**Introduction**

* **Project Overview**:
  + **Product Information**: Comprehensive view of product-related data within the AdventureWorks2019 database.
* **Stakeholders**:
  + **Instructor**: Ahmed Alaa.
* **Scope**:
  + Analysis of product-related data, focusing on attributes such as product lines, colors, costs, and durations.

**Data Requirements**

* **Data Sources**:
  + AdventureWorks2019.Production.Product
* **Data Volume**:
  + **Total Rows**: 504

**Data Preparation**

* **Data Cleaning**:
  + Performed in Power Query to ensure data quality and integrity.
* **Data Transformation**:
  + Replaced null values with meaningful defaults.
  + Added a "Duration" column to identify the operational status of products and compute the duration for discontinued items.

**Analysis and Design**

* **Business Questions**:
  1. What is the total number of products in each product line?
  2. What is the total number of products in each color?
  3. What is the total number of products in each product line based on work duration?
  4. What is the relationship between Standard Cost and List Price?
* **KPIs and Metrics**:
  1. **Profit Margin Analysis**: Comparison of average Standard Cost vs. List Price.
  2. **Distribution Metrics**: Analysis of products by Product Line and Color.
* **Visualization Plan**:
  1. Create pivot tables for individual charts.
  2. Combine charts into a unified dashboard with two slicers: **Class** and **Year**.

**Implementation**

* **Visualizations**:
  1. Total products by Product Line.
  2. Total products by Color.
  3. Total products by Product Line based on work duration.
  4. Relationship between Standard Cost and List Price.
  5. Interactive slicers for Class and Year.

**Insights**

1. The highest number of products is in the "Unknown" product line (45%), followed by "R" (20%) and "M" (18%).
2. The "Unknown" product line has the most open-for-sale products (220), followed by "M" (59) and "R" (55).
3. A positive relationship exists between Standard Cost and List Price, indicating consistency in pricing strategy.
4. Most products are recorded under the "Unknown" color (248), followed by Black (93) and Silver (43).

**Appendices**

* **Glossary**:
  + **Standard Cost**: The fixed cost associated with producing a product.
  + **List Price**: The suggested retail price of the product.