DELOITTE AUSTRALIA – DATA ANALYTICS JOB SIMULATION

Project Report

1. Introduction

This project was completed as part of the Deloitte Australia Data Analytics Virtual Experience Program. The purpose of this engagement was to analyze operational telemetry data and workforce equality data in order to identify performance bottlenecks, reliability issues, and potential pay equity risks using data analytics and visualization techniques.

The project simulates real-world consulting work by transforming raw datasets into actionable business insights for operational and HR stakeholders.

2. Business Objectives

• Identify factories experiencing the highest levels of machine downtime

• Determine device types contributing most to downtime

• Develop interactive dashboards for root-cause analysis

• Classify equality scores to detect potential discrimination patterns

2. Dataset Overview

Two datasets were provided:

Telemetry Dataset (JSON) - Tableau

- Factory
- Device Type
- Machine Status
- Timestamp

Equality Dataset (Excel)

- Factory
- Job Role

- Equality Score (equality score values ranging from -100 to +100.)

4. Tools Used

- Tableau
- Microsoft Excel
- JSON Data Format

5. Data Preparation and Transformation

Telemetry Data:

- Imported semi-structured JSON data into Tableau
- Flattened schema and selected relevant fields
- Created calculated field:

  Unhealthy = IF Status = "Unhealthy" THEN 10 ELSE 0
- Interpreted each unhealthy record as 10 minutes of downtime

Equality Data:

- Added derived column "Equality Class"
- Applied nested IF logic to categorize scores into:
  - Fair (+-10)
  - Unfair (<-10 AND >10)
  - Highly Discriminative (<-20 AND >20)

6. Visualizations Developed

- Downtime by Factory – Bar Chart
- Downtime by Device Type – Bar Chart
- Interactive Dashboard with Factory Filter
- Equality Classification Table (Excel)

7. Key Insights

• A single factory accounts for a disproportionately high share of downtime

• Specific device categories are primary contributors to machine failures

• Several job roles exhibit equality scores outside acceptable thresholds

• Classification enables rapid identification of high-risk areas

8. Business Impact

• Supports prioritization of maintenance resources

• Enables proactive equipment management

• Assists HR teams in identifying potential pay equity concerns

• Improves transparency and data-driven decision-making

9. Conclusion

This project demonstrates the application of data analytics to operational reliability and workforce fairness. By combining visualization, calculated metrics, and business logic, the solution delivers clear, actionable insights aligned with enterprise decision-making.