**Tableau Introduction-Assignment 2**

1. With the help of the databases of your choice, illustrate the data connection process with a SQL and a NOSQL database server in Tableau. Also, compare the pros and cons of using a SQL database server and a NOSQL database server.

Ans:

Connecting to a SQL Database Server:-

* Open Tableau and click on "Connect to Data".
* In the "Connect" pane, select the SQL Server option and enter the server name or IP address, and the database name.
* Click on "Sign In" and enter the login credentials for the database server.
* Once connected, select the tables or views that you want to use and drag them to the canvas.

Connecting to a NoSQL Database Server:-

* Open Tableau and click on "Connect to Data".
* In the "Connect" pane, select the NoSQL database option (e.g., MongoDB, Cassandra, etc.) and enter the server name or IP address, and the database name.
* Click on "Connect" and enter the login credentials for the database server (if required).
* Once connected, select the collections or tables that you want to use and drag them to the canvas.

Pros of using a SQL database server:-

* Mature technology: SQL databases have been around for a long time and have a well-established ecosystem of tools and support.
* Data consistency: SQL databases enforce data consistency and integrity through a rigid schema, which ensures that data is organized in a structured manner.
* ACID compliance: SQL databases are designed to be ACID-compliant, which means that they guarantee Atomicity, Consistency, Isolation, and Durability of data transactions.
* Ad-hoc queries: SQL databases support complex ad-hoc queries, which makes it easy to explore data in real-time.

Cons of using a SQL database server:-

* Scalability: Scaling SQL databases can be difficult, especially for large datasets, because they require a lot of hardware resources.
* Limited flexibility: SQL databases are not as flexible as NoSQL databases because they require a rigid schema to be defined in advance.
* Performance: SQL databases can be slower when dealing with large datasets or when executing complex queries.

Pros of using a NoSQL database server:-

* Scalability: NoSQL databases are designed to be highly scalable, making them a better choice for large-scale applications with high traffic.
* Flexibility: NoSQL databases are schema-less or have a flexible schema, which makes it easy to add or modify data fields on the fly.
* Performance: NoSQL databases are often faster than SQL databases when dealing with large datasets or when executing simple queries.
* High availability: NoSQL databases are often designed to be highly available, which means that they are resistant to failures and downtime.

Cons of using a NoSQL database server:

* Limited consistency: NoSQL databases do not enforce data consistency as rigidly as SQL databases, which can lead to data quality issues.
* Lack of ACID compliance: NoSQL databases are not always ACID-compliant, which can make it harder to ensure data integrity.
* Lack of ad-hoc queries: NoSQL databases do not support complex ad-hoc queries as well as SQL databases, making it harder to explore data in real-time.

1. Connect with SQL database server of your choice, establish a connection with a dummy database “Employee” containing employee information (employee name, employee id, employee salary, employee department, employee years of experience) in a company. Write an SQL statement using tableau’s custom SQL feature to retrieve the employee id and employee salary in your tableau dashboard.

Ans: Steps:

* Open Tableau and click on "Connect to Data".
* In the "Connect" pane, select "Microsoft SQL Server" (or the appropriate SQL database server) and enter the server name, database name, and login credentials.
* Click on "Connect" and select "Table" as the connection type.
* Select the "Employee\_info" table and drag it to the canvas.
* Click on the "New Custom SQL" option in the bottom left corner of the canvas.
* In the "Custom SQL" dialog box, enter the following SQL statement to retrieve the employee id and salary:
* SELECT employee\_id, employee\_salary FROM Employee\_info;
* Click on "OK" to close the dialog box.
* Click on the "Update Now" button to refresh the data on the canvas.
* You can now use the employee id and salary data in your Tableau dashboard.

1. Imagine you are tasked with maintaining year-wise data of new students that join a certain college. Create three separate excel tables containing data of students for three consecutive years, one for each year and store it in a common database. Using the features available in the data source page of Tableau, join these tables with the same headers and create a single table.

Ans:

<https://public.tableau.com/views/Assignment-2_3_16786680206370/Sheet1?:language=en-US&:display_count=n&:origin=viz_share_link>

1. Using the “PowerStore\_USA'' dataset, filter and display those products which satisfy the condition wherein the number of quantities ordered is more than the total average quantity ordered.

Ans:

<https://public.tableau.com/views/Assignment-2_4and2_5/Assignment-4_5?:language=en-US&:display_count=n&:origin=viz_share_link>

1. With respect to the “PowerStore\_USA'' dataset, apply a filter to your data such that only those values where the “Product-Category” starts with the letter “O” get displayed.

Ans: <https://public.tableau.com/views/Assignment-2_4and2_5/Assignment-4_5?:language=en-US&:display_count=n&:origin=viz_share_link>