Dimensionality Reduction Autoencoders

Here are clear and concise answers to each of your Tableau-related questions:

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1. What is Tableau?

Tableau is a powerful data visualization and business intelligence tool used to convert raw data into interactive and understandable visual formats like dashboards, graphs, and charts. It helps in quick analysis, visualization, and sharing of insights.

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2. Why choose Tableau when Excel is available?

While **Excel** is great for spreadsheets and basic visualizations, **Tableau** offers:

- Advanced, **interactive visualizations**
- Ability to handle **large datasets** more efficiently
- **Live connections** to various data sources
- Built-in **geographic mapping**
- Easier **dashboard creation**
- Faster insights with **drag-and-drop interface**

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3. What is Semi-Structured Data?

Semi-structured data is data that does not follow a strict tabular structure like relational databases but still contains tags or markers to separate elements (e.g., JSON, XML, NoSQL databases).

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4. List Aggregation Methods in Tableau:

- SUM()

- AVG()
- MIN()
- MAX()
- COUNT()
- COUNTD() (Count Distinct)
- MEDIAN()
- STDEV() / STDEVP()
- VAR() / VARP()

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5. What is a Dashboard?

A **dashboard** in Tableau is a collection of multiple visualizations (charts, maps, tables) combined on a single screen to provide a consolidated view of data for analysis and decision-making.

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6. What is an Interactive Plot?

An **interactive plot** allows users to interact with the visualization, such as filtering, zooming, selecting data points, and highlighting, to explore data dynamically.

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7. Which information is used to show heatmaps?

Heatmaps use:

- **Measures** (numerical values) for intensity (color)
- **Dimensions** (categories) to define rows and columns

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8. Example of Time Series Data:

Stock prices recorded daily:

```sql
Date       | Price
-----------|-------
2025-05-01 | 150.25
2025-05-02 | 153.80
```

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9. What is Hierarchical Data?

Hierarchical data is structured in a parent-child relationship, like:

- Country → State → City
- Category → Subcategory → Product

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10. What is Topographical Data?

Topographical data includes spatial features like elevation, terrain, and coordinates. It's often used in **maps** to show geographical locations and physical landscapes.

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11. What is Box Plot?

A **box plot** (box-and-whisker plot) displays the distribution of data based on:

- Minimum
- First Quartile (Q1)
- Median (Q2)
- Third Quartile (Q3)
- Maximum
  It shows **outliers** and **data spread**.

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12. Different Datatypes in Tableau:

- **String**
- **Number (whole, decimal)**
- **Boolean**
- **Date**
- **DateTime**
- **Geographic (e.g., Country, State)**
- **Cluster Groups**

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13. Different File Extensions Used in Tableau:

- `.twb` – Tableau Workbook (XML format)
- `.twbx` – Packaged Workbook (includes data)
- `.tds` – Tableau Data Source
- `.tdsx` – Packaged Data Source
- `.tde` – Tableau Data Extract (legacy)
- `.hyper` – Tableau Hyper Extract (modern)

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14. Data Sources You Can Connect to in Tableau:

- Excel, CSV
- SQL, Oracle, MySQL, PostgreSQL
- Google Sheets, BigQuery
- Amazon Redshift
- Salesforce
- Cloud data sources (Snowflake, Azure, etc.)
- Web data connectors

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15. Kinds of Connections in Tableau:

- **Live connection** – Real-time updates from the source
- **Extract connection** – Data is copied and stored locally in Tableau for faster performance

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16. Types of Joins in Tableau:

- **Inner Join**
- **Left Join**
- **Right Join**
- **Full Outer Join**

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17. Difference Between Joining and Blending:

- **Joining** is done on the **same data source** using common fields.
- **Blending** combines data from **different sources** using a **primary-secondary** relationship and linking fields.

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18. Data Aggregation Functions in Tableau:

- SUM()
- AVG()
- COUNT()
- COUNTD()
- MIN()
- MAX()
- MEDIAN()
- STDEV()
- VAR()

19. Types of Charts in Tableau:

- Bar chart
- Line chart
- Pie chart
- Area chart
- Scatter plot
- Heatmap
- TreeMap
- Histogram
- Box Plot
- Gantt chart
- Bullet chart
- Geographic map
- Packed bubbles

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20. How to Concatenate Two Strings in Tableau:

Use the `+` operator or `STR()` function:

```tableau
[First Name] + " " + [Last Name]
```

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21. Difference Between COUNT and COUNTD in Tableau:

- `COUNT()` counts **all** values including duplicates.
- `COUNTD()` counts **distinct** (unique) values only.

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22. Different Tableau Products:

- **Tableau Desktop** – Authoring and visualization
- **Tableau Public** – Free version for public sharing
- **Tableau Online** – Cloud-based sharing and collaboration
- **Tableau Server** – Enterprise sharing and management
- **Tableau Prep** – Data cleaning and preparation

Let me know if you want a **PDF version**, **quiz**, or **interview tips** based on these!