**1. Compare and contrast tableau and power BI**

a) Performance -When it comes to scalability, both Power BI and Tableau offer robust options, but they differ in certain aspects.

Tableau has the ability to handle large data-sets well and can offer good performance with complex visualizations.

Power BI on the other hand, can struggle with extremely large data unless it is properly configured.

B) Price/Cost – Both tools require a fee. An organizations choice will depend on the specific needs, budget, and existing technology of the organization.

Tableau for instance, requires licensing costs that can be a barrier for smaller organizations whereas power bi is more budget friendly, especially for organizations already using Microsoft products. It offers a free version with limited offers and a subscription model for more advanced features.

c) Connectivity - Power BI and Tableau can connect to various data sources, including databases, spreadsheets, and cloud services, allowing users to import and analyze data from multiple platforms.

Tableau supports a wide range of data sources including databases and spreadsheets.

Power bi also provides data sources particularly those within Microsoft what sets it apart is the fact that it provides an option for real-time data connectivity.

d) Power BI and Tableau both offer a variety of visualization options, but they differ in some key aspects regarding the types and customization of visualizations available.

**Tableau** is preferred for more complex and visually rich presentations, offering advanced visualization options and greater customization capabilities

**Power bi** excels in ease of use and integration with Microsoft tools, making it suitable for users who need quick, standard visualizations.

e) **Collaboration** - Both platforms support collaboration, enabling teams to share reports and dashboards easily, though the specifics of sharing capabilities may vary.

Tableau allows sharing of reports through both tableau online and tableau server. Both platforms allow users to publish and share visualizations easily.

Power bi integrates well with Microsoft teams making it easier for users to share insights and collaborate on reports.

**2. Distinguish between Excel and Python Power BI**

1. Data Handling- Excel can be restrictive for large datasets since it offers basic data manipulation and features such as pivot tables and formulas. Python power bi can handle much larger datasets for advanced data manipulation, cleaning and analysis.
2. Visualizations- Excel is good for quick visualizations but can be limited to complex ones. Python power bi supports more complex visuals which can be tailored to fit specific needs.
3. Presentation of data- Excel only offers an option to present and share already saved data, whereas python power bi allows users to create and present insights with colleagues in real time.
4. Costs- Excel is known to be one of the cheapest options as it’s a standard product, for python power bi, it is possible to get a free version but it does have some limitations. However, the paid version offers more features.
5. Ease of use- Excel is generally familiar to a majority of users hence easier to use, even to people with no background in programming. Power bi requires a background or knowledge hence it requires more effort to learn and navigate.

**3. State and explain types of databases**

A database is an organized collection of information or data stored in a computer system.

1. Relational Database

This is data stored in tables, rows and columns. Each table can be related to the other through foreign keys. For example, MySQL and Oracle.

1. Object Oriented Database

An object-oriented database (OODB) is a type of database that stores and presents data in the form of objects and supports complex data types. Often used when you have a large amount of complex data you want to process quickly. Example, Object DB.

1. Network Databases

It represents data using nodes and edges to establish complex relationships between entities. Network databases provide a flexible and efficient way to represent complex relationships among data entities, making them suitable for applications. Example, Integrated Data Store (IDS)

1. Cloud Database

The data is stored on a local hard drive or server, but the information is available online. This setup makes it easy to access your files from anywhere, as long as you have an internet connection.

1. No SQL Database

Designed to handle unstructured or semi-structured data. It provides flexibility in data modeling and can scale horizontally. This lack of structure allows them to process larger amounts of data quickly and makes it easier to expand in the future.

1. Centralized Database

Is a type of database that stores data in a centralized database system and can be accessed by multiple users over a network.

1. Hierarchical Database

A hierarchical database is a data model in which data is stored in the form of records and organized into a tree-like structure, or parent-child structure, in which one parent node can have many child nodes connected through links.

**4, Highlight Considerations That Would Inform Your Choice For Data Analysis Tool**

1. Scalability - Evaluate whether the tool in question can handle the volume, velocity and variety of data.
2. Ease of use - Look for a user-friendly interface that matches your skill level. Consider how well or fast the tool can be proficient among users.
3. Cost - Determine your budget for the tool putting into consideration things like ; licensing, subscription and maintenance costs associated with the tool.
4. Collaboration Features - If multiple users need to access the tool simultaneously, ensure it supports collaboration features.
5. Support and Community - Consider the availability of customer support if need arises.
6. Security and Compliance - Ensure the tool you are choosing provides security measures for your data.
7. Performance and Speed - Evaluate how quickly the tool can process and analyze data, especially with large datasets.