Project Name: Human Resources Dataset Analysis

YAT402A_CAI2_DAT2_G8_DEPI2/Group 4

Team Members

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Project Planning & Management for HR Project

1. Project Proposal

Project Title:
Human Resources Dataset Analysis Using Power BI

Overview:
This project aims to analyze HR datasets to extract valuable insights that help organizations enhance employee satisfaction, retention, and overall HR decision-making. By leveraging Power BI, the project will transform raw HR data into actionable information **through data cleaning, analysis, and visualization. The findings will support HR professionals in understanding key workforce trends, such as employee turnover, satisfaction levels, and performance metrics**.

Objectives:

- **Data Preparation:** Clean and preprocess HR datasets to ensure accuracy and completeness.

- **Analysis Questions Development:** Identify key HR-related analytical questions that can provide meaningful insights for decision-makers.

- **Dashboard Development:** Build an interactive Power BI dashboard that visually represents HR data insights.

- **Final Presentation:** Summarize findings in a structured report and presentation format for stakeholders.

Scope of Work:

This project focuses on structured HR data analysis using Power BI and includes:

- Data collection, cleaning, and preprocessing.

- Identifying relevant HR metrics such as employee retention, satisfaction, and productivity.

- Developing a visual dashboard to present key insights.

- Delivering a final presentation with recommendations based on the analysis.

Out of Scope:

- Real-time HR data monitoring.

- Direct employee feedback collection or survey design.

- Integration with external HR management systems.

Main Questions for Designing the HR Dashboard Using Power BI

To develop an effective Power BI dashboard for HR analysis, we must define key questions that address workforce trends, employee satisfaction, retention, and overall HR decision-making. Here are the main questions:

1. **Overall Attrition Rate and Distribution:**

   - **What is the overall attrition rate in the company, and how does it vary across different departments and age groups?**

2. **Impact of Job-Related Factors on Attrition:**

   - **How do job satisfaction, work-life balance, and years of employment affect attrition rates?**

3. **Employee Distribution by Influencing Factors:**

   - **How are employees distributed by job satisfaction level, work-life balance, and education field, and does this affect on attrition?**

4. **Workforce Analysis:**

   - **What is the difference between active and resigned employees in terms of years of employment, and how are they distributed by education field?**

5. **Averages of Satisfaction and Balance:**

   - **What are the average job satisfaction and work-life balance in the company?**

6-Analyzing Attrition Across Generations

   - **How do attrition rates vary across different generations ,and what are the influencing factors) income ,job satisfaction , age ,years in role ,gender?**

Main Stakeholders

The key stakeholders who will use the dashboard include:

✓ **HR Executives & Managers**

- **Monitor workforce trends and performance.**

- **Assess employee satisfaction and retention.**

- **Make strategic HR decisions based on data insights.**

✓ **Recruitment & Talent Acquisition Teams**

- **Track hiring efficiency and recruitment sources.**

- **Optimize the hiring process based on time-to-fill and cost-per-hire metrics.**

✓ **Department Heads & Team Leaders**

- **Analyze team performance and productivity trends.**

- **Manage workforce planning and staffing needs.**

✓ **Finance & Compensation Teams**

- **Monitor salary distribution, pay equity, and benefits utilization.**

- **Align compensation strategies with organizational goals.**

✓ **Learning & Development (L&D) Teams**

- **Track employee training participation and skills development.**

- **Evaluate the effectiveness of training programs.**

✓ **Senior Management & C-Level Executives**

- **Use HR analytics for strategic workforce planning.**

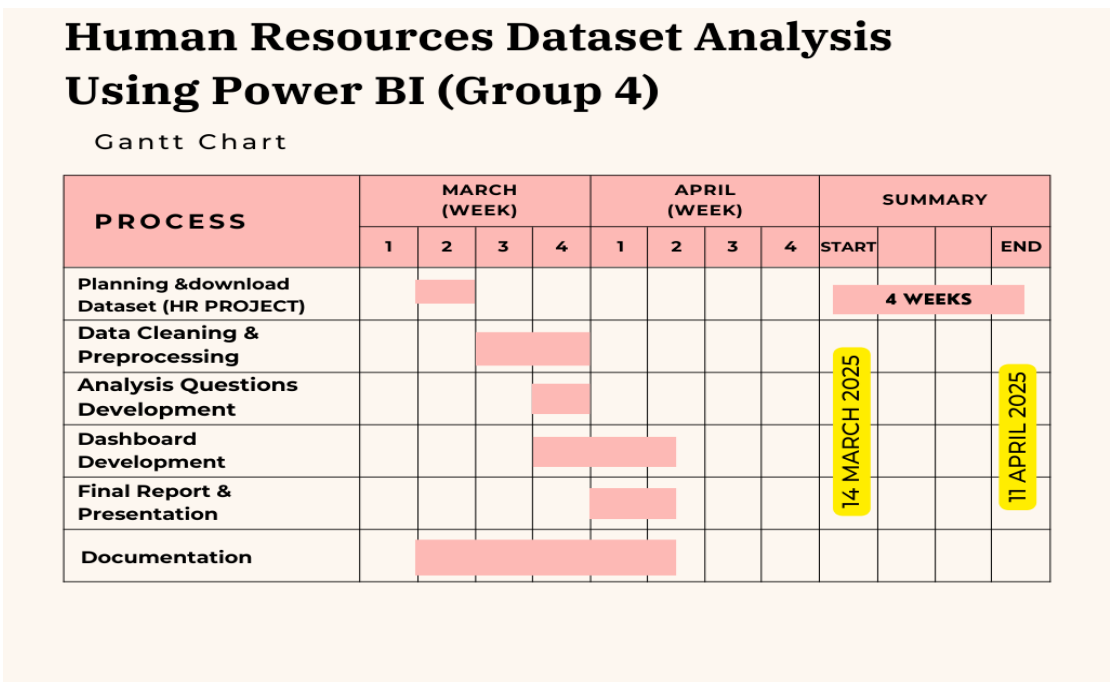- **Align HR policies with overall business goals.**

2. Project Plan

Project Duration: 4 weeks
Project start time: 14 MARCH, 2025
The project will be executed over four weeks, divided into structured phases to ensure timely completion.

Project Phases & Timeline (Gantt Chart):

Human Resources Dataset Analysis Using Power BI (Group 4)
Gantt Chart

PROCESS	MARCH (WEEK)				APRIL (WEEK)				SUMMARY			
	1	2	3	4	1	2	3	4	START			END
Planning &download Dataset (HR PROJECT)		�pink							4 WEEKS			
Data Cleaning & Preprocessing			�						14 MARCH 2025		11 APRIL 2025	
Analysis Questions Development			�									
Dashboard Development				�								
Final Report & Presentation					�							
Documentation		�										

Phase	Tasks	Duration
Week 1: Data Cleaning & Preprocessing	- Gather HR datasets. - Clean and preprocess data using Power BI. - Handle missing values and outliers. - Ensure dataset readiness for analysis.	1 Week
Week 2: Analysis Questions Development	- Identify key HR-related questions (e.g., employee retention factors, satisfaction levels). - Develop hypotheses for workforce trends. - Document analysis questions and expected insights.	1 Week

Phase	Tasks	Duration
Week 3: Dashboard Development	- Build an interactive Power BI dashboard. - Visualize key HR insights- Ensure dashboard usability and accuracy.	1 Week
Week 4: Final Report & Presentation	- Compile findings into a structured report. - Create a PowerPoint presentation summarizing insights. - Conduct a project review before submission.	1 Week

3. Task Assignment & Roles

Each team member has a designated role to ensure efficiency in project execution.

Role	Responsibilities	Assigned Person
Project Manager	Oversee project timeline, manage risks, and ensure milestone completion.	Waleed Ameen
Data Analyst	Perform data cleaning and preprocessing to ensure dataset reliability.	
Business Analyst	Identify key HR-related questions and develop hypotheses.	
Dashboard Developer	Create a Power BI dashboard for data visualization.	Waleed Ameen
Report Writer	Document findings and prepare the final presentation.	Waleed Ameen

4. Risk Assessment & Mitigation Plan

To ensure project success, potential risks have been identified along with mitigation strategies.

Risk	Impact	Mitigation Strategy
Incomplete or Inconsistent Data	Could affect analysis accuracy.	Implement thorough data cleaning and preprocessing in Week 1.
Power BI Dashboard Complexity	May delay project progress if issues arise.	Conduct initial testing and debugging before finalizing the dashboard.
Time Constraints	Risk of missing project deadlines.	Follow the structured Gantt chart schedule and conduct weekly reviews.
Technical Issues with Power BI	Dashboard may not function as expected.	Provide alternative visualization tools if required.
Stakeholder Feedback Delays	Could impact final report submission.	Schedule feedback sessions in advance to ensure timely adjustments.

5. Key Performance Indicators (KPIs)

The project's success will be evaluated using the following KPIs:

KPI	Measurement	Target
Data Processing Efficiency	Percentage of missing values handled correctly.	100% clean dataset.
Dashboard Usability	Number of key insights visualized effectively.	At least 5 major HR insights.
Stakeholder Satisfaction	Feedback score from reviewers.	80% positive response.
Presentation Clarity	Completeness of report and presentation.	Well-structured and comprehensive final submission.

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6- User Stories & Use Cases for HR Dashboard

User Stories

As a Senior Manager:

- **I want to see attrition rates by generation and department, with analysis of influencing factors like income, job satisfaction, and years of employment, to make strategic decisions to reduce attrition.**

- **I want an analysis of average income and job satisfaction across generations and departments, to identify any disparities affecting attrition and guide compensation and benefits policies.**

- **I want to see the distribution of years of employment and average age of resigned and active employees, to understand the impact of experience and age on job stability and develop retention programs.**

- **I want to see the impact of work-life balance on attrition rates across different age groups, to develop flexible work policies.**

- **I want to see the distribution of employees by education level and its impact on attrition rates in each department, to identify employee development strategies.**

- **I want to see an analysis of attrition rates by gender and age, to identify any significant differences and guide diversity and inclusion policies.**

- **I want to see an analysis of attrition rates for employees who received training versus those who did not, to measure the effectiveness of training programs.**

As a Data Analyst:

- **I want analytical tools to identify correlations between job satisfaction, work-life balance, years of employment, and attrition rates, to provide actionable insights.**

- **I want the ability to analyze the distribution of employees by education field and its impact on attrition, to identify employee development strategies.**

- **I want the ability to analyze attrition rates by gender and age, to identify any significant differences and guide diversity and inclusion policies.**

- **I want the ability to analyze the average number of training sessions and their impact on attrition rates, to measure the effectiveness of training programs.**

- **I want the ability to analyze the average income of departing and retained employees, to determine the impact of salaries on attrition.**

- **I want the ability to analyze the average years of employment of departing and retained employees, to determine the impact of experience on attrition.**

- **I want the ability to analyze the impact of travel and distance from home on attrition rates.**

- **I want the ability to analyze the impact of the number of previous companies an employee worked at on attrition rates.**

- **I want the ability to analyze the impact of the number of years since the last promotion on attrition rates.**

As a Recruitment Specialist:

- I want to see attrition rates by generation and department, to evaluate the effectiveness of recruitment processes and identify areas for improvement.

- I want to see an analysis of the average years of employment of resigned employees, to understand the impact of experience on job stability and adjust recruitment strategies.

- I want to see an analysis of the distribution of employees by education level, to understand the impact of education on attrition and adjust recruitment strategies.

- I want to see an analysis of the average income of departing and retained employees, to determine the impact of salaries on attrition and adjust recruitment strategies.

- I want to see an analysis of attrition rates by gender and age, to identify any significant differences and guide recruitment strategies.

As an Employee:

- I want access to my personal data on performance and training, to understand my career path and identify development opportunities.

- I want to see the company's average job satisfaction and work-life balance, to evaluate the work environment and make informed career decisions.

- I want to see the average years of employment in the company by generation and department, to assess growth opportunities and identify development paths.

As a Training & Development Officer:

- I want to track training participation rates and analyze their impact on attrition, to evaluate and adjust training programs.

- I want to see an analysis of training times across different job roles, to identify gaps and develop customized training programs.

- I want to see an analysis of attrition rates for employees who received training versus those who did not, to measure the effectiveness of training programs.

As a Finance Manager:

- **I want to review salary distributions across generations and departments, to ensure fairness and identify any disparities that need adjustment.**

- **I want to see an analysis of the average income of departing and retained employees, to evaluate the impact of salaries on attrition and adjust compensation policies.**

7- Functional Requirements

- The system shall process and clean HR datasets for analysis.

- The dashboard shall display key HR metrics, including attrition and satisfaction rates.

- The system shall allow filtering data by department, job role, and tenure.

- The dashboard shall provide interactive visualizations using Power BI.

8-Non-functional Requirements

- The dashboard should be user-friendly and accessible to non-technical users.

- Data processing should ensure at least 99% accuracy in computations.

- The system should refresh data at least once a month.

- Response time for dashboard interactions should be under 2 seconds.

9. Dashboard Type & Stakeholders

✓ **Dashboard Type: Strategic & Analytical HR Dashboard**

- Provides **high-level HR insights** for executives and decision-makers.

- Focuses on **long-term workforce trends, retention, satisfaction, and performance metrics**.

✓ **Main Stakeholders:**

1. **HR Directors & Executives** – Use insights for strategic workforce planning.

2. **HR Managers** – Monitor department-level performance and attrition.

3. **CEOs & Leadership Teams** – Assess overall workforce health and HR policy effectiveness.

4. **Recruiters & Talent Acquisition Teams** – Identify hiring needs based on attrition and turnover trends.

5. Conclusion

The HR analytics dashboard project is a structured and strategic approach to leveraging Power BI for workforce insights. By cleaning and analyzing HR data, developing key performance metrics, and building an interactive dashboard, the project aims to empower HR professionals with data-driven decision-making capabilities. The structured project management plan, risk assessment, and performance indicators ensure successful implementation and impactful outcomes.