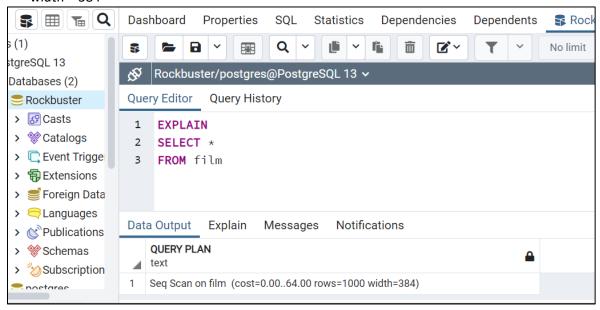
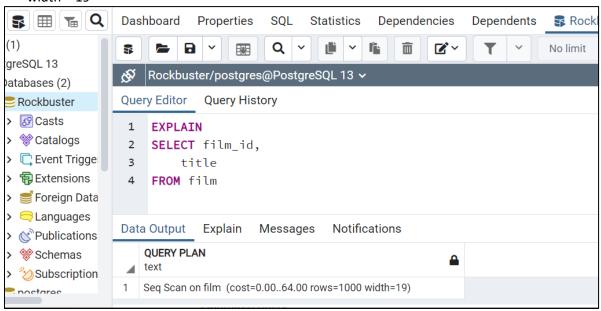
### 1. Refining Your Query

- a. SELECT film\_id, title FROM film
- b. Original query:
  - cost = 64
  - rows = 1000
  - width = 384



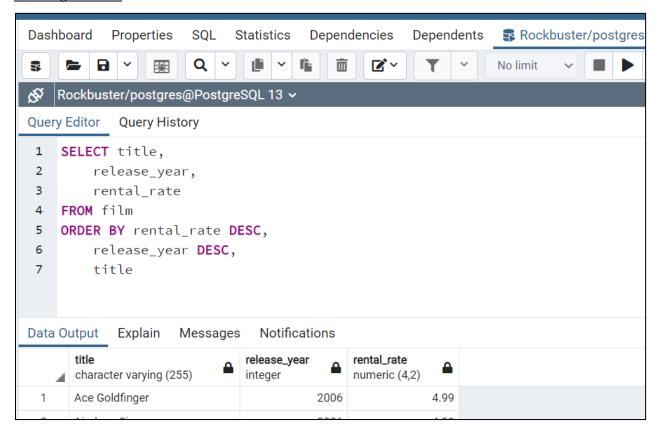
# Optimized query:

- cost = 64
- rows = 1000
- width = 19

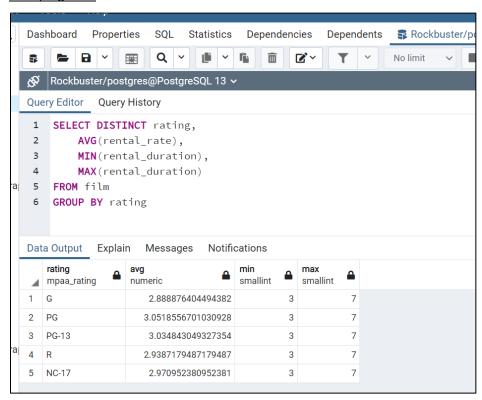


Since both queries have the same cost and rows, the key difference is the width. The original query width is 384 bytes and the optimized query width is 19 bytes. This means that the estimated average width of rows is much lower in the optimized query, thus the preferred option.

### 2. Ordering the Data



## 3. Grouping Data



#### 4. Database Migration

Steps for migrating data from an outside source to the Rockbuster data warehouse:

- 1. Data architect/engineer extract and validate data from the outside source and load it into a staging area.
- 2. Data engineer/analyst clean, map and transform data in staging area.
- 3. Data engineer/analyst load data from staging area to data warehouse and verify new data is added.