

Building Management System (BMS) Analytics Challenge!



Problem Statement

In this challenge, your task is to perform a thorough **exploratory data analysis (EDA)** and develop a **fully interactive visual dashboard** using “**google data studio (looker's studio)**” to visualize key insights from the given dataset.

The dataset contains records related to building maintenance and operations, including details about facilities, equipment, maintenance tasks, technicians, and timestamps. Your goal is to **analyse trends, identify patterns, and uncover insights** that can help in optimizing building maintenance operations. Additionally, you can apply **clustering techniques** for data segmentation and conduct **time series analysis** to identify trends and forecast maintenance needs.

Dataset

👉 Download the dataset using the link below:
https://drive.google.com/file/d/1BFdIEhi_tUmh3FiPWfbu6jB8-iUc3c4E/view?usp=sharing

Dataset Column Descriptions

The dataset consists of multiple fields capturing critical maintenance-related information:

- **Task_ID** – Unique identifier for each maintenance task.
- **Equipment_Code** – Code representing the equipment being serviced.

- **Facility_Name** – Name of the facility where maintenance is performed.
 - **System_Class** – Type or classification of the system/equipment.
 - **Service_Tag** – Identifier for the service order related to the task.
 - **Error_Code** – Fault/error code recorded during maintenance.
 - **Inspection_Type** – Indicates the type of inspection conducted.
 - **Maintenance_Type** – Specifies whether the task is preventive or corrective.
 - **Project_Stage** – The stage of the maintenance project (e.g., scheduled, ongoing, completed).
 - **Work_Order** – The reference number for the work order associated with the task.
 - **Urgency_Level** – Priority level assigned to the task (e.g., low, medium, high).
 - **Site_Reference** – Identifier for the specific site location.
 - **Planner_ID** – ID of the person responsible for planning the maintenance.
 - **Work_Hours** – The number of hours spent on the task.
 - **Task_Category** – Category/classification of the maintenance task.
 - **Technician** – The technician assigned to complete the maintenance.
 - **Technician_Role** – Role of the technician (e.g., senior engineer, junior technician).
 - **Task_Description** – A brief description of the maintenance task.
 - **Job_Status** – Current status of the job (e.g., pending, in progress, completed).
 - **Completion_Time** – Timestamp when the task was completed.
 - **Request_Time** – Timestamp when the task was requested.
 - **Start_Time** – Timestamp when the task was started.
 - **System_Timestamp** – System-generated timestamp recording the event.
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Your Task

1. **Data Cleaning and Preprocessing**
 2. **Exploratory Data Analysis (EDA)**
 3. **Clustering Analysis (if applicable)**
 4. **Time Series Analysis (if applicable)**
 5. **Any other possible predictive modelling (if possible)**
 6. **Build an Interactive Dashboard on looker's studio, publish the Dashboard (make it public).**
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Submission Guidelines

📌 Submit the following:

1. **Link to dashboard: make sure the dashboard is published and is public**
2. **EDA Report (Jupyter Notebook or .ipynb file)** with:
 - Data preprocessing and cleaning steps
 - Clear step by step EDA and visualizations
 - Predictive modelling (if performed).

Fill the below form for submission: (you can only fill the form once)

Submission Form: <https://forms.gle/YDmv2fkkCH91wtWi6>

Evaluation Criteria

Criteria	Weightage
Data Cleaning & Preprocessing	20%
Exploratory Data Analysis (EDA)	40%
Predictive Modelling	10%
Dashboard Design & Interactivity (Power BI)	30%

⚡ **Think like a data analyst!** Your insights and visualization quality are just as important as technical accuracy. Make it **intuitive, interactive, and insightful!**...