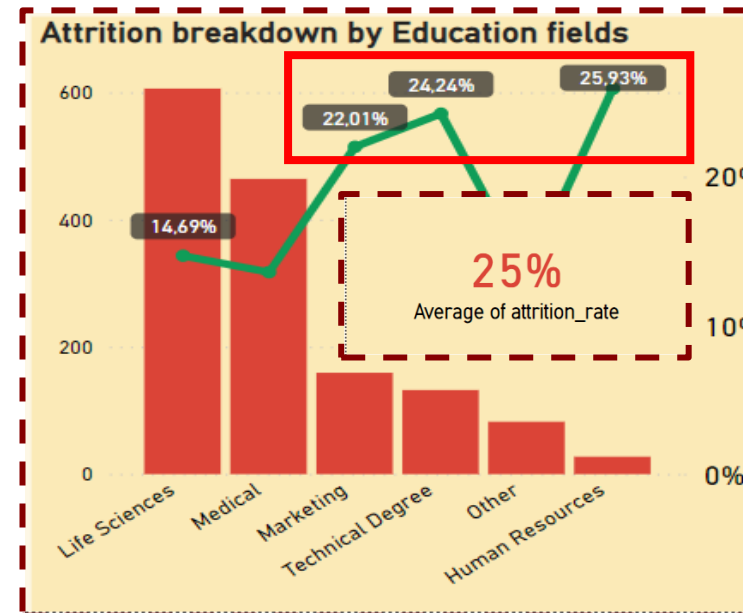# Overview

Context

Uncover the factors that lead to employee attrition and explore important questions relating to **attrition rate** such as "*show me a breakdown of distance from home by job role and attrition*". This is a fictional data set created by IBM data scientists (published on Kaggle.com).

Attrition Rate | Education Status

▶ Attritions rate of employees having majors are **Human Resources, Technical Degree and Marketing** is significantly higher (over **20%**) than the remaining.

▶ Specially, Attrition rate of employees whose majors are HR was **25.93% (higher than average attrition rate ("AAR") of whole dataset).**

Attrition breakdown by Education fields

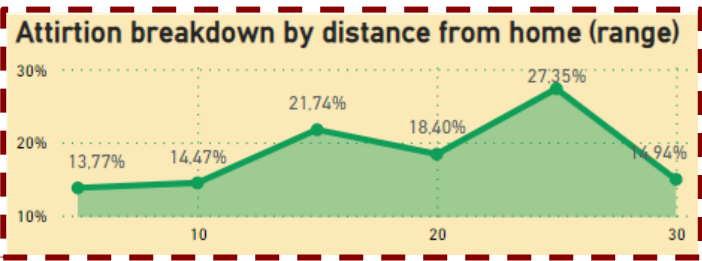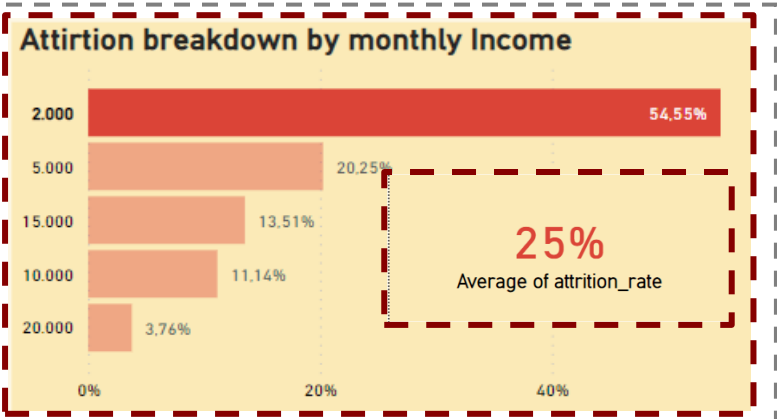| Education rank	Human Resources	Life Sciences	Marketing	Medical	Other	Technical Degree	Grand Total
1 'Below College'	50%	12%	29%	16%	40%	32%	18%
2 'College'	0%	16%	25%	15%	5%	18%	16%
3 'Bachelor'	25%	16%	25%	14%	8%	28%	17%
4 'Master'	20%	14%	17%	13%	18%	13%	15%
5 'Doctor'	50%	6%	10%	0%	0%	67%	10%

Attrition rates of employees whose majors are HR were **abnormally high (20-50%)** and always in **top 2** with every education rank.

Attrition rates of employees whose majors are Technical Degree and worked in non-related department were **abnormally high (over AAR).**

Department	Human Resources	Life Sciences	Marketing	Medical	Other	Technical Degree	Grand Total
Human Resources	26%	6%		15%		50%	19%
Research & Development		13%		13%	11%	21%	14%
Sales		19%	22%	16%	27%	29%	21%

Attrition Rate | Income/Distance

Employees with income up to $2000 have **extremely highest attrition rate (54.55%)**

Attirtion breakdown by monthly Income

Income	Attrition
2.000	54.55%
5.000	20.25%
15.000	13.51%
10.000	11.14%
20.000	3.76%

25%
Average of attrition_rate

Attirtion breakdown by distance from home (range)

13,77% 14,47% 21,74% 18,40% 27,35% 14,94%

Attrition rates tends to **increase** with distance from home. However, employees whose distances were over 25 km have **significantly low** attrition rates **(14.94%)**
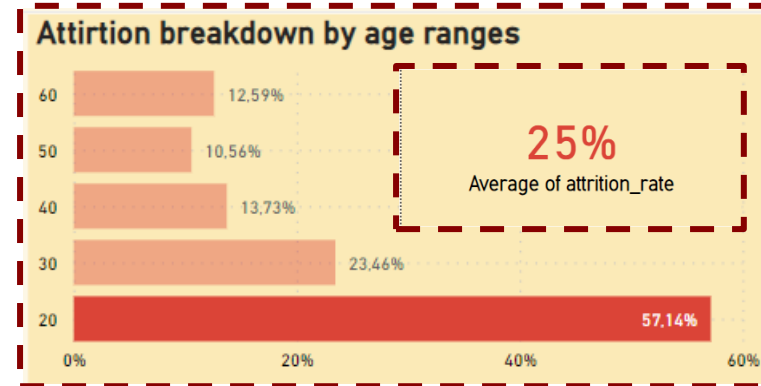
Employees with income over $2000, The highest distribution of attrition were employees who live far from offices **15 – 25 km** and earn **$5000 – $15000** per month.

Atrrition breakdown by Distance/Income

range	2000	5000	10000	15000	20000
5	38%	19%	8%	11%	5%
10	73%	18%	8%	13%	
15		24%	21%	33%	8%
20		28%	11%		
25	100%	29%	24%	19%	
30		13%	22%	17%	

Attrition Rate | Ages/Marital Status/Roles

▶ Employees who were under 20 years old have **by far the highest attrition rate (57.14%)**

▶ With employees were over 20, The one who was in 21 -30 years old had attrition **rate as double as** the remaining.

Attrition breakdown by age ranges

25%
Average of attrition_rate

Employees as **Sales Representative** (Lowest level In Sales) have **by far the highest attrition rate (40%)**. Attrition rates tends to **increase** with tittle.

Attrition breakdown by job roles

JobRole ▼	Attirtion_rate
Sales Representative	40%
Laboratory Technician	24%
Human Resources	23%
Sales Executive	17%
Research Scientist	16%
Manufacturing Director	7%
Healthcare Representative	7%
Manager	5%
Research Director	3%

The single employees have **significantly high** attrition rate **(25.53%)** which was **over AAR** and **as double as** the remaining.

Attrition by marital status