**COURSE: HUMAN RESOURCE ANALYTICS**

**GRADED PROJECT**

**Instructions for the submission:**

* Please maintain the following: Font - Times New Roman, Font Size - 12, Line Spacing - 1.5

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| **S.No.** | **Assessment** | **Submission Format** | **Marks** |
| 1 | Diversity analysis | Text + Spreadsheet / Python Notebook | 20 marks |
| 2 | Attrition analysis | Text + Spreadsheet / Python Notebook | 20 marks |
| **Project Maximum Marks** | | | **40 marks** |

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| **Question 1** | The company hires people on a need to need basis… |
| **Marks** | 20 marks |
| **Word Count** | N/A |
| **Your Answer** | *1.1 The most abundant gender in the company is Male, with a count of 882 employees, while there are 588 female employees.*  *1.2 The Human Resources department has low diversity in terms of the male-female ratio. It has 20 females and 43 males, indicating a skewed gender ratio within this department.*  *1.3* ***Observations:***  *- There is a significant gender imbalance within the company, with a higher number of male employees compared to females.*  *- The Human Resources department has a notably low gender diversity ratio, with more males than females. This suggests a potential area for improvement.*  *- The Research & Development department has relatively better gender diversity but could still benefit from further improvement.*  *- The Sales department shows a more balanced gender distribution.*  ***Prospective Actionables:***  *- Implement targeted diversity and inclusion initiatives to promote gender balance company-wide.*  *Focus on addressing gender diversity issues in the Human Resources department, such as promoting female recruitment and career growth.*  *- Encourage mentorship programs and leadership development opportunities to support the career advancement of underrepresented groups.*  *- Regularly monitor and assess gender diversity metrics to measure progress and identify areas needing improvement.*  *Seek feedback from employees, especially within the Human Resources department, to better understand their concerns and needs regarding gender diversity and inclusion.*  *- Consider diversity training and workshops to create awareness and promote a more inclusive work environment.* |

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| **Question 2** | The company has been witnessing a growth… |
| **Marks** | 10 marks |
| **Word Count** | N/A |
| **Your Answer** | *Here are the Observations from he graphs above:*  *Business Travel vs. Attrition:*  *People who travel a lot for work tend to leave more compared to those who don't travel much. So, frequent travel might be causing attrition.*  *Distance from Home vs. Attrition:*  *People who live far away from the office (like 1 to 10 km) are more likely to leave. Long commutes seem to be a problem.*  *Performance Rating vs. Attrition:*  *If you have a low performance rating (like 3), you're more likely to quit compared to those with a higher rating (like 4).*  *Percent Salary Hike vs. Attrition:*  *Getting a small salary hike (around 11% to 16%) seems to make people leave a bit more. Money matters, it seems.*  *Marital Status vs. Attrition:*  *If you're single, you're more likely to quit compared to married or divorced folks. Being single might be a factor.*  *Work-Life Balance vs. Attrition:*  *If you've got a bad work-life balance (rated as 1), you're more likely to leave compared to those with a better balance. So, a good balance might help retain employees.*  *In a nutshell, frequent travel, long commutes, low performance ratings, small salary hikes, being single, and poor work-life balance are some things that might make people quit. The company should think about addressing these issues to keep employees happy.* |

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| **Question 3** | Use the Random Forest Model… |
| **Marks** | 10 marks |
| **Word Count** | N/A |
| **Your Answer** | OverTime 0.204276  YearsAtCompany 0.134222  MonthlyIncome 0.117399  StockOptionLevel 0.109298  JobLevel 0.092958  YearsWithCurrManager 0.076356  Age 0.059470  TotalWorkingYears 0.043937  YearsInCurrentRole 0.024694  DistanceFromHome 0.015551  JobRole 0.015433  JobSatisfaction 0.014829  EnvironmentSatisfaction 0.013256  DailyRate 0.012086  MaritalStatus 0.009173  HourlyRate 0.008330  NumCompaniesWorked 0.008212  JobInvolvement 0.007264  MonthlyRate 0.006568  EmployeeNumber 0.005985  TrainingTimesLastYear 0.005124  Department 0.005050  PercentSalaryHike 0.002621  WorkLifeBalance 0.002069  YearsSinceLastPromotion 0.001355  EducationField 0.001285  Gender 0.001261  RelationshipSatisfaction 0.001214  BusinessTravel 0.000610  Education 0.000117  StandardHours 0.000000  PerformanceRating 0.000000  EmployeeCount 0.000000  Over18 0.000000  dtype: float64  *Based on the feature importance scores obtained from the RandomForestClassifier, we can make the following inferences regarding their contribution to attrition:*  ***OverTime (0.204276):*** *The most important feature in predicting attrition is whether an employee works overtime. This suggests that employees who work overtime are more likely to experience attrition.*  ***YearsAtCompany (0.134222):*** *The number of years an employee has been with the company is also a significant factor. Longer tenure may be associated with lower attrition.*  ***MonthlyIncome (0.117399):*** *Monthly income plays a crucial role. Lower income levels might lead to a higher likelihood of attrition.*  ***StockOptionLevel (0.109298):*** *The level of stock options granted to an employee is another important factor. More stock options may reduce attrition.*  ***JobLevel (0.092958):*** *An employee's job level within the company also contributes significantly. Higher job levels may lead to lower attrition.*  ***YearsWithCurrManager (0.076356):*** *The number of years an employee has been with their current manager influences attrition. Longer relationships with managers may reduce attrition.*  ***Age (0.059470):*** *Employee age is a factor, suggesting that younger employees may be more likely to leave.*  ***TotalWorkingYears (0.043937):*** *The total number of years an employee has been working is relevant. More experience may reduce attrition.*  ***YearsInCurrentRole (0.024694):*** *The duration an employee has been in their current role also impacts attrition. Longer tenure in the same role may reduce attrition.*  *DistanceFromHome (0.015551): The distance an employee lives from work contributes, indicating that employees with longer commutes might have higher attrition.*  *These findings suggest that a combination of factors related to work hours, career progression, income, and personal factors like age and commute distance play a role in employee attrition.* |