MANUFACTURING LINE PRODUCTIVITY

INTRODUCTION

The datasets provide a comprehensive view of manufacturing operations, enabling analysis of production efficiency, operator performance, batch processing times, and error factors affecting production.

DATASETS AVAILABLE

We have three key datasets to work with:

Factors - Error factors and operator attribution

Manufacturing Line Productivity - Production data with timestamps, batches, and operators

Product - Product specifications including minimum batch times

WEEK 1:DATA CLEANING AND PREPROCESSING

TASKS:

- Clean and preprocess the data using Power BI.
- Tools: Power BI.

DELIVERABLES:

- Cleaned dataset ready for analysis.
- Data preprocessing notebook.

DONE BY:

- Zeinab
- Hassan

WEEK 2: ANALYSIS QUESTIONS PHASE

TASKS:

- Determine all possible analysis questions that can be deducted from the given dataset and would be of interest to the organization's decision-makers.
- Tools: Power BI.

DELIVERABLES:

Set of analysis questions that can be answered via the dataset.

DONE BY:

Hassan

Zeinab

LINE PRODUCTIVITY

- How much time is spent on each product per batch?
- Who is the most productive operator (based on the total production time or the number of batches it has made)?
- What is the total production time on a given day?
- Which products are produced faster (based on average batch time)?

PRODUCTS

- What flavors are most produced?
- What size package requires the least production time?
- What are the least influential flavors on the production line downtime?

DOWNTIME FACTORS

- What are the most common reasons for downtime?
- What is the total time caused by each stop factor?
- Do operator errors cause larger stops than other errors?
- What batch had the longest downtime? And what is the reason?
- What is the total downtime per day?
- How many batches have no downtime?

WEEK 3: DASHBOARD PHASE

TASKS:

- Build a Power BI dashboard that visualizes the answers to the asked questions.
- Tools: Power BI.

DELIVERABLES:

Power BI dashboard.

DONE BY:

Hassan

Zeinab

WEEK 4: PRESENTATION

TASKS:

Prepare a report and presentation summarizing the project work, including data analysis, model development, and deployment.

DELIVERABLES:

Final report and presentation.

DONE BY:

Hassan

Zeinab