Report On

HR Dashboard in PowerBI

Submitted in partial fulfillment of the requirements of the Course project in
Semester VII of Fourth Year Computer Engineering

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CERTIFICATE

This is to certify that the project entitled "Medical Insurance Fraud Detection" is a bonafide work of " Siddharth Dhodi(Roll No. 59) Varun Satesh Babu (Roll No. 58) Rohit Walke (Roll No. 70) submitted to the University of Mumbai in partial fulfillment of the requirement for the Course project in semester VII of Fourth Year Computer Engineering.

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Abstract

In today's dynamic business landscape, data-driven decision-making is critical for the success of any organization, and the Human Resources (HR) department is no exception. To effectively manage and optimize an organization's workforce, a comprehensive HR dashboard is essential. This project focuses on the design and implementation of an HR dashboard using Microsoft Power BI, aimed at facilitating data-driven HR decisions and fostering a more efficient and productive workforce.

The HR dashboard developed in this project will serve as a centralized platform that combines HR data from various sources, such as employee information, performance metrics, recruitment statistics, and more. This dashboard will enable HR professionals and organizational leaders to gain insights into workforce trends, employee engagement, retention rates, and other crucial HR-related KPIs. By visualizing data through interactive charts, graphs, and tables, the dashboard will provide a user-friendly and intuitive interface for HR personnel to explore and analyze data in real-time.

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Problem Statement

In the current dynamic business environment, effective human resource management is crucial for organizational success. However, many HR departments face significant challenges, such as fragmented data across various systems, time-consuming manual data analysis, and a lack of centralized data visualization tools. These limitations hinder timely decision-making and make it difficult to address critical HR issues, like employee turnover and workforce planning. Additionally, traditional reporting methods are static and non-interactive, and ensuring data security remains a constant concern.

The development of an HR dashboard in Power BI aims to address these challenges by centralizing HR data, automating data analysis, and providing interactive visualizations. This solution empowers HR professionals and organizational leaders to make data-driven decisions, improve employee retention, enhance recruitment effectiveness, and boost overall workforce productivity. It aligns HR functions with modern data-driven practices, contributing to the organization's success in a rapidly evolving business landscape.

Module Description

Data:

Creating an HR dashboard in Power BI involves integrating a range of data types. These encompass employee demographics, recruitment data, performance metrics, attendance and leave records, compensation and benefits data, engagement surveys, turnover and retention statistics, training and development information, compliance and regulatory records, succession planning data, and workforce diversity metrics.

These data sources provide valuable insights into employee characteristics, recruitment efficiency, performance evaluations, scheduling, compensation, and more. They support strategic decisions, such as talent development, compliance, and diversity initiatives. An HR dashboard that consolidates and visualizes these data types empowers HR professionals and organizational leaders to enhance workforce management, employee engagement, and overall organizational performance. It also aids in proactive planning, compliance, and addressing HR challenges effectively.

Data Preprocessing:

Preprocessing is a crucial step in preparing HR data for an HR dashboard in Power BI. The goal of preprocessing is to clean, transform, and organize the data so that it can be effectively analyzed and visualized. Here are some of the common preprocessing steps for an HR dashboard dataset:

- Data Cleaning: This involves identifying and handling missing values, outliers, and inconsistencies in the data. Missing values can be imputed using various techniques, while outliers can be addressed through filtering or transformation.

- Data Integration: HR data often comes from various sources and systems, so it's essential to integrate data from different databases, spreadsheets, and software platforms into a unified dataset. This ensures a holistic view of the workforce.

- Data Transformation: Data may need to be transformed for analysis and visualization. For instance, categorical variables may need to be encoded into numerical values, and date formats standardized for consistency.

- Data Aggregation: Aggregating data can be necessary to create summary statistics and

key performance indicators (KPIs). This can involve calculating averages, sums, or percentages to gain insights into HR metrics.

- Data Normalization: Normalizing data can be vital to ensure that variables are on the same scale, which is particularly important when working with metrics like salaries, performance scores, or employee counts.

- Data Reduction: In cases where the dataset is large, dimensionality reduction techniques, such as Principal Component Analysis (PCA), can be applied to simplify the data while retaining essential information.

- Data Validation: It's important to validate data for accuracy and consistency. This includes checking for duplicate records, ensuring that data adheres to predefined data types, and confirming that calculations are correct.

- Data Security: HR data often contains sensitive information, so data security measures need to be implemented, including access controls, data encryption, and anonymization where necessary to protect employee privacy.

- Data Visualization Preparation: Finally, data should be formatted and structured in a way that makes it easy to create visualizations within Power BI. This can include organizing data hierarchies and selecting relevant attributes for analysis.

Preprocessing is a critical step to ensure that the HR dataset is clean, well-structured, and ready for analysis in Power BI. Once the data is preprocessed, HR professionals and data analysts can create meaningful dashboards and reports to gain insights into workforce trends, employee performance, recruitment efficiency, and other key HR metrics, facilitating data-driven decision-making and improved workforce management.

Software and Hardware Used

Creating an HR dashboard in Power BI requires a relatively simple tech stack:

1. Power BI: The core tool for creating the dashboard, which provides data visualization and report creation.

2. Data Sources: Data can come from various systems, such as Excel, databases (SQL, Oracle), and

APIs.

3. Data Integration: Tools like Power Query help extract, transform, and load data into Power BI.

4. Data Cleaning: Use Python or R for data cleaning, handling missing values, and transformations.

5. Database Systems: Employ databases like SQL Server for data management.

6. Data Security: Ensure data security with encryption and access controls.

7. Cloud Services: Host Power BI on platforms like Azure, AWS, or Google Cloud.

8. Collaboration Tools: Tools like Microsoft Teams facilitate sharing HR insights.

9. Mobile Access (Optional): For mobile access, consider technologies like React Native or Flutter.

10. Analysis and Reporting: Excel or R can be used for advanced analysis and custom visualizations if needed.

Code

1. = Csv.Document(File.Contents("C:\Users\siddh\Desktop\Clustered HR Data\HR Analytics Data.csv"),[Delimiter="#(tab)", Columns=35, Encoding=1252, QuoteStyle=QuoteStyle.None])

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5. = Table.RemoveColumns(#"Changed Type1",{"", "_1", "_2", "_3", "_4", "_5", "_6", "_7", "_8", "_9", "_10", "_11", "_12", "_13", "_14", "_15", "_16", "_17", "_18", "_19", "_20", "_21", "_22", "_23", "_24", "_25", "_26", "_27", "_28", "_29", "_30", "_31", "_32", "_33"})
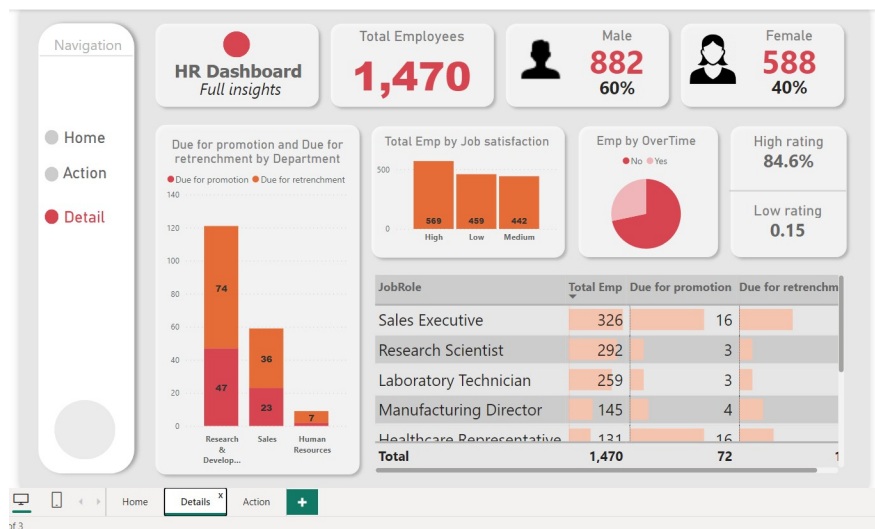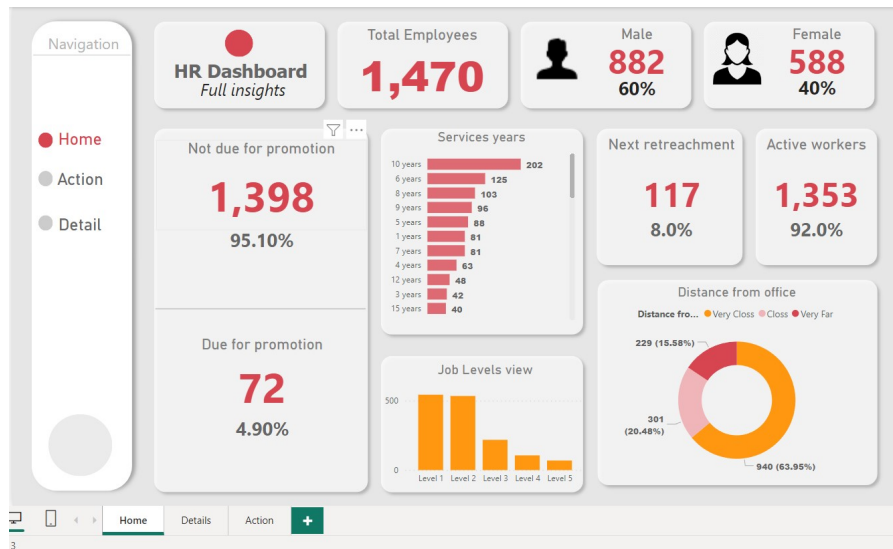
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Results and Conclusion

Conclusion:

The development of this HR dashboard in Power BI marks a significant step towards modernizing HR practices and enhancing decision-making within organizations. By centralizing HR data, automating analysis, and providing interactive visualizations, the project empowers HR professionals and leaders with real-time insights for improved workforce planning, talent acquisition, and employee development.

Through the integration of data sources and a robust tech stack, the project streamlines data preprocessing, ensuring data integrity and enhancing the accuracy of HR metrics. Sensitive HR data is securely managed, complying with privacy regulations.

This HR dashboard contributes to improving employee retention, recruitment efficiency, and overall workforce productivity. It aligns HR practices with data-driven strategies, fostering proactive decision-making and supporting the digital transformation of HR operations. It underscores the pivotal role of data analytics and visualization in optimizing HR and contributing to organizational success in an evolving business landscape.

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