Q. With respect to data stream querying, give example of

a) one time Queries

b)continues queries

c)predefined Queries

d)ad-hoc queries

ANSWER:

In data stream querying, different types of queries can be applied based on the needs of the analysis. Here are examples for each type:

a) One-time Queries

- **Definition**: Queries that are executed once to retrieve results based on the current state of the data stream.
- **Example**: A query to find the **maximum temperature** recorded over the past hour in a real-time temperature monitoring system. Once executed, this query returns the current result and does not continue running.

b) Continuous Queries

- **Definition**: Queries that run continuously and provide updated results as new data flows into the stream.
- **Example**: A **traffic monitoring system** that continuously calculates the average speed of vehicles on a highway. This query updates in real-time as new speed data is received, helping monitor traffic congestion.

c) Predefined Queries

- **Definition**: Queries that are specified in advance and commonly used for monitoring or analysis. These are usually set up as standard queries for frequent analysis needs.
- **Example**: A predefined query in a **stock trading platform** that tracks the top 10 most traded stocks every minute. This query is regularly used and standardized as part of the system's monitoring setup.

d) Ad-hoc Queries

- **Definition**: Queries that are created spontaneously based on a specific need or question, without prior setup.
- **Example**: In a **fraud detection system**, an analyst might issue an ad-hoc query to check for unusually large transactions within the last 10 minutes after an alert is triggered. This type of query is run on demand and is not part of the system's regular query setup.