**Career Development Analysis Report**

**Objective:**

The objective of this task is to analyse key metrics related to career development, identify areas for improvement, and propose actionable strategies to support employee advancement within the organization.

**1. Data Preparation using Python**

**a. Import Dataset**

* **Step 1:** Open Jupyter notebook.
* **Step 2:** df=pd.read\_csv("WA\_Fn-UseC\_-HR-Employee-Attrition.csv") to import dataset.

**b. Data Cleaning in python**

* **Step 1:** Review the dataset for any missing or inconsistent data entries using df.isnull() and df.isnull().sum().
* **Step 2:** Replace or remove invalid data entries.

**2. Data Transformation in Python**

**a. The attrition column contains categorical data , convert it into numeric form**

* **Step 1:**. find unique items in attrition column
* df["Attrition"].unique()
* **Step 2:** importing library for convert categorical labels into a numeric form
* from sklearn.preprocessing import LabelEncoder
* **Step 3:** converting to numeric form label\_encoder = LabelEncoder() df["Attrition"] = label\_encoder.fit\_transform(df["Attrition"])

**b. The Overtime column contains categorical data , convert it into numeric form**

* **Step 1:**. find unique items in attrition column - df["Overtime"].unique()
* **Step 2:** importing library for convert categorical labels into a numeric form
* from sklearn.preprocessing import LabelEncoder
* **Step 3:** converting to numeric form label\_encoder = LabelEncoder() df["Overtime"] = label\_encoder.fit\_transform(df["Overtime"])

**c. Export Data**

* Export the modified data in to excel file file\_name= "NEW\_ATTRITION\_DATA\_overtime.csv" df.to\_csv(file\_name, index=False)

#### 3. Data Loading in power Bi

**a. Import Dataset**

* Open Power BI Desktop.
* Go to Home > **Get Data > Excel** (or appropriate data source) and import the dataset.

**4. Data Modeling**

**a. Create Measures (for KPIs)**

* **Attrition Rate:**

DAX

Attrition Rate = DIVIDE(CALCULATE(COUNTROWS(' NEW\_ATTRITION\_DATA\_overtime '), 'YourTable'[Attrition] = "Yes"), COUNTROWS(' NEW\_ATTRITION\_DATA\_overtime ')) \* 100

* **Average Years at Company:**

DAX

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Average Years at Company = AVERAGE(' NEW\_ATTRITION\_DATA\_overtime '[YearsAtCompany])

* **Average Years in Current Role:**

DAX

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Average Years in Current Role = AVERAGE(' NEW\_ATTRITION\_DATA\_overtime '[YearsInCurrentRole])

* **Average Years Since Last Promotion:**

DAX

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Average Years Since Last Promotion = AVERAGE(' NEW\_ATTRITION\_DATA\_overtime '[YearsSinceLastPro

**5. Dashboard Design**

**a. Attrition Rate KPI**

* Drag a KPI visual onto the report canvas.
* Set the Value to the AttritionRate measure.

**b. Average Years at Company KPI**

* Add another KPI visual.
* Set the Value to the Average Years at Company measure.

**c. Average Years in Current Role KPI**

* Add another KPI visual.
* Set the Value to the Average Years in Current Role measure.

**d. Average Years Since Last Promotion KPI**

* Add another KPI visual.
* Set the Value to the Average Years Since Last Promotion measure.

**e. Department and Job Role Filters**

* Add a stacked column chart.
* Drag the Department to x - axis.
* Drag Job Role in to Legend.
* Drag Average Years Since Last Promotion in y - axis

**f. Job Satisfaction Analysis**

* Create a stacked column chart.
* Use Job Satisfaction and Years in Current Role for the axis and values respectively.

**5. Final Touches**

**a. Formatting**

* Apply consistent colors, fonts, and styles across visuals.
* Add titles, axis labels, and legends to enhance readability.

**b. Tooltips and Interactivity**

* Add tooltips to provide additional information on hover.
* Ensure slicers and filters interact with all related visuals for a dynamic dashboard.

**c. Testing**

* Test the dashboard with different filter selections to ensure accurate data representation.

**Key Findings And Implications**

The Career Development Analysis dashboard provides valuable insights into the factors affecting employee attrition within the organization. Through this analysis, several key findings and implications emerge:

1. **Employee Tenure:**
   * The average tenure of employees in different departments shows variations, which can impact departmental stability and workforce planning.
2. **Education Level Influence:**
   * The education level distribution of employees provides insights into the educational background and its potential impact on career development and attrition.
3. **Promotion and Role Analysis:**
   * Analysing the average years since last promotion and years in the current role helps in understanding career progression patterns and identifying areas for improvement in employee development programs.
4. **Job Satisfaction Insights:**
   * The relationship between job satisfaction and tenure in the current role highlights the importance of employee engagement and satisfaction in retaining talent.
5. **Operational Implications:**
   * The insights from this analysis can help HR and management teams to refine their employee retention, development, and engagement strategies. By understanding the factors driving attrition, organizations can make informed decisions to mitigate risks and enhance employee satisfaction and productivity.

**Conclusion for Career Development Analysis**

In conclusion, the Career Development Analysis dashboard offers a comprehensive view of the factors contributing to employee attrition. By leveraging this analysis, organizations can better understand their workforce, identify potential risks, and develop targeted strategies to manage and mitigate attrition effectively. Continuous monitoring and analysis are crucial to adapting to workforce dynamics, market changes, and employee behaviors to maintain a healthy and productive workforce.