Project Report: Green Destinations – Employee Attrition Analysis

1. Introduction

Green Destinations is a well-known travel agency. Recently, the HR Director observed an increase in employee attrition (employees leaving the company). To address this, an internal survey was conducted to collect information about employees such as age, education, years at the company, income, and job satisfaction.

The objective of this project is to analyse the employee dataset and identify:

- The overall attrition rate.
- Whether factors such as age, years at the company, and monthly income play a role in attrition.
- Patterns that HR can use to improve employee retention.

2. Dataset Description

The dataset provided includes detailed employee information with the following important columns:

- Age – Employee's age.
- Attrition – Whether the employee left the company (Yes/No).
- Department, JobRole, MaritalStatus, Gender – Categorical attributes.
- MonthlyIncome, DailyRate, HourlyRate, MonthlyRate – Financial attributes.
- YearsAtCompany, TotalWorkingYears, YearsInCurrentRole – Experience-related attributes.
- JobSatisfaction, WorkLifeBalance, EnvironmentSatisfaction – Ratings (1–4 scale).
- OverTime – Whether the employee does overtime.

Dataset size: 1,400 employee records.

3. Methodology

The analysis was performed using Python (Pandas, Matplotlib, Seaborn, Scikit-learn). The steps included:

1. Data Cleaning & Preparation:

   - Checked for missing values and inconsistencies.
   - Converted categorical columns (e.g., Attrition, Gender, OverTime) into numeric form for analysis.

2. Exploratory Data Analysis (EDA):

   - Calculated attrition percentage.
   - Created visualisations to see the distribution of age, income, and years at the company.
   - Compared attrition across different factors (Age groups, MonthlyIncome, YearsAtCompany).

3. Statistical Analysis & Insights:

   - Identified correlations between attributes.
   - Observed key trends influencing attrition.

4. Results and Findings

4.1 Attrition Rate

Overall Attrition Rate: 16% of employees have left the company.

4.2 Key Factors Influencing Attrition

1. Age:

  - Younger employees (20–30 years) show higher attrition compared to older employees.
  - Employees above 40 are more stable and less likely to leave.

2. Years at Company:

  - Attrition is highest in employees with < 3 years at the company.
  - Long-term employees (10+ years) show very low attrition.

3. Monthly Income:

  - Employees with lower income levels (< 5,000 units) show higher attrition.
  - Higher income groups are less likely to leave.

4. OverTime:

  - Employees working overtime show significantly higher attrition rates.

5. Job Satisfaction & Work-Life Balance:

  - Employees with low satisfaction scores and poor work-life balance are more likely to leave.

6. Conclusion:

The attrition analysis for Green Destinations reveals that **younger employees, those with fewer years at the company, and those earning lower incomes are more likely to leave**. HR should focus on retention strategies targeting these groups.

By implementing the recommendations, Green Destinations can improve employee satisfaction, reduce attrition, and ensure long-term workforce stability.

7. Tools Used:

- Google Colab – Code execution.
- Python Libraries— Pandas, Matplotlib, Seaborn, Scikit-learn.
- GitHub – Project repository for code and dataset.