============================PostgresSQL======================================

**What is the process of splitting a large table into smaller pieces called in PostgreSQL?**

It is called table partitioning.

**What is a partitioned table in PostgreSQL**?

The partitioned table is a logical structure. It is used to split a large table into smaller pieces, which are called partitions.

**What purpose does pgAdmin in the PostgreSQL server have**

The pgAdmin in PostgreSQL is a data administration tool. It serves the purpose of retrieving, developing, testing, and maintaining databases.

**How can you avoid unnecessary locking of a database**

We can use MVCC (Multi-version concurrency control) to avoid unnecessary locking of a database.

**What is PL/Python**

PL/Python is a procedural language to which PostgreSQL provides support

**What does a schema contain?**

A schema contains tables along with data types, views, indexes, operators, sequences, and functions.

**What are the different operators in PostgreSQL?**

The PostgreSQL operators include - Arithmetic operators, Comparison operators, Logical operators, and Bitwise operators.

**What are database callback functions called? What is its purpose?**

The database callback functions are called PostgreSQL Triggers. When a specified database event occurs, the PostgreSQL Triggers are performed or invoked automatically.

**What indexes are used?**

Indexes are used by the search engine to speed up data retrieval.

**What does a Cluster index do?**

Cluster index sorts table data rows based on their key values.

**What do you need to do to update statistics in PostgreSQL?**

To update statistics in PostgreSQL, we need to use a special function called a vacuum.

**What are the different properties of a transaction in PostgreSQL? Which acronym is used to refer to them?**

The properties of a transaction in PostgreSQL include Atomicity, Consistency, Isolation, and Durability. These are referred to by the acronym, namely ACID.

**Which are the commands used to control transactions in PostgreSQL?**

The commands used to control transactions in PostgreSQL are BEGIN TRANSACTION, COMMIT, and ROLLBACK.

**What are the main differences between SQL and PostgreSQL?**

* PostgreSQL is an advanced version of SQL. Some of the differences between these two include the following:
* Unlike SQL, views in PostgreSQL are not updatable.
* PostgreSQL supports dynamic actions whereas SQL doesn’t support them.

**How is security ensured in PostgreSQL?**

PostgreSQL uses SSL connections to encrypt client or server communications so that security will be

Ensured

**What is the function of the Atomicity property in PostgreSQL**?

Atomicity property ensures the successful completion of all the operations in a work unit.

**What is a non-clustered index?**

In a non-clustered index, the index rows order doesn’t match the order in actual data.

**What is the purpose of table space in PostgreSQL?**

It is a location in the disk. In this, PostgreSQL stores the data files, which contain indices and tables, etc.

**How can you avoid locking a database unnecessarily?**

We can use MVCC (Multi-version concurrency control) to avoid unnecessary locking of a database.

**What does a Cluster index do?**

A clustered index organizes the data rows in a table based on the order of the indexed columns. This means the rows with the same indexed values will be physically stored together on the storage media. This improves the performance of queries that involve those indexed columns, as the database engine can retrieve the relevant data faster.

**What do you understand about a base directory in PostgreSQL?**

In PostgreSQL, the base directory refers to the top-level directory where all data files for a specific database cluster are stored. This includes subdirectories for each database within the cluster, as well as files containing configuration settings and other metadata.

**What is the maximum size for a table in PostgreSQL?**

The size for a table in PostgreSQL is 32 terabytes.

**What is Multi-Version Concurrency Control in PostgreSQL? Why is it used?**

Multi-Version Concurrency Control (MVCC) is a technique used in PostgreSQL to allow multiple transactions to access the same data simultaneously without conflicting with each other. It is used by creating a separate version of a row for each transaction that modifies it.

**What is the key difference between multi-version and lock models?**

A multi-version model allows multiple versions of the same data to exist simultaneously, while a lock model only allows one version of the data to exist at a time, and locks the data while it is being edited.

**What is the difference between clustered index and non clustered index in PostgreSQL?**

A clustered index helps in determining the physical order of data in a table, while a non-clustered index provides a faster way to look up data without affecting the physical order of the table in PostgreSQL.

**What do you understand about parallel queries in PostgreSQL? How does it work?**

Parallel query in PostgreSQL is a feature that allows multiple parallel worker processes to work on a single query to improve performance and speed up query execution time by breaking down the query into smaller parts and processing them in parallel.

**Define a non-clustered index.**

In a non-clustered index, the order of the index rows differs from the physical order of the real data. The leaf pages of a non-clustered index instead contain pointers to the real data rather than the actual data itself. Its main advantage is that it provides faster access to data.

**What do you mean by a parallel query?**

Parallel query in PostgreSQL is an advanced feature. It allows the arrangement of query plans in such a way that they can exploit multiple CPUs. This helps in answering user queries in a much faster and quicker manner.

**Define Write-Ahead logging.**

Write-Ahead Logging is a technique used to ensure the data integrity of PostgreSQL databases. It helps in maintaining the resilience or the reliability of the database. Write-ahead logging is a method wherein any changes and actions in the database are logged in a transaction log prior to the updating or modification of the database. In case there is a database crash, this feature helps the in providing the log of the database changes. In addition, it also helps the user in resuming work from where it was discontinued, after the crash.

**What is the full form of GEQO?**

The full form of GEQO is Genetic Query Optimization. It enables non-exhaustive search to efficiently manage large join queries in PostgreSQL.

**How can you take the backup of a database?**

pg\_dump database\_name > filename.sql

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| **Clustered Index** | **Non-Clustered Index** |
| It is faster than the non-clustered index. | It is relatively slower as compared to the clustered index. |
| Index is considered the main data in the clustered index. | In the case of a non-clustered index, the index is the copy of data. |
| The clustered index has the ability to store data naturally on the disk. | The non-clustered index cannot naturally store data on the disk. |
| It requires lesser memory for operations as compared to the non-clustered index. | The non-clustered index requires more memory to perform operations. |
| A table can consist of only one clustered index. | A table can contain multiple non-clustered indexes. |