



LOVELY
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**POWER BI DASHBOARD PROJECT REPORT
ON
“HR ANALYTICS DASHBOARD”**

“INT374”

Submitted By –

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In partial fulfilment for the requirements of the award of the degree of

SCHOOL OF COMPUTER SCIENCE

LOVELY PROFESSIONAL UNIVERSITY

PHAGWARA, PUNJAB

Student Declaration

DECLARATION I, Rahul Pathania, student of Bachelor of Technology under CSE/IT Discipline at, Lovely Professional University, Punjab, hereby declare that all the information furnished in this project report is based on my own intensive work and is genuine.

Date: 25-12-2025
Registration No. 12312227

Signature
Rahul Pathania

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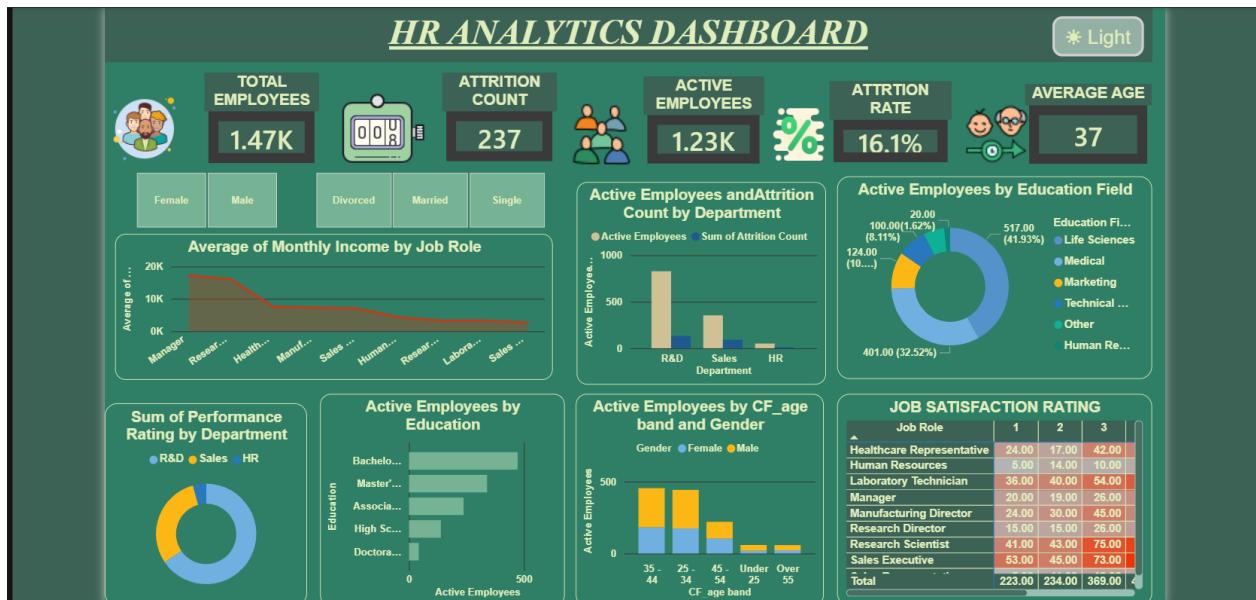
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. Introduction

Human Resource departments play a crucial role in managing workforce performance, retention, and employee satisfaction. With growing organizational size, HR data becomes complex and difficult to analyze using traditional reports and spreadsheets. Static reporting methods often fail to provide quick insights required for strategic decision-making.

The **HR Analytics Dashboard** project aims to address this challenge by using **Microsoft Power BI** to visualize and analyze employee-related data effectively. The dashboard presents key HR metrics such as employee count, attrition rate, job satisfaction, income distribution, age groups, and department-wise trends.

Additionally, the project introduces an **interactive Light and Dark mode toggle**, enhancing usability and accessibility by allowing users to switch viewing modes based on preference or lighting conditions.



2. Source of Dataset

The dataset used for this project is a publicly available **HR Employee Dataset**, commonly used for HR analytics and learning purposes.

Dataset Details

Attribute Description

Dataset Name HR Data

Source Kaggle

Data Type xlsx file

Data Content Employee demographics, job role, income, attrition, satisfaction

Access Link

🔗 Dataset URL:

<https://www.kaggle.com/datasets/rishikeshkonapure/hr-analytics-prediction>

Description

The dataset contains structured employee information required for analyzing workforce behavior and organizational trends.

Attrition	Business Travel	CF_age_band	CF_attrition_label	Department	Education Field	emp no	Employee Number	Gender	Job Role	Marital Status	Over Time
Yes	Travel_Rarely	35 - 44	Ex-Employees	R&D	Other	STAFF-4	4	Male	Laboratory Technician	Single	Yes
No	Non-Travel	Under 25	Current Employees	R&D	Medical	STAFF-22	22	Male	Laboratory Technician	Divorced	Yes
No	Travel_Rarely	Under 25	Current Employees	R&D	Life Sciences	STAFF-30	30	Male	Research Scientist	Single	No
Yes	Travel_Rarely	35 - 44	Ex-Employees	Sales	Technical Degree	STAFF-42	42	Male	Sales Representative	Married	No
No	Travel_Rarely	35 - 44	Current Employees	R&D	Other	STAFF-53	53	Male	Laboratory Technician	Divorced	No
No	Travel_Rarely	25 - 34	Current Employees	R&D	Life Sciences	STAFF-54	54	Female	Laboratory Technician	Divorced	No
Yes	Travel_Rarely	45 - 54	Ex-Employees	R&D	Life Sciences	STAFF-64	64	Male	Laboratory Technician	Single	Yes
No	Travel_Rarely	45 - 54	Current Employees	R&D	Life Sciences	STAFF-86	86	Male	Research Scientist	Divorced	No
Yes	Travel_Rarely	35 - 44	Ex-Employees	R&D	Medical	STAFF-90	90	Male	Research Scientist	Married	Yes
No	Travel_Rarely	35 - 44	Current Employees	R&D	Life Sciences	STAFF-97	97	Female	Laboratory Technician	Married	No
No	Travel_Rarely	45 - 54	Current Employees	R&D	Other	STAFF-101	101	Male	Research Director	Married	Yes
No	Travel_Rarely	Under 25	Current Employees	Sales	Technical Degree	STAFF-113	113	Male	Sales Representative	Divorced	No
No	Travel_Rarely	25 - 34	Current Employees	R&D	Life Sciences	STAFF-134	134	Male	Research Scientist	Single	No
No	Non-Travel	35 - 44	Current Employees	R&D	Life Sciences	STAFF-139	139	Male	Healthcare Representative	Divorced	No
No	Travel_Rarely	Under 25	Current Employees	R&D	Medical	STAFF-144	144	Female	Laboratory Technician	Single	No
No	Travel_Rarely	25 - 34	Current Employees	R&D	Life Sciences	STAFF-151	151	Female	Research Scientist	Divorced	No
Yes	Travel_Rarely	Under 25	Ex-Employees	Sales	Marketing	STAFF-167	167	Male	Sales Representative	Single	Yes
No	Travel_Rarely	Under 25	Current Employees	R&D	Medical	STAFF-201	201	Female	Laboratory Technician	Single	No
No	Travel_Rarely	45 - 54	Current Employees	R&D	Medical	STAFF-211	211	Male	Manufacturing Director	Married	No
No	Travel_Rarely	35 - 44	Current Employees	R&D	Life Sciences	STAFF-271	271	Male	Manufacturing Director	Married	No
Yes	Travel_Rarely	35 - 44	Ex-Employees	R&D	Medical	STAFF-282	282	Male	Healthcare Representative	Married	Yes
No	Travel_Rarely	35 - 44	Current Employees	Sales	Life Sciences	STAFF-298	298	Female	Manager	Single	Yes
No	Travel_Rarely	Over 55	Current Employees	R&D	Life Sciences	STAFF-309	309	Male	Research Scientist	Married	No
No	Travel_Rarely	35 - 44	Current Employees	R&D	Life Sciences	STAFF-334	334	Male	Research Scientist	Divorced	No
Yes	Travel_Frequently	35 - 44	Ex-Employees	R&D	Medical	STAFF-342	342	Male	Manufacturing Director	Divorced	No
No	Travel_Rarely	45 - 54	Current Employees	R&D	Life Sciences	STAFF-353	353	Male	Research Scientist	Married	No
Yes	Travel_Rarely	25 - 34	Ex-Employees	R&D	Life Sciences	STAFF-364	364	Male	Laboratory Technician	Single	No
No	Travel_Rarely	25 - 34	Current Employees	Sales	Medical	STAFF-366	366	Male	Sales Executive	Married	No
No	Travel_Rarely	Under 25	Ex-Employees	R&D	Life Sciences	STAFF-405	405	Male	Laboratory Technician	Single	No

3. EDA Process (Exploratory Data Analysis)

Exploratory Data Analysis (EDA) was carried out using **Power Query Editor** in **Power BI** to ensure data accuracy, consistency, and readiness for visualization.

Data Cleaning Steps Performed

- Removal of null and inconsistent values

- Conversion of data types (numerical, categorical)
- Standardization of categorical values
- Creation of calculated columns for age groups and income bands
- Validation of attrition and satisfaction values

EDA ensured data accuracy and reliability before visualization.

The screenshot shows the Power BI Data Editor interface. On the left is a large grid table with columns: Attrition, Business Travel, CF_age band, CF_attrition label, Department, Education Field, emp no, and Employee ID. The first few rows of data are visible, showing various employee records with their department, education field, and employee ID. On the right side of the interface, there is a 'Query Settings' pane with sections for 'PROPERTIES' (Name: HR data) and 'APPLIED STEPS'. The 'APPLIED STEPS' section lists several steps: Source, Navigation, Changed Type, Promoted Headers, Changed Type1, Added Conditional Column, Renamed Columns, and a step labeled 'Changed Type2' which is currently expanded.

4. Analysis on Dataset

4.1 Employee Overview Analysis

i. Introduction

The objective of this analysis is to understand the overall structure and composition of the workforce within the organization. This analysis provides a high-level view of employee distribution and helps HR managers gain quick insights into workforce size and status.

ii. General Description

This analysis focuses on calculating the total number of employees, active employees, and their distribution across various departments and job roles. By aggregating employee records, the dashboard provides a consolidated view of organizational strength and structure.

iii. Specific Requirements, Functions and Formulas

- **Fields used:** Employee ID, Department, Job Role, Attrition
- **Aggregation method:** Count of Employee ID
- **Filters applied:** Department, Job Role

- **Nature of calculation:** Dynamic aggregation based on slicer selection

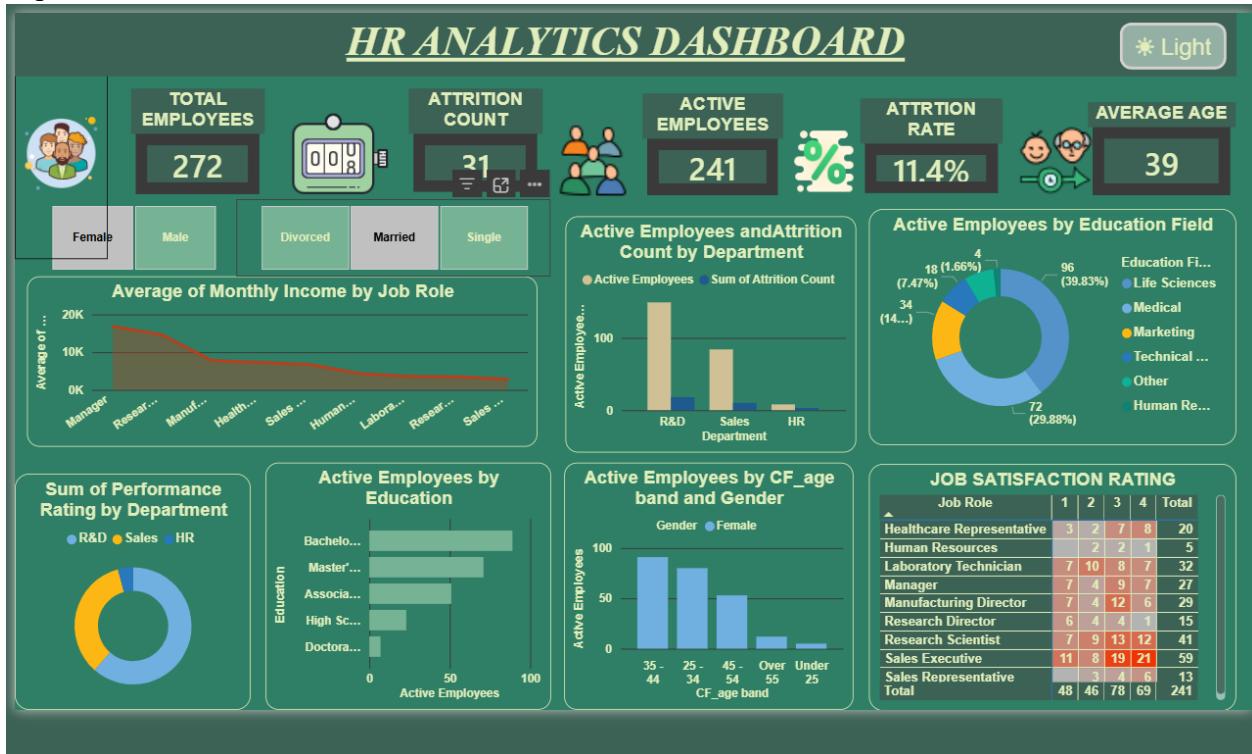
iv. Analysis Results

- The organization has a balanced distribution of employees across major departments.
- Certain departments have a higher concentration of active employees.

Workforce strength changes dynamically when department or job role filters are applied.

v. Visualization

This analysis is supported using **KPI cards and bar charts** to display total employees and department-wise distribution.



4.2 Attrition Analysis

i. Introduction

The objective of this analysis is to examine employee attrition patterns and identify factors contributing to workforce turnover..

ii. General Description

Attrition analysis evaluates employees who have left the organization and compares them with active employees. The analysis helps identify departments, job roles, and age groups with higher attrition rates.

iii. Specific Requirements, Functions and Formulas

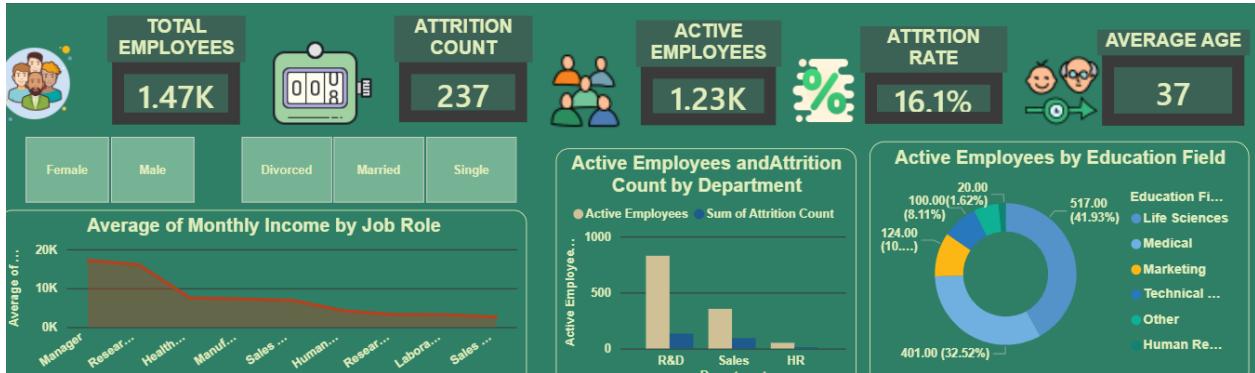
- **Fields used:** Attrition, Department, Job Role, Age
- **Aggregation method:** Count of Attrition values
- **Calculated Measures:** Attrition Rate (%)
- **Filters applied:** Department, Age Group

iv. Analysis Results

- Attrition is higher in specific job roles and departments.
- Younger employees show relatively higher attrition compared to senior employees.
- Attrition rate changes dynamically with slicer selection..

v. Visualization

This analysis is visualized using **KPI cards, bar charts, and donut charts** to represent attrition trends clearly.



4.3 Demographic Analysis (Age & Gender)

i. Introduction

The objective of this analysis is to understand the demographic composition of the workforce based on age groups and gender.

ii. General Description

Employees are grouped into different age bands and gender categories to analyze workforce diversity and demographic trends.

iii. Specific Requirements, Functions and Formulas

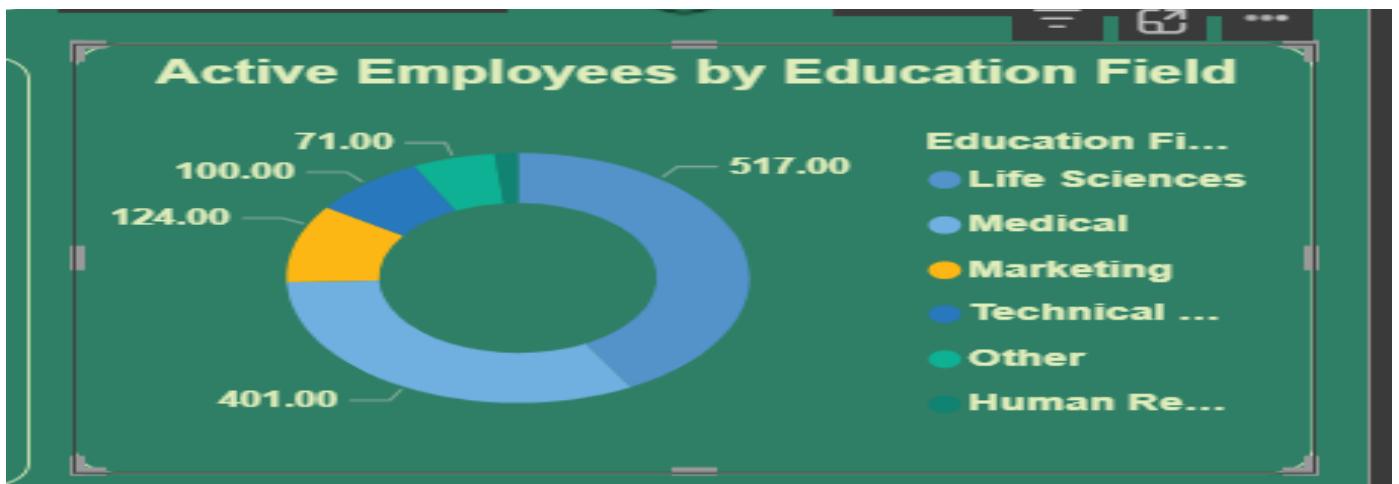
- **Fields used:** Age, Gender
- **Aggregation method:** Count of employees
- **Derived fields:** Age Groups

iv. Analysis Results

- Majority of employees fall within the mid-age working group.
- Gender distribution is relatively balanced across departments.
- Certain departments show higher representation of specific age groups.

v. Visualization

This analysis is supported using **donut charts and bar graphs** for age group and gender distribution.



4.4 Income Distribution Analysis

i. Introduction

The objective of this analysis is to analyze salary distribution across job roles and experience levels.

ii. General Description

Monthly income data is analyzed to understand compensation trends and income disparities within the organization.

iii. Specific Requirements, Functions and Formulas

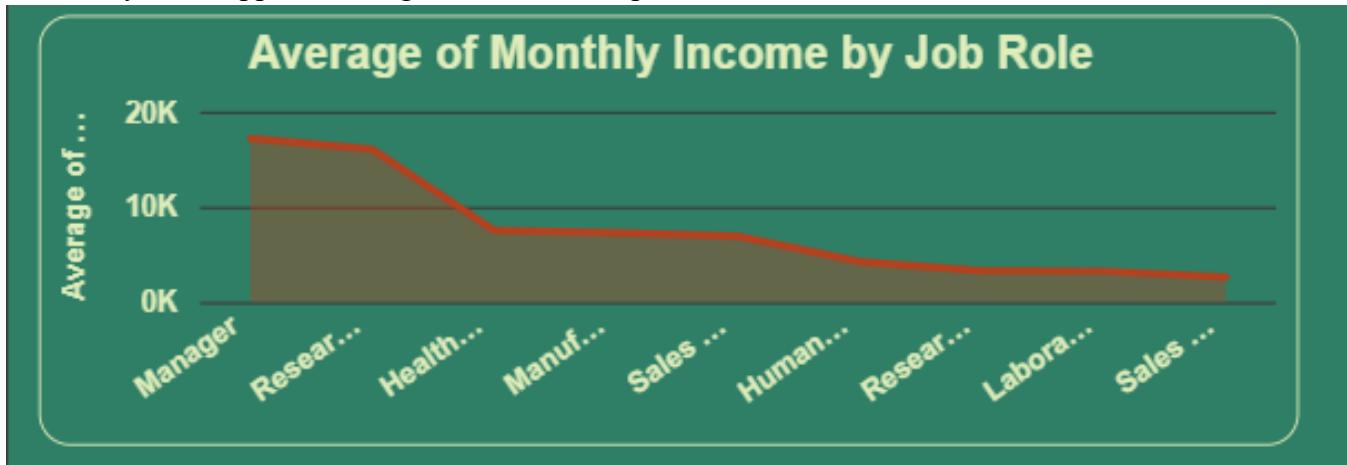
- **Fields used:** Monthly Income, Job Role, Age
- **Aggregation method:** Average and Sum of Monthly Income
- **Filters applied:** Job Role, Age Group

iv. Analysis Results

- Senior job roles earn significantly higher income.
- Income increases with age and experience.
- Salary variation is visible across different departments.

v. Visualization

This analysis is supported using **line charts** to represent income trends.



4.5 KPI-based HR Performance Analysis

i. Introduction

This analysis provides a summarized overview of HR performance using key numerical indicators.

ii. General Description

Key Performance Indicators (KPIs) are calculated to quickly understand workforce scale and health.

iii. Specific Requirements, Functions and Formulas

The following KPIs are used:

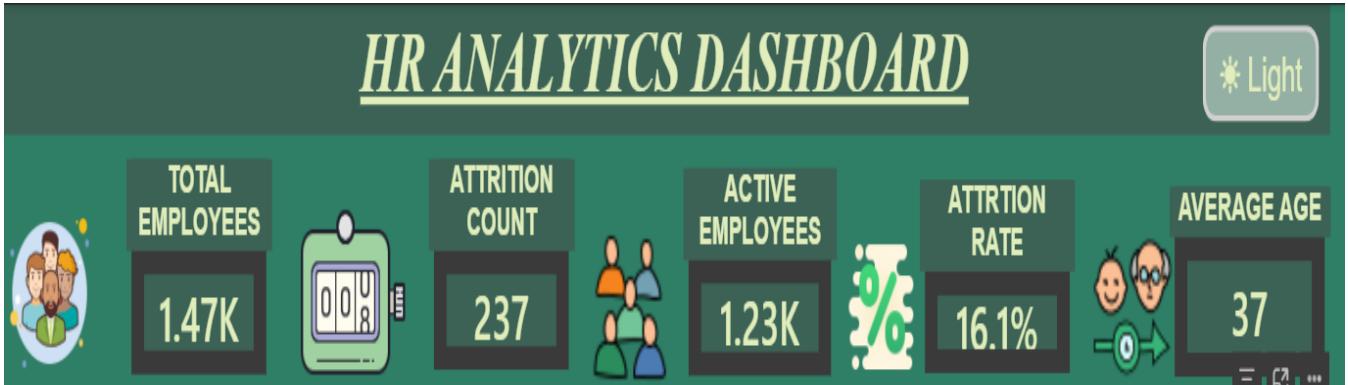
- Total Employees
- Active Employees
- Attrition Rate
- Average Age

iv. Analysis Results

- KPIs provide instant insights into workforce status.
- Values update dynamically based on slicer selection.
- HR performance can be monitored effectively at a glance.

v. Visualization

This analysis is displayed using **KPI cards positioned at the top of the dashboard**.



4.6 Interactive & Theme Toggle Analysis

i. Introduction

The objective of this analysis is to demonstrate dashboard interactivity and user experience enhancements.

ii. General Description

The dashboard includes interactive slicers and a Light/Dark mode toggle to improve usability and accessibility.

iii. Specific Requirements, Functions and Formulas

- Slicers implemented:** Department, Job Role, Gender, Age Group
- Interactivity tools:** Bookmarks, Buttons, Selection Pane

iv. Analysis Results

- All visuals update instantly when slicers are applied.
- Users can switch between Light and Dark modes easily.
- Improved readability and user comfort under different lighting conditions.

v. Visualization

This analysis is supported using **interactive slicers and toggle buttons connected to bookmarks**.



4.7 Job Satisfaction Analysis

i. Introduction

The objective of this analysis is to evaluate employee job satisfaction levels across different departments and roles.

ii. General Description

Job satisfaction ratings are analyzed to assess employee morale and engagement within the organization.

iii. Specific Requirements

- Fields used:** Job Satisfaction, Department, Job Role
- Aggregation method:** Average job satisfaction score
- Filters applied:** Department, Job Role

iv. Analysis Results

- Most departments show moderate to high satisfaction levels.
- Satisfaction levels vary significantly across departments.
- Certain roles exhibit lower satisfaction, indicating areas for HR improvement

v. Visualization

This analysis is represented using **matrix tables with conditional formatting**.

Job Role	1	2	3
Healthcare Representative	24.00	17.00	42.00
Human Resources	5.00	14.00	10.00
Laboratory Technician	36.00	40.00	54.00
Manager	20.00	19.00	26.00
Manufacturing Director	24.00	30.00	45.00
Research Director	15.00	15.00	26.00
Research Scientist	41.00	43.00	75.00
Sales Executive	53.00	45.00	73.00
Total	223.00	234.00	369.00

5. Conclusion

The HR Analytics Dashboard effectively transforms raw HR data into meaningful insights. The analysis highlights workforce distribution, attrition trends, employee satisfaction, and income patterns. The interactive dashboard and Light/Dark mode toggle enhance usability and support informed HR decision-making.

6. Future Scope

- Predictive attrition modeling
- Performance and appraisal analysis
- Integration of real-time HR data
- Advanced employee engagement metrics

7. References

- HR Analytics Public Dataset
- Microsoft Power BI Documentation
- Data Visualization Best Practices

8. LinkedIn Link

https://www.linkedin.com/posts/rahulrajput831_powerbi-hranalytics-dataanalytics-ugcPost-7408772290315792384-PHO-JXMkS9LY&utm_medium=ios_app&rcm=ACoAAEc43q0BhakTZY418WC558tW_P-

