

Employee Attrition Prediction

Case Study Batch 2

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latentview

Actionable Insights • Accurate Decisions

Agenda



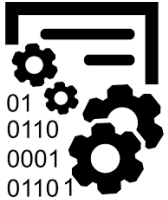
Problem Statement



Data



Methodology



Implementation Details



Results



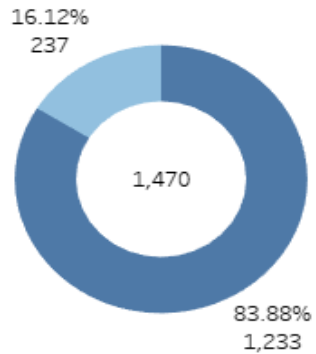
Inferences

Problem Statement

- Employee attrition refers to an employee's voluntary or involuntary resignation.
- Attrition prediction model would act as a HR Analysis tool specially for companies with a large workforce.
- Help companies to prepare for future employee-loss.
- The goal of the project is to identify key features that are contributing towards attrition and use them to predict future attrition.



Data- Employee Attrition Dataset



Categorical Features

9 Categorical features – Gender, Marital Status, OverTime, Department etc.

Numeric Features

20 Numeric Features - MonthlyIncome, Age, DailyRate, PerformanceRating, PercentSalaryHike etc.

Ordinal Features

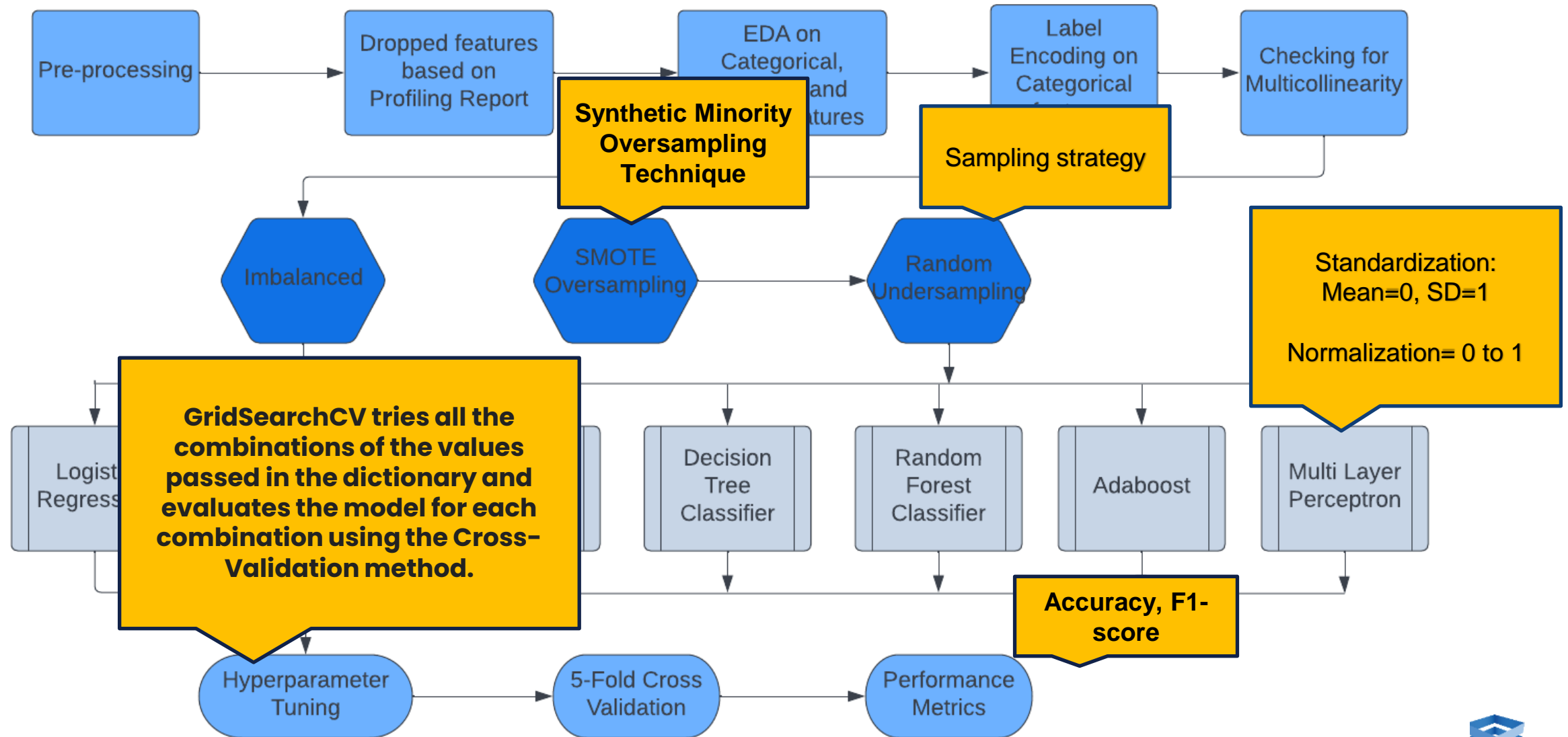
5 Ordinal Features- JobInvolvement, EnvironmentSatisfaction, WorkLifeBalance etc.

Target Feature

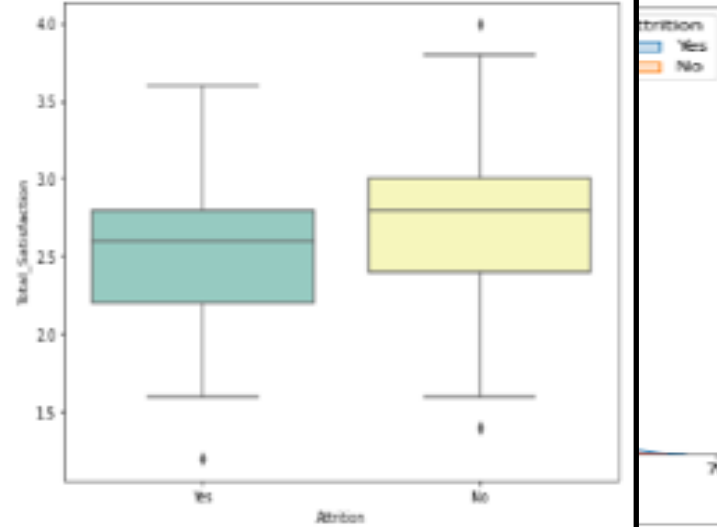
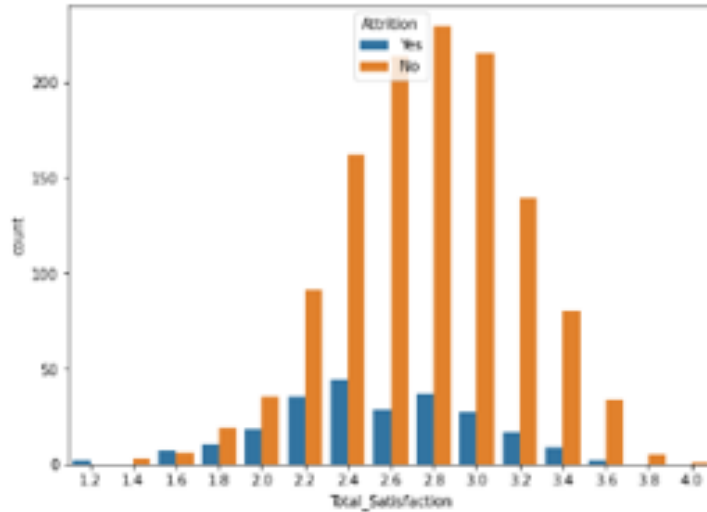
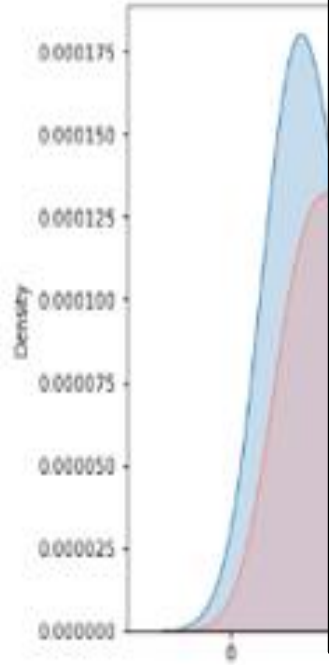
Attrition – ['Yes', 'No']



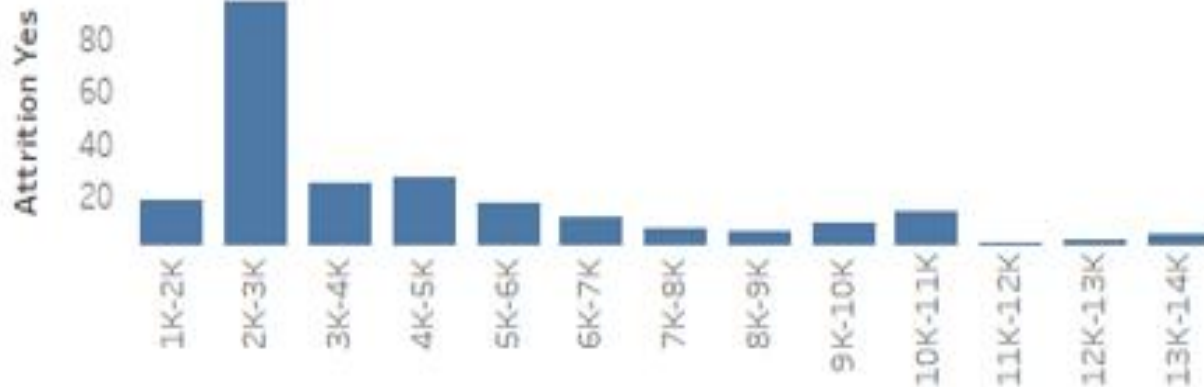
Methodology



Results of EDA



Monthly Income Vs Attrition



Results after Modelling

Imbalanced Dataset

Data after Balancing

		Accuracy	F1-score	ROC_AUC Score			Accuracy	F1-score	ROC_AUC Score
Logistic Regression	Without Scaling	0.853061	0.813656	0.777072	Support Vector	Without Scaling	0.808163	0.813059	0.759964
	With Standardization	0.870068	0.846544			With Standardization	0.831293	0.836802	0.827469
	With Normalization	0.870748	0.845583			With Normalization	0.839456	0.842764	0.826367
Support Vector	Without Scaling	0.838776	0.765232		Support Vector	Without Scaling	0.838776	0.765232	0.62407
	With Standardization	0.870068	0.841798			With Standardization	0.853061	0.848969	0.80886
Random Forest Classifier	Without Scaling	0.863265	0.831857	0.805951	Random Forest Classifier	Without Scaling	0.848299	0.835478	0.784375
	With Standardization	0.857823	0.82635	0.794833		With Standardization	0.863265	0.847947	0.806469
	With Normalization	0.860544	0.836548	0.781263		With Normalization	0.861224	0.845412	0.813044
Random Forest Classifier	With Standardization	0.857823	0.82635	0.794833	Random Forest Classifier	With Standardization	0.863265	0.847947	0.806469
	With Normalization	0.860544	0.836548	0.781263		With Normalization	0.861224	0.845412	0.813044
AdaBoost Classifier	Without Scaling	0.819728	0.809779	0.687711	AdaBoost Classifier	Without Scaling	0.79932	0.769657	0.624425
	With Standardization	0.860544	0.829695	0.796004		With Standardization	0.82381	0.824485	0.760683
	With Normalization	0.848299	0.808819	0.747641		With Normalization	0.819048	0.821914	0.768572
Multi Layer Perceptron	Without Scaling	0.721769	0.709049	0.63092	Multi Layer Perceptron	Without Scaling	0.772109	0.743746	0.61995
	With Standardization	0.871429	0.851897	0.829957		With Standardization	0.82585	0.82628	0.760852
	With Normalization	0.868707	0.8469	0.829603		With Normalization	0.820408	0.822997	0.791904

Random Forest has performed better after Balancing the data



EMPLOYEE ATTRITION DASHBOARD

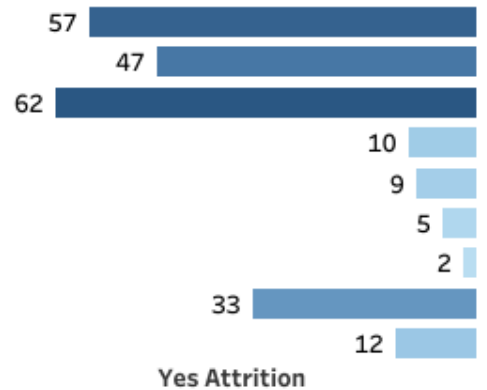
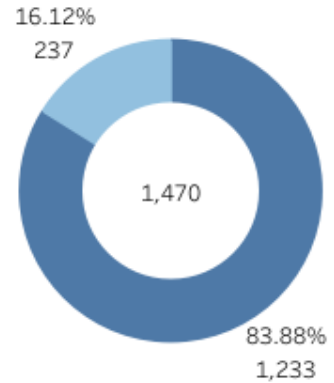
Total Attritioned Employees

237

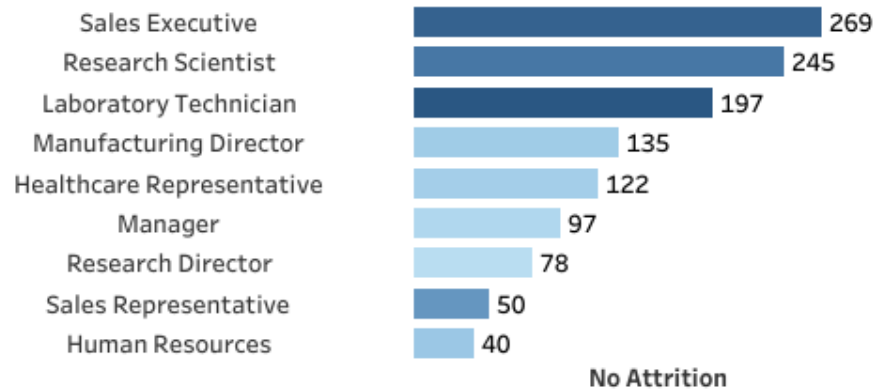
Total Current Employees

1,470

Attrition Rate



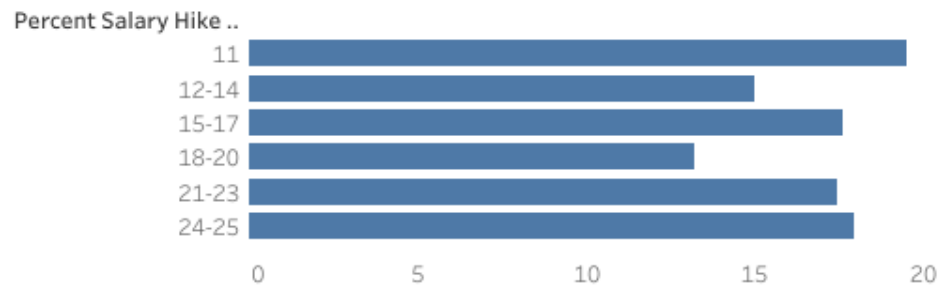
Job Role Impact



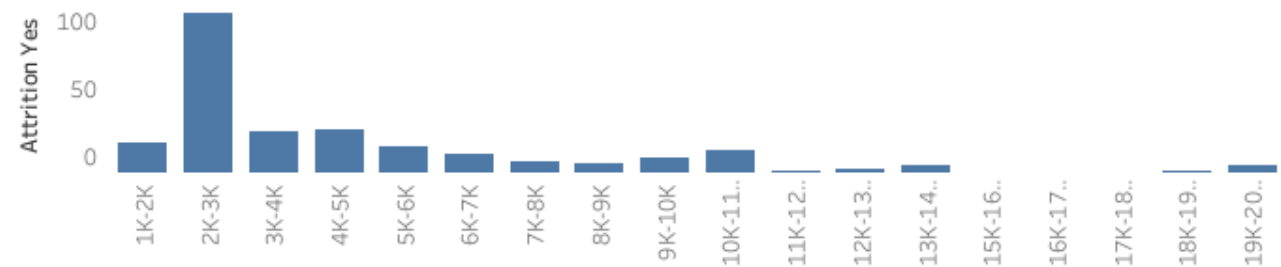
Based on Education



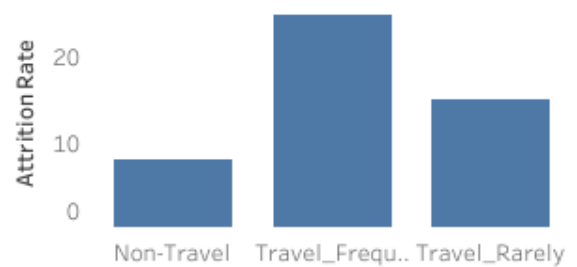
Salary Hike



Monthly Income Vs Attrition

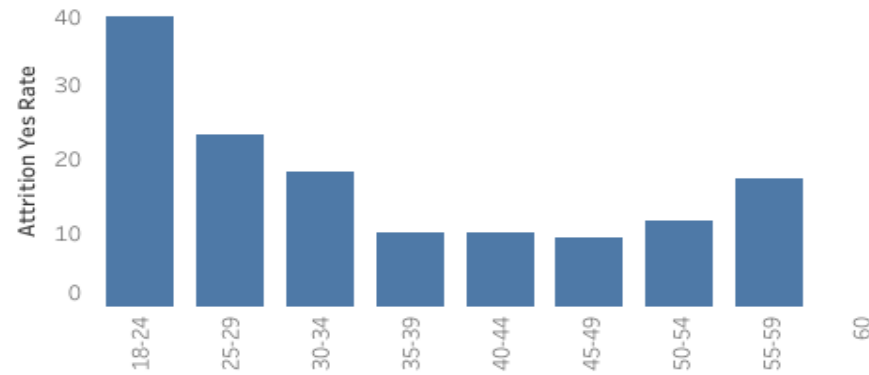


Business Travel

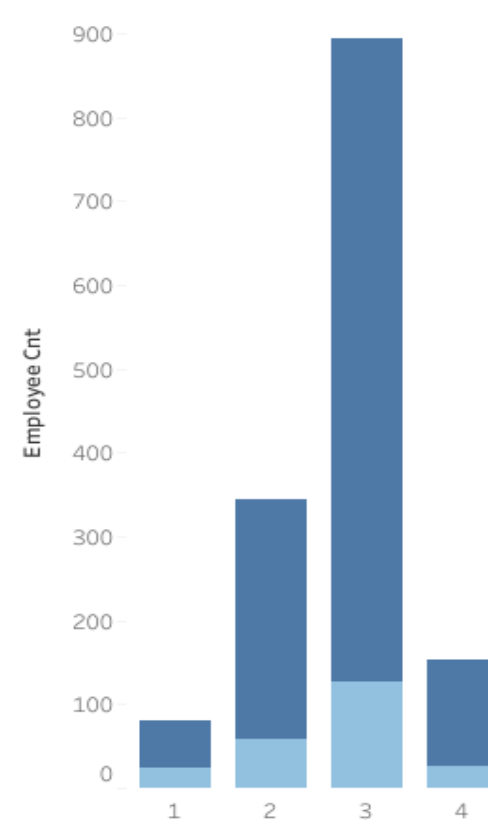


PERSONAL ASPECTS:
Employee who are Single, below 25 age mo..

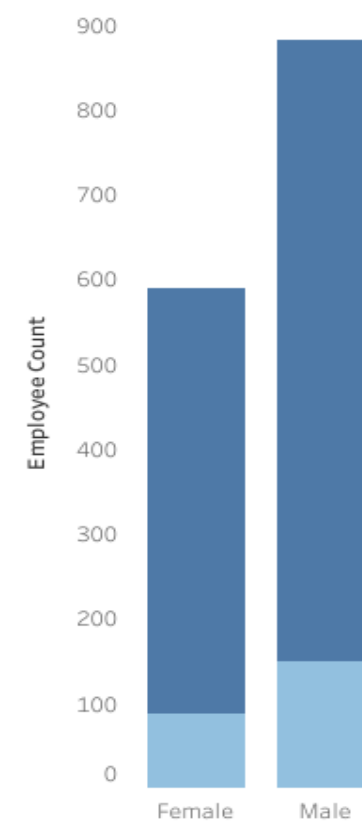
Age Group Vs Attrition



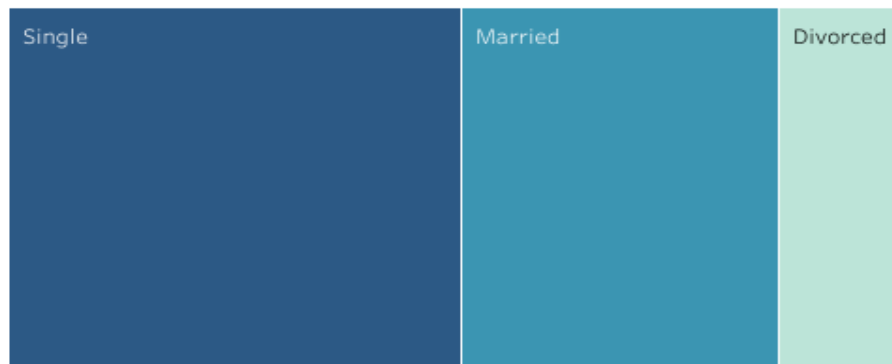
Work Life Balance Vs Attrition



Gender Vs Attrition



Matrital Status Vs Attrition



Conclusion

Considering the following Aspects:

- Personal Aspects - Age, Work Life Balance, Gender, Marital Status.
- Credential Based Aspects – Education, Performance Rating, Department, Job Role, Total Number of years worked.
- Professional Obligations Aspects – Years since last promotion, Overtime, Travel for work, Years with current manager, Years in current role
- Professional Benefits Aspects – Daily rate of payment, Salary hike, Training time last year, Hourly rate of payment

Cont.,

To have a low attrition rate, it is important for companies to:

Fairly pay their employees in the same job level, same job involvement, same job role with almost equal monthly income. Ensure that employees working OverTime are paid well.

Hence, companies should remember to appreciate their employees and work on the harmonic balance of their company.



Streamlit Employee Attrition Predictor ML App

Age

34

Gender

1

MonthlyIncome

3400

PerformanceRating

3

Total_Satisfaction

2

Predict

The output is [0]

About





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Actionable Insights • Accurate Decisions

Thank you



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