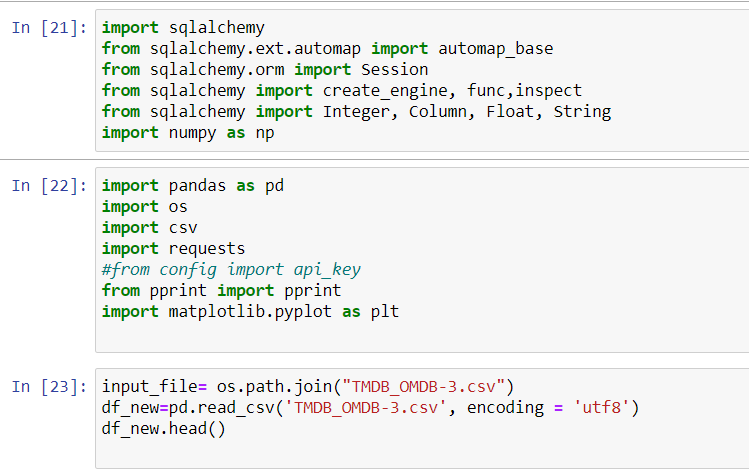
Loading:

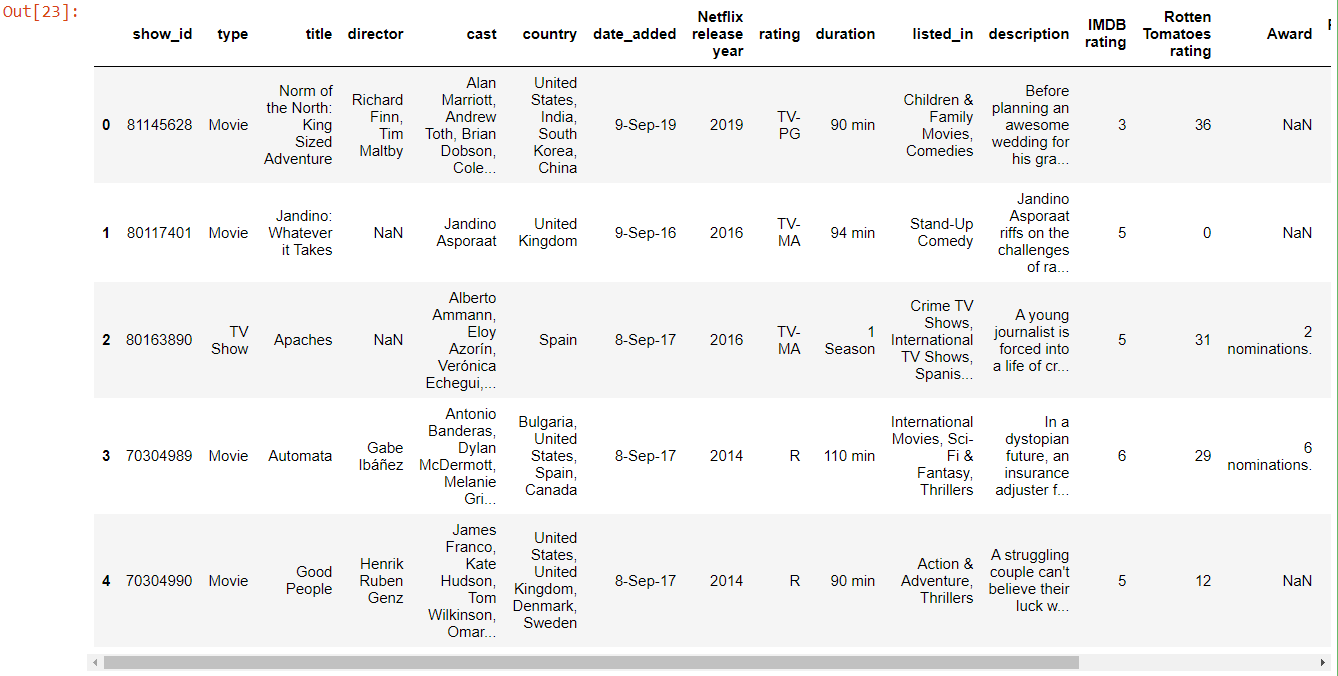
We created connectivity towards AZURE Postgres SQL for loading the data to the tables.

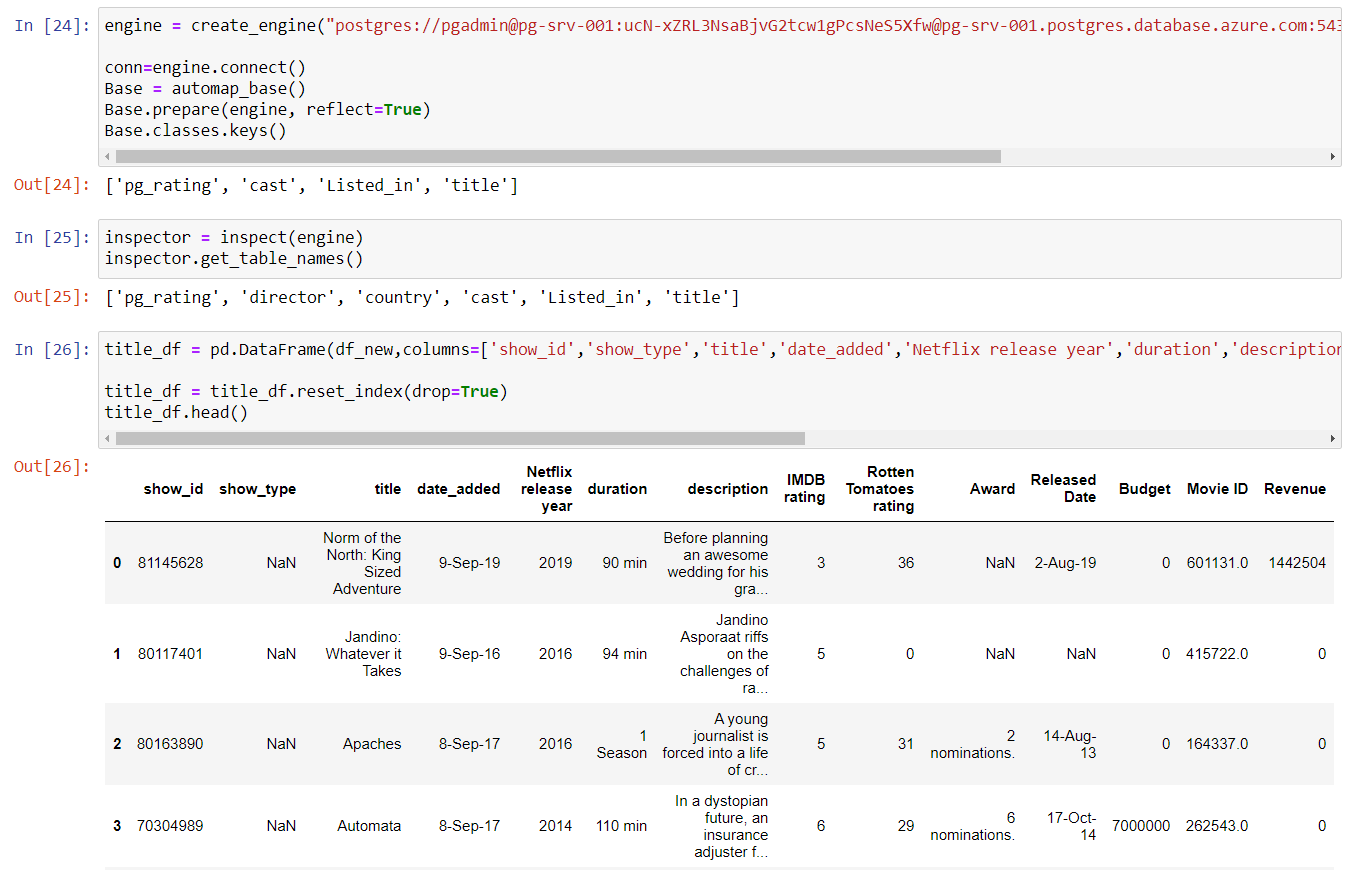
Load on to SQL

We used Azure PostgreSQL for loading the data to the tables.









Final Database

Findings