

## Project Title: Employee Attrition & Satisfaction Dashboard

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### Introduction

In this project, I analyzed a real-world HR dataset from a multinational organization to identify key trends in employee attrition, satisfaction levels, and income patterns. The goal was to create a dynamic Excel dashboard that enables HR stakeholders to explore patterns and take data-driven decisions to reduce turnover and improve employee well-being.

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### Objective / Problem Statement

The objective was to identify high-attrition departments and roles, analyze satisfaction scores, examine the relationship between education, income, and attrition, and recommend actionable insights for better retention and workforce planning.

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### Tools Used

- Microsoft Excel
  - Pivot Tables & Pivot Charts
  - Excel Formulas (IF, COUNT, AVERAGE, % calculations)
  - Conditional Formatting
  - Slicers for interactivity
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### Dataset Description

- **Source:** Kaggle (IBM HR Analytics Dataset)
- **Records:** 1,471 employees
- **Columns Used:** Age, Gender, Attrition, Department, JobRole, MonthlyIncome, JobSatisfaction, Education, BusinessTravel, YearsAtCompany

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Age	Attrition	BusinessTravel	Department	Education	Environment	Gender	JobRole	JobSatisfaction	MonthlyIncome	YearsAtCompany	YearsInCurrentRole	YearsInCurrentDepartment	YearsInCurrentJob	YearsInCurrentTeam	YearsInCurrentProject	YearsInCurrentTeam	YearsInCurrentProject
1	41	Yes	Travel_Rarely	Sales	2	2	Female	Sales Executive	4	5993	6	1	0	0	0	0	0
2	49	No	Travel_Frequently	Research & Development	1	3	Male	Laboratory Technician	2	5130	10	0	0	0	0	0	0
3	37	Yes	Travel_Rarely	Research & Development	2	4	Male	Laboratory Technician	3	2090	0	1	0	0	0	0	0
4	33	No	Travel_Frequently	Research & Development	4	4	Female	Research Scientist	3	2909	8	0	0	0	0	0	0
5	27	No	Travel_Rarely	Research & Development	1	1	Male	Laboratory Technician	2	3468	2	0	0	0	0	0	0
6	32	No	Travel_Frequently	Research & Development	2	4	Male	Laboratory Technician	4	3068	7	0	0	0	0	0	0
7	59	No	Travel_Rarely	Research & Development	3	3	Female	Laboratory Technician	1	2670	1	0	0	0	0	0	0
8	30	No	Travel_Rarely	Research & Development	1	4	Male	Laboratory Technician	3	2693	1	0	0	0	0	0	0
9	38	No	Travel_Frequently	Research & Development	3	4	Male	Manufacturing Director	3	9526	9	0	0	0	0	0	0
10	36	No	Travel_Rarely	Research & Development	3	3	Male	Healthcare Representative	3	5237	7	0	0	0	0	0	0
11	35	No	Travel_Rarely	Research & Development	3	1	Male	Laboratory Technician	2	2426	5	0	0	0	0	0	0
12	29	No	Travel_Rarely	Research & Development	2	4	Female	Laboratory Technician	3	4193	9	0	0	0	0	0	0
13	31	No	Travel_Rarely	Research & Development	1	1	Male	Research Scientist	3	2911	5	0	0	0	0	0	0
14	34	No	Travel_Rarely	Research & Development	2	2	Male	Laboratory Technician	4	2661	2	0	0	0	0	0	0
15	28	Yes	Travel_Rarely	Research & Development	3	3	Male	Laboratory Technician	3	2028	4	1	0	0	0	0	0
16	29	No	Travel_Rarely	Research & Development	4	2	Female	Manufacturing Director	1	9980	10	0	0	0	0	0	0
17	32	No	Travel_Rarely	Research & Development	2	1	Male	Research Scientist	2	3298	6	0	0	0	0	0	0
18	22	No	Non-Travel	Research & Development	2	4	Male	Laboratory Technician	4	2935	1	0	0	0	0	0	0
19	53	No	Travel_Rarely	Sales	4	1	Female	Manager	4	15427	25	0	0	0	0	0	0
20	38	No	Travel_Rarely	Research & Development	3	4	Male	Research Scientist	4	3944	3	0	0	0	0	0	0
21	24	No	Non-Travel	Research & Development	2	1	Female	Manufacturing Director	3	4011	4	0	0	0	0	0	0
22	36	Yes	Travel_Rarely	Sales	4	3	Male	Sales Representative	1	3407	5	1	0	0	0	0	0
23	34	No	Travel_Rarely	Research & Development	4	1	Female	Research Director	2	11994	12	0	0	0	0	0	0
24	21	No	Travel_Rarely	Research & Development	2	3	Male	Research Scientist	4	1732	0	0	0	0	0	0	0
25	34	Yes	Travel_Rarely	Research & Development	1	2	Male	Research Scientist	1	2960	4	1	0	0	0	0	0
26	53	No	Travel_Rarely	Research & Development	3	3	Female	Manager	3	19094	14	0	0	0	0	0	0
27	32	Yes	Travel_Frequently	Research & Development	1	2	Female	Research Scientist	1	3919	10	2	0	0	0	0	0
28	41	No	Travel_Rarely	Research & Development	3	3	Male	Laboratory Technician	2	2173	0	0	0	0	0	0	0
29	34	No	Travel_Frequently	Research & Development	3	1	Male	Healthcare Representative	4	10240	29	3	0	0	0	0	0
30	46	No	Travel_Rarely	Sales	4	Marketing	3	Manager	3	15947	20	2	0	0	0	0	0
31	44	No	Travel_Rarely	Sales	4	Marketing	3	Manager	4	1680	4	0	0	0	0	0	0
32	44	No	Travel_Rarely	Sales	4	Marketing	3	Manager	4	1680	4	0	0	0	0	0	0
33	44	No	Travel_Rarely	Sales	4	Marketing	3	Manager	4	1680	4	0	0	0	0	0	0
34	44	No	Travel_Rarely	Sales	4	Marketing	3	Manager	4	1680	4	0	0	0	0	0	0
35	39	Yes	Travel_Rarely	Sales	4	Marketing	3	Manager	4	1680	4	0	0	0	0	0	0
36	44	No	Travel_Rarely	Sales	4	Marketing	3	Manager	4	1680	4	0	0	0	0	0	0
37	43	No	Travel_Rarely	Sales	4	Marketing	3	Manager	4	1680	4	0	0	0	0	0	0
38	56	Yes	Travel_Rarely	Sales	4	Marketing	3	Manager	4	1680	4	0	0	0	0	0	0
39	56	Yes	Travel_Rarely	Sales	4	Marketing	3	Manager	4	1680	4	0	0	0	0	0	0
40	38	Yes	Travel_Rarely	Sales	4	Marketing	3	Manager	4	1680	4	0	0	0	0	0	0
41	47	No	Travel_Rarely	Sales	4	Marketing	3	Manager	4	1680	4	0	0	0	0	0	0
42	35	No	Travel_Rarely	Sales	4	Marketing	3	Manager	4	1680	4	0	0	0	0	0	0
43	46	Yes	Travel_Rarely	Sales	4	Marketing	3	Manager	4	1680	4	0	0	0	0	0	0
44	27	No	Travel_Frequently	Sales	4	Marketing	3	Manager	4	1680	4	0	0	0	0	0	0
45	41	No	Travel_Rarely	Sales	4	Marketing	3	Manager	4	1680	4	0	0	0	0	0	0
46	34	No	Travel_Rarely	Sales	4	Marketing	3	Manager	4	1680	4	0	0	0	0	0	0
47	37	No	Travel_Rarely	Sales	4	Marketing	3	Manager	4	1680	4	0	0	0	0	0	0

## Data Cleaning Steps

- Removed unnecessary columns like EmployeeNumber, Over18, StandardHours, etc.
- Added calculated columns:
  - Attrition\_Flag = IF(Attrition = "Yes", 1, 0)
  - TenureGroup = Based on YearsAtCompany (e.g., <1 year, 1-3 years, 3-6 years, 6+ years)
- Applied conditional formatting to highlight low satisfaction scores and attrition cases

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## Analysis & Pivot Table Insights

- Attrition Count by Department

Row Labels	Sum of Attrition_Flag
Human Resources	12
Research & Development	133
Sales	92
<b>Grand Total</b>	<b>237</b>

- Attrition % by Job Role

Row Labels	Sum of Attrition_Flag	Count of JobRole
Healthcare Representative	9	131
Human Resources	12	52
Laboratory Technician	62	259
Manager	5	102
Manufacturing Director	10	145
Research Director	2	80
Research Scientist	47	292
Sales Executive	57	326
Sales Representative	33	83
<b>Grand Total</b>	<b>237</b>	<b>1470</b>

- Average Monthly Income by Education Level

Row Labels	Average of MonthlyIncome
1	5640.570588
2	6226.64539
3	6517.263986
4	6832.40201
5	8277.645833
<b>Grand Total</b>	<b>6502.931293</b>

- Average Job Satisfaction by Role

Row Labels	Average of JobSatisfaction
Healthcare Representative	2.786259542
Human Resources	2.557692308
Laboratory Technician	2.691119691
Manager	2.705882353
Manufacturing Director	2.682758621
Research Director	2.7
Research Scientist	2.773972603
Sales Executive	2.754601227
Sales Representative	2.734939759
<b>Grand Total</b>	<b>2.728571429</b>

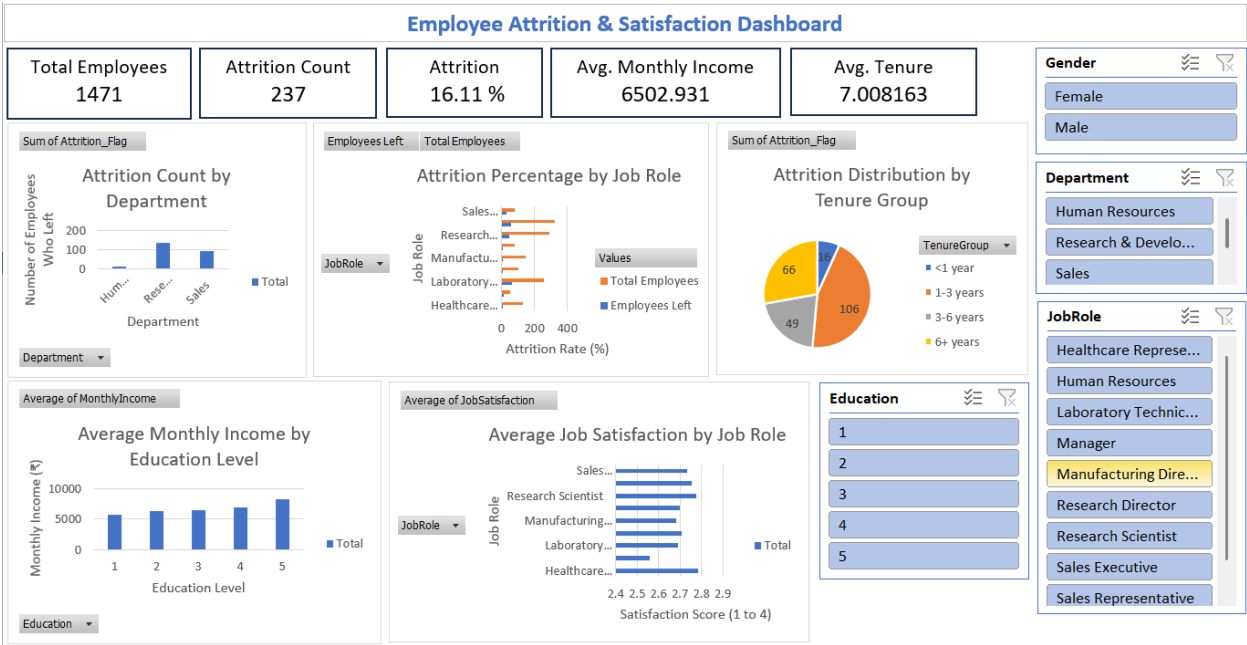
- Attrition by TenureGroup (Pie chart)

Row Labels	Sum of Attrition_Flag
<1 year	16
1-3 years	106
3-6 years	49
6+ years	66
<b>Grand Total</b>	<b>237</b>

- Age Distribution

Row Labels	Count of Age
18	6
19	9
20	11
21	13
22	16
23	14
24	26
25	39
26	46
27	48
28	68
29	60
30	69
31	61
32	58
33	77
34	78
35	69
36	56
37	42
38	57
39	40
40	46
41	30
42	33
43	41
44	33
45	24
46	19
47	19
48	18
49	19
50	15
51	22
52	14
53	4
54	14
55	10
56	6
<b>Grand Total</b>	<b>1476</b>

Final Dashboard (Key Insights)



Section	Description
KPIs	Total employees, attrition %, avg. income, tenure
Attrition by Dept	Visual of departments with highest exits
Attrition % by Role	Comparison of attrition rate across roles
TenureGroup Pie	Majority of attrition occurs in <3 years group
Monthly Income	Avg. income increases with education level
Satisfaction Chart	Roles with lowest and highest satisfaction
Filters	Gender, Department, JobRole, Education (slicers)

Conclusion

- Developed a real-world Excel dashboard focused on HR analytics
- Learned to clean, analyze, and visualize workforce data
- Gained practical experience in business storytelling and data-driven recommendations
- Ready to present this in interviews and project demos

