Low-Level Design (LLD) Document

1. INTRODUCTION

Project Name: HR Analytics - Absenteeism

2. SYSTEM OVERVIEW

Purpose: To analyse employee absenteeism patterns and provide insights into workforce demographics and attendance.

Scope: This document covers the design of the HR analytics dashboard, including data sources, data processing, and visualization components.

3. ARCHITECTURE DESIGN

Data Source: Excel dataset containing employee details.

Data Processing: Power BI for data transformation and modelling.

Visualization: Power BI dashboard with various charts and tables.

4. Detailed Design

Data Source:

Excel Columns:

Employee ID

Name

Gender

City

Job Title

Department Name

Store Location

Age

Length Service

Absent Hours

DATA PROCESSING:

Data Cleaning: Remove duplicates, handle missing values, and standardize data formats.

Data Transformation: Calculate additional metrics such as average absenteeism, total employees, and departmental absenteeism rates.

VISUALIZATIONS:

Total Employees: Card visualization showing the total number of employees.

Average Age: Card visualization showing the average age of employees.

Average Length of Service: Card visualization showing the average length of service.

Average Absent Hours: Card visualization showing the average absent hours.

Max Absent Hours: Card visualization showing the maximum absent hours.

Number of Employees by City: Bar chart showing the distribution of employees across different cities.

Length of Service by Department and Gender: Bar chart showing the length of service categorized by department and gender.

Average Absent Hours by Job Title: Bar chart showing the average absent hours for different job titles.

Departmental Absenteeism Rates: Pie chart showing the absenteeism rates for different departments.

5. PSEUDOCODE

Data Cleaning:

FOR each row in dataset

IF row contains missing values

HANDLE missing values (e.g., fill with average, remove row)

END IF

IF row is duplicate.

REMOVE duplicate row

END IF

END FOR

DATA TRANSFORMATION:

total_employees = COUNT(EmployeeID)

average_age = AVERAGE(Age)

average_length_service = AVERAGE(LengthService)

average_absent_hours = AVERAGE(AbsentHours)

max_absent_hours = MAX(AbsentHours)

6. INTERFACE DESIGN

User Interface: Power BI dashboard with interactive visualizations and filters for exploring data.

API Interfaces: Not applicable for this project.

7. ERROR HANDLING

Data Validation: Ensure data integrity by validating input data types and ranges.

Exception Handling: Handle errors during data processing and visualization gracefully.

8. SECURITY CONSIDERATIONS

Data Privacy: Ensure that sensitive employee information is anonymized or protected.

Access Control: Restrict access to the dashboard to authorized users only.

9. ASSUMPTIONS AND DEPENDENCIES

Assumptions: The dataset is accurate and up-to-date.

Dependencies: Power BI for data processing and visualization.

10. GLOSSARY

Employee ID: Unique identifier for each employee.

Length Service: Number of years an employee has been with the company.

Absent Hours: Total hours an employee has been absent.