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3.4 Database Querying in SQL

1. **Refining Query**

```
Query  Query History
1 Select film_id, title
2 From film
```

Data Output | Messages | Notifications

	film_id [PK] integer	title character varying (255)
1	133	Chamber Italian
2	384	Grosse Wonderful
3	8	Airport Pollock
4	98	Bright Encounters
5	1	Academy Dinosaur
6	2	Ace Goldfinger
7	3	Adaptation Holes
8	4	Affair Prejudice
9	5	African Egg
10	6	Agent Truman
11	7	Airplane Sierra
12	9	Alabama Devil
13	10	Aladdin Calendar
14	11	Alamo Videotape
15	12	Alaska Phantom

2. **Cost Comparison**

Original Query

```
Query  Query History
1 Explain
2 Select *
3 From film
```

Data Output | Messages | Notifications

	QUERY PLAN text
1	Seq Scan on film (cost=0.00..98.00 rows=1000 width=38...

New Query

```
Query  Query History
1 Explain
2 Select film_id, title
3 From film
```

Data Output | Messages | Notifications

	QUERY PLAN text
1	Seq Scan on film (cost=0.00..98.00 rows=1000 width=1...

When examining the text that is given from the query, we see that there are 1000 rows. This is a large amount of data to be pulling from. If the query was reduced to less rows it will be more efficient.

3. Ordering the Data

Query | Query History

```
1  Select *
2  From film
3  Order by
4      title ASC,
5      release_year DESC,
6      rental_rate DESC
```

Data Output | Messages | Notifications

	film_id [PK] integer	title character varying (255)	description text
1	1	Academy Dinosaur	A Epic Drama of a Feminist And a Mad Scientist who must Battle a Teacher in The Canadian Rockies
2	2	Ace Goldfinger	A Astounding Epistle of a Database Administrator And a Explorer who must Find a Car in Ancient China
3	3	Adaptation Holes	A Astounding Reflection of a Lumberjack And a Car who must Sink a Lumberjack in A Baloon Factory
4	4	Affair Prejudice	A Fanciful Documentary of a Frisbee And a Lumberjack who must Chase a Monkey in A Shark Tank
5	5	African Egg	A Fast-Paced Documentary of a Pastry Chef And a Dentist who must Pursue a Forensic Psychologist in The Gulf of Mexico
6	6	Agent Truman	A Intrepid Panorama of a Robot And a Boy who must Escape a Sumo Wrestler in Ancient China
7	7	Airplane Sierra	A Touching Saga of a Hunter And a Butler who must Discover a Butler in A Jet Boat
8	8	Airport Pollock	A Epic Tale of a Moose And a Girl who must Confront a Monkey in Ancient India
9	9	Alabama Devil	A Thoughtful Panorama of a Database Administrator And a Mad Scientist who must Outgun a Mad Scientist in A Jet Boat
10	10	Aladdin Calendar	A Action-Packed Tale of a Man And a Lumberjack who must Reach a Feminist in Ancient China
11	11	Alamo Videotape	A Boring Epistle of a Butler And a Cat who must Fight a Pastry Chef in A MySQL Convention
12	12	Alaska Phantom	A Fanciful Saga of a Hunter And a Pastry Chef who must Vanquish a Boy in Australia
13	13	Ali Forever	A Action-Packed Drama of a Dentist And a Crocodile who must Battle a Feminist in The Canadian Rockies
14	14	Alice Fantasia	A Emotional Drama of a A Shark And a Database Administrator who must Vanquish a Pioneer in Soviet Georgia

4. Grouping Data

Average rental rates

Query | Query History

```
1  Select rating, AVG(rental_rate)
2  From film
3  Group By rating
```

Data Output | Messages | Notifications

	rating mpaa_rating	avg numeric
1	PG-13	3.0348430493273543
2	NC-17	2.9709523809523810
3	G	2.8888764044943820
4	PG	3.0518556701030928
5	R	2.9387179487179487

Minimum and maximum rental duration in each category

Query Query History

```
1 Select rating, Min(rental_duration), MAX(rental_duration)
2 From film
3 Group BY rating
```

Data Output Messages Notifications

	rating mpaa_rating	min smallint	max smallint
1	PG-13	3	7
2	NC-17	3	7
3	G	3	7
4	PG	3	7
5	R	3	7

Min is 3 and the max is 7

5. **Database Migration**
   - To successfully integrate and migrate user behavior data from external tool into Rock buster Android apps a structured approach involving multiple teams is essential. To make this work we will need data architects and business analysts to assess the data and plan out schemas. Data engineers are also key to design and test the necessary processes. Once validated the processes will be monitored and optimized by IT support to help manage data quality. Lastly documentation and training is needed to measure stakeholders can effectively utilize the new data insights.
   - Analyzing data without proper transformation and normalization can lead to inaccurate insights, affecting important business decisions. Skipping the checks and balances of a data warehouse increases risks like data corruption, duplication, or loss, compromising analysis reliability. Additionally, this approach can cause inefficiencies when processing large datasets and may lead to compliance and security issues, since data warehouses enforce strict protocols and measures.