🎥 Video Summary: Caching for Faster Data Visualizations

⚡ Why Speed Matters

- **Slow load times** can prevent timely decisions and impact business goals.
- **Caching** helps ensure fast, reliable access to data.

🧠 What Is Caching?

- Caching is the process of **temporarily storing data** so it can be accessed quickly.
- Frequently-used data is kept in **memory**, reducing the need to query the database repeatedly.

✅ Three Key Benefits of Caching

1. Reduces Traffic to the Data Source

- Cached results reduce the number of queries sent to the database.
- Example: A warehouse dashboard avoids repeated queries for inventory data.

2. Minimizes Load Time

- Data loads from memory instead of the database.
- Especially useful when working with **large datasets**.

3. Maintains Availability

- Cached data remains accessible even if:
    - The data source is temporarily unavailable.
    - The internet connection is unstable.

🛠️ Caching Policies

- Define **how long** cached data is stored and **when** it should be refreshed.
- Helps balance performance with data freshness.

⚠️ Considerations & Limitations

1. Stale Data Risk

- Cached data can become outdated.
- Set appropriate **expiration times** to keep data relevant.

2. Monitoring Required

- Ensure users access **up-to-date data**.
- Check that the cache is storing and deleting data correctly.

📌 Final Takeaway

Caching is a powerful tool for cloud data analysts to:

- Improve dashboard performance.
- Reduce database load.
- Ensure data availability.

But it must be **monitored and configured carefully** to avoid stale data and meet business needs.