Attrition Risk Analyzer (v 2 . 0)

Objective

Analyze IBM HR Attrition dataset to identify attrition patterns and create a simple attrition risk flag

Step 1 : Load the Dataset

Dataset: IBM HR Analytics Attrition Dataset (Kaggle)
File: `WA_Fn-UseC_-HR-Employee-Attrition.csv`

```
Shape of data: (1470, 35)
```

Out[4]:

	Age	Attrition	BusinessTravel	DailyRate	Department	DistanceFromHome	Educa
0	41	Yes	Travel_Rarely	1102	Sales	1	
1	49	No	Travel_Frequently	279	Research & Development	8	
2	37	Yes	Travel_Rarely	1373	Research & Development	2	
3	33	No	Travel_Frequently	1392	Research & Development	3	
4	27	No	Travel_Rarely	591	Research & Development	2	

5 rows × 35 columns

Step 2 : Attrition Overview

Check how many employees have left (Attrition = Yes) vs stayed (Attrition = No).

Out[5]:

```
Attrition
No     1233
Yes     237
Name: count, dtype: int64
```

Step 3 : Attrition by Job Role

See how attrition is distributed across different job roles.

Out[6]:

Attrition	No	Yes
JobRole		
Healthcare Representative	122	9
Human Resources	40	12
Laboratory Technician	197	62
Manager	97	5
Manufacturing Director	135	10
Research Director	78	2
Research Scientist	245	47
Sales Executive	269	57
Sales Representative	50	33

Step 4 : Create Attrition Risk Flag

We will add a new column: 1 if Attrition = Yes, else 0 .

Out[7]:

	JobRole	Attrition	AttritionRisk
0	Sales Executive	Yes	1
1	Research Scientist	No	0
2	Laboratory Technician	Yes	1
3	Research Scientist	No	0
4	Laboratory Technician	No	0

Step 5 : Save Processed Dataset

This file will be useful for visualizations and further analysis.

```
Processed dataset saved as processed_hr_data.csv ✅
```

Part 2 : Visualizations

Now let's explore attrition patterns with charts.

Chart- 1 ➡️Overall Attrition Count

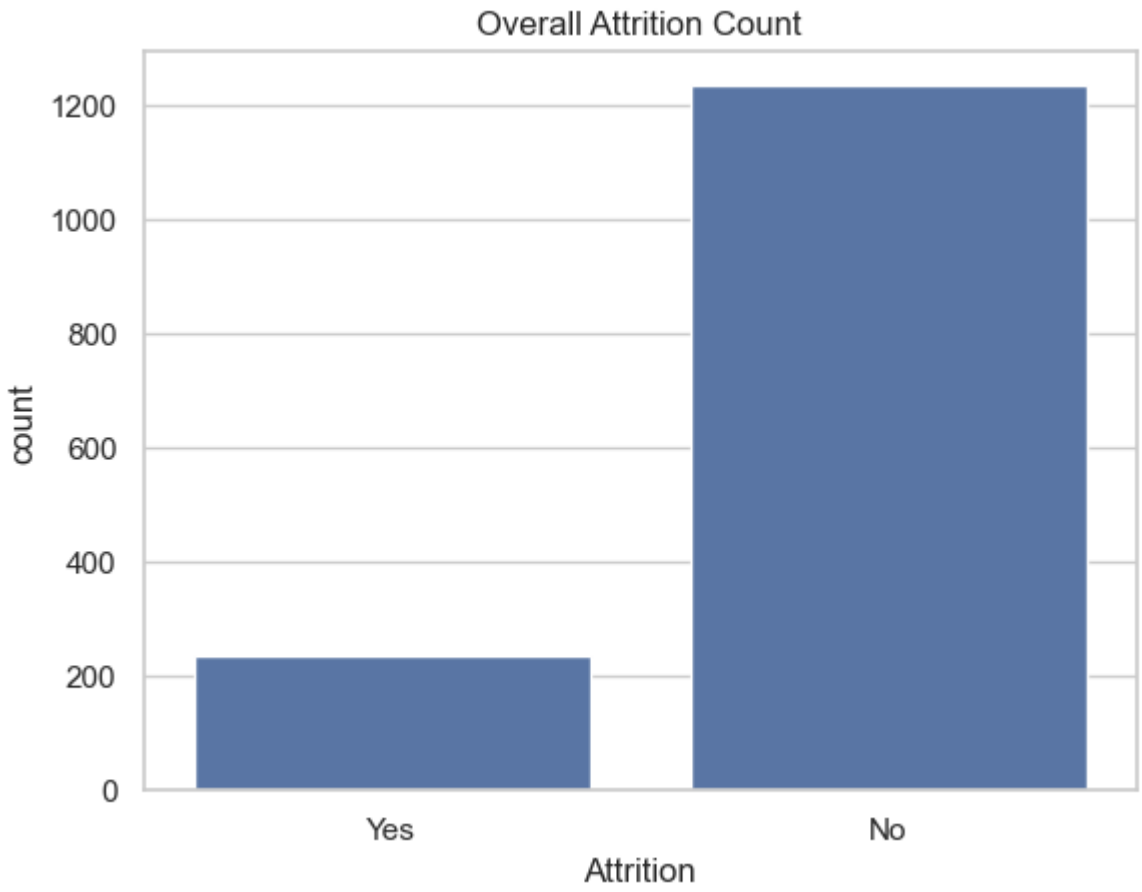


Chart- 2 ➡️ Attrition by Department

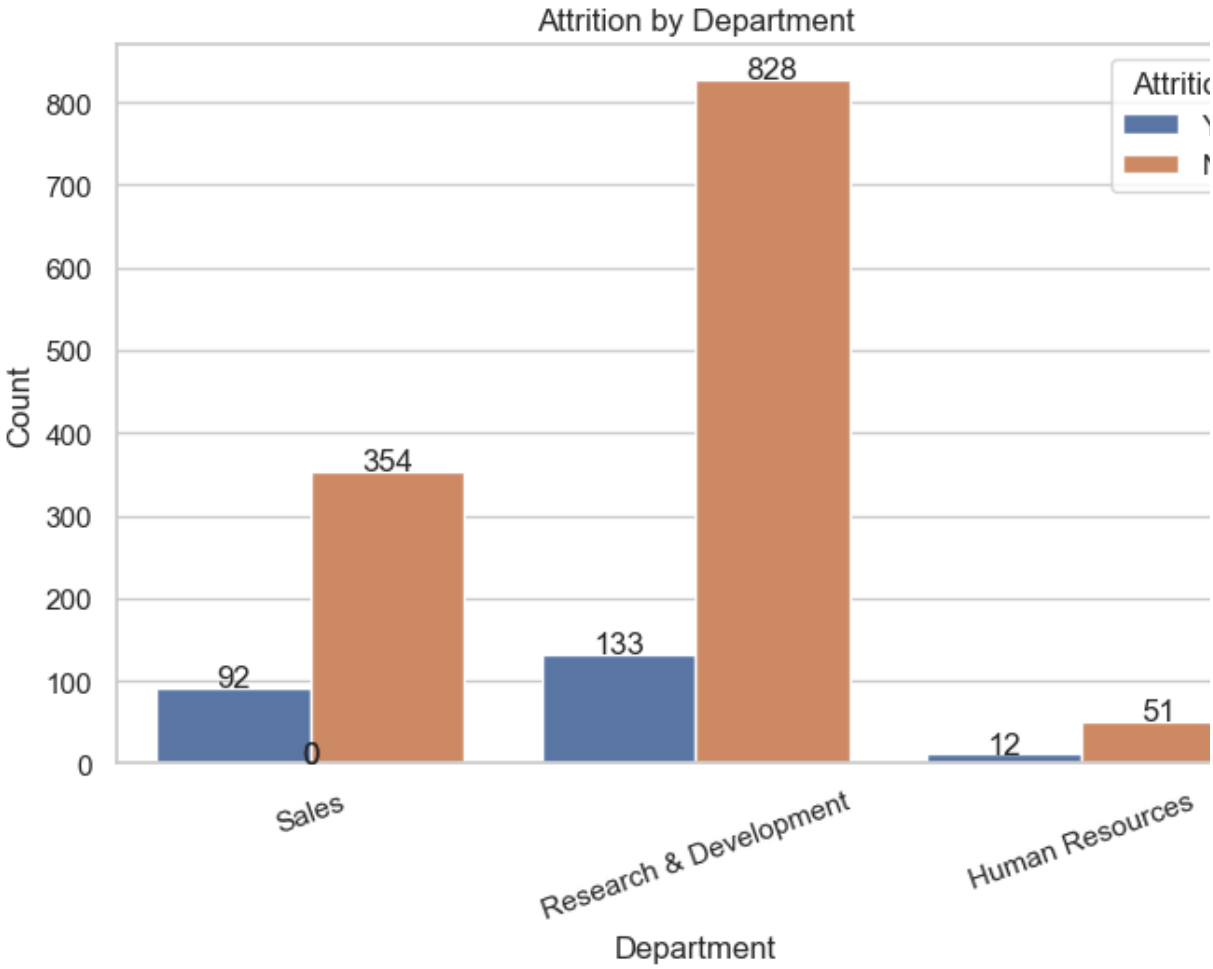


Chart- 3 ➡️ Attrition by Age

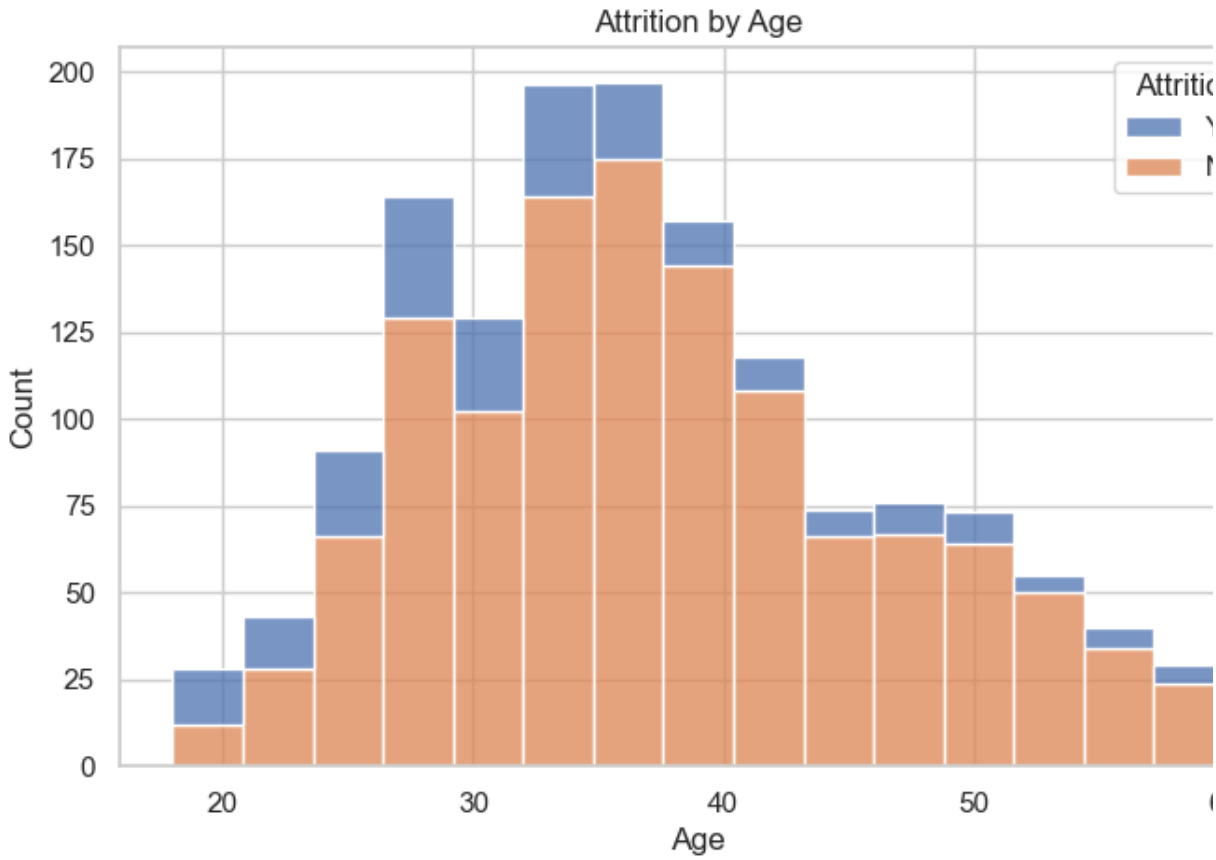
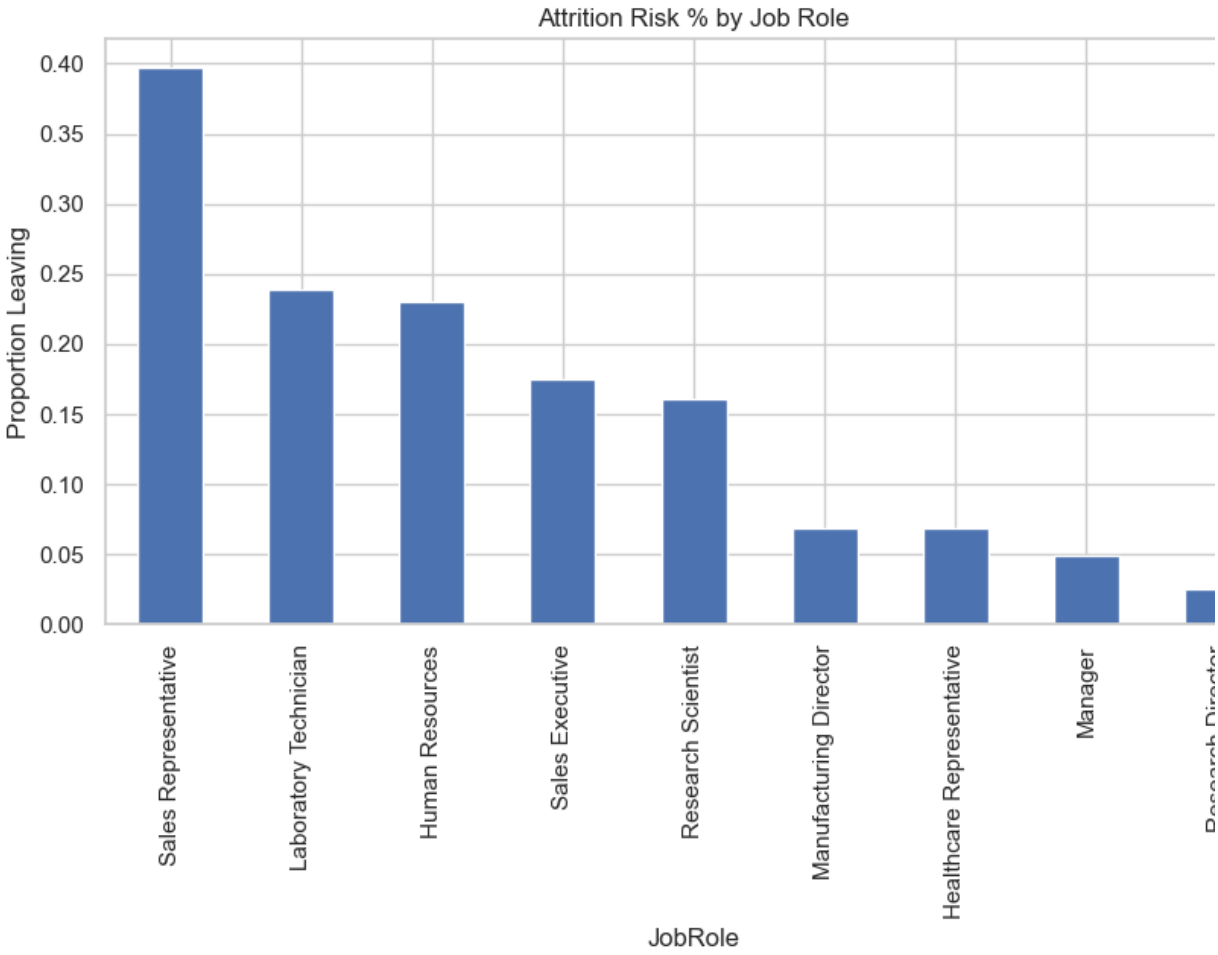


Chart- 4 ➡️ Attrition % by Job Role


Attrition Risk % by Job Role
Proportion Leaving
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
Sales Representative
Laboratory Technician
Human Resources
Sales Executive
Research Scientist
Manufacturing Director
Healthcare Representative
Manager
JobRole