1. What is Teradata?
2. What are features of Teradata?
3. What is architecture of Teradata?
4. How does Parsing Engine works?
5. What is the function of BYNET in Teradata architecture?
6. What are the types of spaces available in Teradata?
7. What is primary index and secondary index?
8. What is partition primary index?
9. What are types of tables in Teradata?
10. What is performance tuning and what are the ways to achieve it?

ways to achieve performance tuning:

1. **Identify Bottlenecks**:
   * Start by identifying the areas where performance is lagging. Common bottlenecks include slow queries, inefficient code, or resource limitations.
   * Use tools like **execution plans** to analyze query performance in databases. [Execution plans reveal how queries are processed and help identify areas for improvement1](https://www.geeksforgeeks.org/sql-performance-tuning/).
2. **Optimize Code**:
   * Efficient code is crucial for performance. Review your application code and look for opportunities to optimize it.
   * Consider techniques like **caching**, **minimizing loops**, and **reducing unnecessary computations**.
   * [Avoid premature optimization; optimize only when necessary](https://www.geeksforgeeks.org/sql-performance-tuning/)[2](https://stackify.com/java-performance-tuning/).
3. **Choose the Right Hardware**:
   * Ensure that your system runs on appropriate hardware. The right hardware can significantly impact performance.
   * Factors to consider include CPU speed, memory, storage, and network capabilities.
4. **Monitor System Resources**:
   * Regularly monitor system resources such as CPU usage, memory, disk I/O, and network traffic.
   * Use tools like **System Monitor** (on Windows) to evaluate performance. [Correlate resource usage with system behavior to identify patterns1](https://www.geeksforgeeks.org/sql-performance-tuning/).
5. **Test the System**:
   * Conduct performance tests to simulate real-world scenarios.
   * Use tools like **load testing** to assess how the system performs under stress or heavy load.
   * Measure response times, throughput, and resource utilization during testing.
6. What are data protection mechanisms in Teradata?
7. Explain how Cliques, fallback and RAID works in data protection mechanism?
8. What are the utilities of Teradata?

**BTEQ (Basic Teradata Query)**:

* 1. BTEQ, often known as Bee-Tek, is a **command-based application** that allows users to enter SQL statements.
  2. It supports **importing and exporting data row by row**.
  3. [Additionally, BTEQ can generate reports and return queried data to the screen, a file, or a printer](https://www.educba.com/teradata-utilities/)[1](https://www.educba.com/teradata-utilities/).

**FastLoad**:

* 1. FastLoad is a **high-speed utility** for loading large volumes of data into Teradata tables.
  2. It bypasses the **Transient Journal** to achieve faster loading.
  3. [Ideal for batch data loading scenarios](https://www.educba.com/teradata-utilities/)[2](https://www.dwhpro.com/teradata-load-utilities/).

**MultiLoad**:

* 1. MultiLoad is another data loading utility that **supports multiple operations** like INSERT, UPDATE, DELETE, and UPSERT.
  2. It also bypasses the Transient Journal for efficiency.
  3. [Suitable for both batch and real-time data loading](https://www.educba.com/teradata-utilities/)[2](https://www.dwhpro.com/teradata-load-utilities/).

**FastExport**:

* 1. FastExport is used for **exporting data** from Teradata tables.
  2. It provides high-speed data extraction and can export data to files or other destinations.

[Useful for creating data extracts for reporting or analysis](https://www.educba.com/teradata-utilities/)[3](https://www.javatpoint.com/teradata).

**TPT (Teradata Parallel Transporter)**:

* 1. TPT is a versatile utility that **replaces older utilities** like FastLoad, MultiLoad, and FastExport.
  2. It provides a unified interface for data loading, unloading, and transformation.
  3. [TPT is highly scalable and efficient](https://www.educba.com/teradata-utilities/)[3](https://www.javatpoint.com/teradata).

**Access Modules**:

* 1. Teradata utilities communicate with various data sources using **access modules**.
  2. These adapters allow reading from sources like flat files, departmental data marts, and more.
  3. [Access modules use standards-based interfaces to interact with different data formats1](https://www.educba.com/teradata-utilities/).

**TASM (Teradata Active System Management)**:

* 1. TASM is a set of tools for **analyzing, organizing, and controlling workloads** within the Teradata platform.
  2. [It helps manage complex production workloads, especially critical queries](https://www.educba.com/teradata-utilities/)[1](https://www.educba.com/teradata-utilities/).

1. Explain fastload, multiload and fastexport utility with their limitations?
   1. **FastLoad**:
      1. **Purpose**: FastLoad is primarily used to load data into **empty tables**. It is designed for speed and efficiency.
      2. **Limitations**:
         1. The target table should **not have secondary indexes**, **join indexes**, or **foreign key references**.
         2. It doesn’t support **inserts into already populated tables**.
         3. FastLoad **discards duplicate records** even if the target table is a **MULTISET table**.
      3. **How It Works**:
         1. FastLoad operates in two phases:
            1. **Acquisition Phase**: In this phase, data is rapidly transferred from the host computer to the Teradata system.
            2. **Application Phase**: After acquiring the data, FastLoad applies it to the target table. [It bypasses transient journals for faster loading1](https://stackoverflow.com/questions/59529810/how-to-use-import-utilities-like-fastload-or-mload-in-teradata-if-the-target-ta)[2](https://quickstarts.teradata.com/fastload.html).
   2. **MultiLoad**:
      1. **Purpose**: MultiLoad is a versatile utility that supports **multiple operations** (INSERT, UPDATE, DELETE, UPSERT).
      2. **Limitations**:
         1. **Unique Secondary Indexes (USIs)** are **not supported** on the target table.
         2. **Forced referential integrity** is impossible, but **soft referential integrity** can be used.
         3. The target table must **not have join or hash indexes**.
         4. **Triggers are not allowed** (though this is rare in a data warehouse).
         5. [**Non-Unique Secondary Indexes (NUSIs)** are permitted3](https://www.dwhpro.com/teradata-multiload/).
      3. **How It Works**:
         1. MultiLoad operates in **multiple phases**, including **acquisition**, **application**, and **cleanup**.
         2. [It’s suitable for both **batch and real-time data loading** scenarios1](https://stackoverflow.com/questions/59529810/how-to-use-import-utilities-like-fastload-or-mload-in-teradata-if-the-target-ta).
   3. **FastExport**:
      1. **Purpose**: FastExport is used for **exporting data** from Teradata tables.
      2. **Limitations**:
         1. Similar to FastLoad, it **doesn’t support secondary indexes** on the target table.
         2. However, it allows exporting data to files or other destinations.
2. Explain hashing algorithm in Teradata?
3. Define views in Teradata, what are the advantages of views?
4. What are macros in Teradata and how they are useful in Teradata?