Manufacturing Downtime Study

Curriculum Final Project

Team: Golden Ratio

Deliverable: Power BI dashboard (PBIX) with KPI tiles and recommendations.

Golden Ratio

Process Flow

1. Data Cleaning (Completed)

Clean dataset prepared for analysis and validated for duplicates, missing values, and format consistency. Includes basic profiling and a short data-quality summary for stakeholders.

2. Dashboard Creation

Build dashboard focused on downtime KPIs: total downtime, MTTR, MTBF, availability, top reasons (Pareto), and machine/shift drilldowns. Provide clear filters and navigation for users.

3. Insights & Recommendations

Identify root causes using Pareto and trend analysis. Propose practical fixes, prioritize quick wins, and prepare concise handover notes for implementation.

Deliverable: Dashboard Structure

PBIX with KPI tiles and pages: Overview, Reasons (Pareto), Machine Drilldown, Recommendations

Overview (KPIs)

Key visuals & slicers

Downtime Reasons

Key visuals & slicers

Machine Drilldown

Key visuals & slicers

Recommendations

Key visuals & slicers

Key Performance Indicators

- **Total Downtime (hours)**
  Sum of downtime durations.

- **Number of Stops**
  Count of distinct downtime events.

- **Mean Time to Repair (MTTR)**
  Average repair duration per stop.

- **Mean Time Between Failures (MTBF)**
  Average operational time between failures.

- **Availability (%)**
  Planned time minus downtime divided by planned time.

- **Top Reasons (Pareto)**
  Concentrate on top causes accounting for majority of downtime.

- **Downtime by Machine/Shift**
  Identify worst-performing assets or shifts.

Project Timeline (4 Weeks)

Weekly focus areas (stacked view to ensure full labels)