

Adviti Pvt. Ltd

# HR Analytics

SQL For Business Analytics Project

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## **CONTENTS**

1. INTRODUCTION
2. OBJECTIVES
3. DATA CLEANING AND PREPARATION
4. ANALYSIS AND INSIGHTS
  - 4.1. Insights on factors affecting employee attrition
  - 4.2. Insights on impact of training programs on performance
5. FINAL RECOMMENDATIONS
  - 5.1. Data-backed strategies to bolster retention
  - 5.2. Strategies fostering skill development and enhancing performance

## 1. INTRODUCTION :

Multidisciplinary consulting business Adviti Pvt. Ltd. operates in multiple industries. The corporation emphasizes data-driven strategic decision-making and organizational efficiency. According to this objective, the HR department has started an analytics initiative to analyze workforce data and find actionable insights to improve employee engagement and operational operations.

Each of 750 employees has the following attributes.

### Columns:

Employee_ID	text
Employee_Name	text
Age	int
Years_of_Service	int
Position	text
Gender	text
Department	text
Salary	int
Performance_Rating	int
Work_Hours	int
Attrition	text
Promotion	text
Training_Hours	int
Satisfaction_Score	int
Education_Level	text
Employee_Engagement_Score	int
Absenteeism	int
Distance_from_Work	double
JobSatisfaction_PeerRelationship	int
JobSatisfaction_WorkLifeBalance	int
JobSatisfaction_Compensation	int
JobSatisfaction_Management	int
JobSatisfaction_JobSecurity	int
EmployeeBenefit_HealthInsurance	int
EmployeeBenefit_PaidLeave	int
EmployeeBenefit_RetirementPlan	int
EmployeeBenefit_GymMembership	int
EmployeeBenefit_ChildCare	int

## 2. OBJECTIVES :

- Identify the underlying causes of employee turnover and propose data-backed strategies to bolster retention.
- To evaluate current training initiations effectiveness and suggest improvements for fostering skill development and enhancing performance.

## 3. DATA CLEANING AND PREPARATION:

- Replacing 'Female' in Gender as 'F' and 'Male' as M. In the original dataset there was 'Female', 'F', 'Male' and 'M'.
- Replacing 'Account Exec.' as 'AccountExecutive' in Position column of the dataset as they mean the same.
- The column name 'JobSatisfaction\_Work-LifeBalance' was changed to 'JobSatisfaction\_WorkLifeBalance'.
- The Data has no missing values or null values. All the attributes had the right data type and hence no changes were made with respect to the data types.

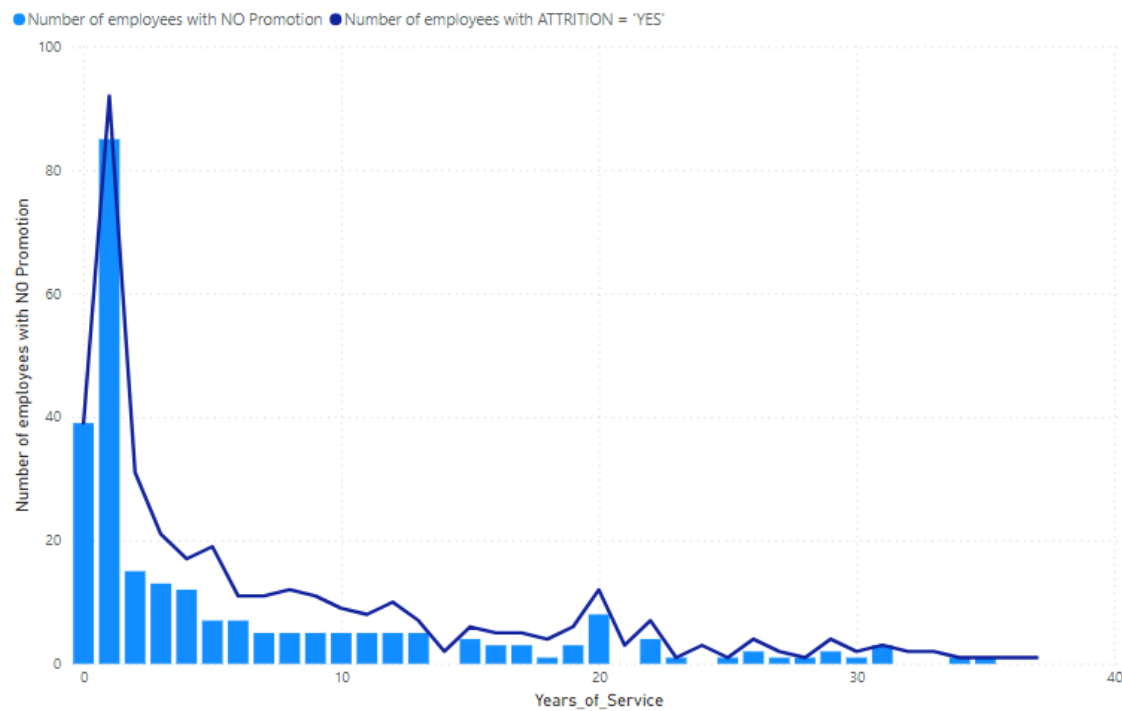
## 4. ANALYSIS AND INSIGHTS:

### 4.1. Insights on factors affecting employee attrition

#### A] Promotions And Attrition

	Years_of_Service	NO_OF_EMPLOYEES_ATTRITION_YES	count_promotion_yes	count_promotion_no	percentage_promotion_yes	percentage_promotion_no
0	39	0	39	0.0000	100.0000	
1	92	7	85	7.6087	92.3913	
2	31	16	15	51.6129	48.3871	
3	21	8	13	38.0952	61.9048	
4	17	5	12	29.4118	70.5882	
5	19	12	7	63.1579	36.8421	
6	11	4	7	36.3636	63.6364	
7	11	6	5	54.5455	45.4545	
8	12	7	5	58.3333	41.6667	
9	11	6	5	54.5455	45.4545	
10	9	4	5	44.4444	55.5556	
11	8	3	5	37.5000	62.5000	
12	10	5	5	50.0000	50.0000	
13	7	2	5	28.5714	71.4286	

Number of employees with NO Promotion and Number of employees with ATTRITION = 'YES' by Years\_of\_Service



- For the years-of-service 0 and 1, the promotion had a crucial effect on attrition.
- 92.39% of employee turnover over the first year of employment had no promotions.
- The employees expected promotion at beginning year of their service.

#### b) Satisfactionscore And Attrition

	Satisfaction_Score	percentage_of_attrition_YES
1	17.0213	
2	18.6170	
3	19.4149	
4	22.3404	
5	22.6064	

Percentage\_of\_attrition\_YES indicates the percentage of total employee turnover with respect to Satisfaction\_score.

- High job satisfaction (satisfaction\_score = 5) was reported by 22.60% of the employee turnover.
- Employee satisfaction was high, but at the same time, there was a higher rate of turnover.

### C] Performance\_Rating And Attrition

	Performance_Rating	Attrition_Yes	percentage_of_attrition_YES
▶	1	69	18.3511
	2	76	20.2128
	3	78	20.7447
	4	73	19.4149
	5	80	21.2766

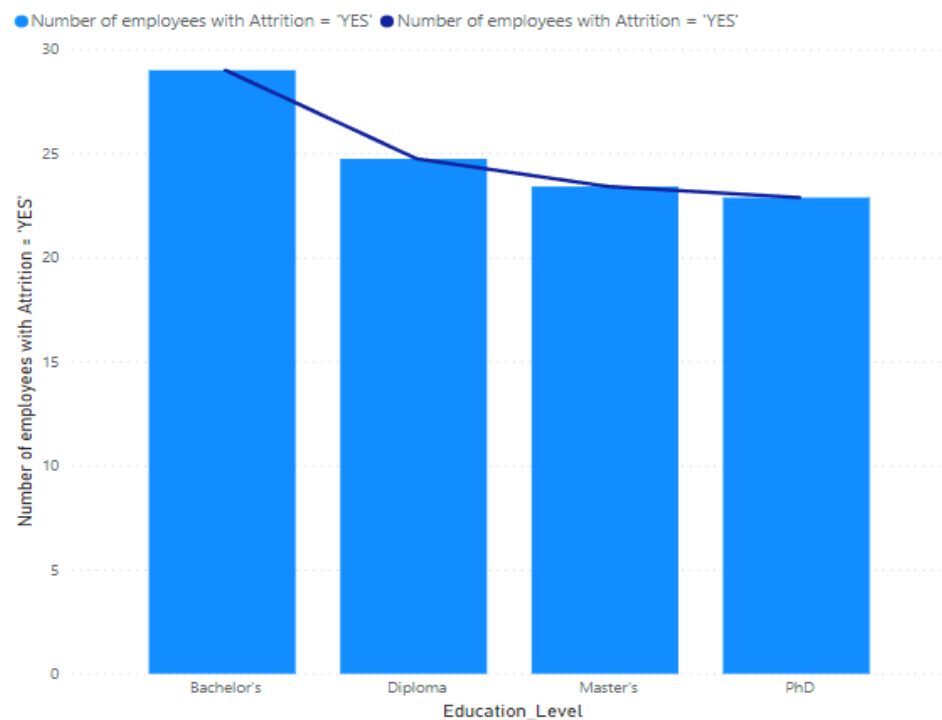
Percentage\_of\_attrition\_YES indicates the percentage of total employee turnover with respect to Performance\_Rating.

- High performance rate (Performance\_Rating = 5) accounts for 21.2766% of overall employee turnover.
- Each performance rating had an equal impact on employee attrition.

### D] Education\_Level And Attrition

	Education_Level	percentage_of_attrition_YES
▶	Bachelor's	28.9894
	Master's	23.4043
	Diploma	24.7340
	PhD	22.8723

Number of employees with Attrition = 'YES' and Number of employees with Attrition = 'YES' by Education\_Level



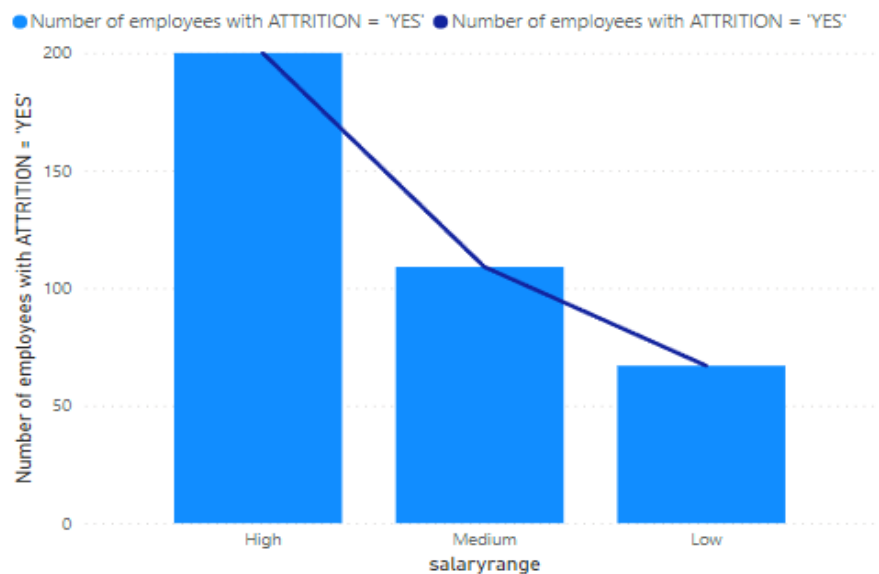
Percentage\_of\_attrition\_YES indicates the percentage of total employee turnover with respect to Performance\_Rating.

- Employees with the lowest education level (BE) accounted for 28.98 percent of overall attrition.
- Employees with the Highest education level (PhD) accounted for low percent (22.87%) of overall attrition.

### E] Salary And Attrition

	salaryrange	Attrition_Yes
▶	High	200
	Medium	109
	Low	67

Number of employees with ATTRITION = 'YES' and Number of employees with ATTRITION = 'YES' by salaryrange



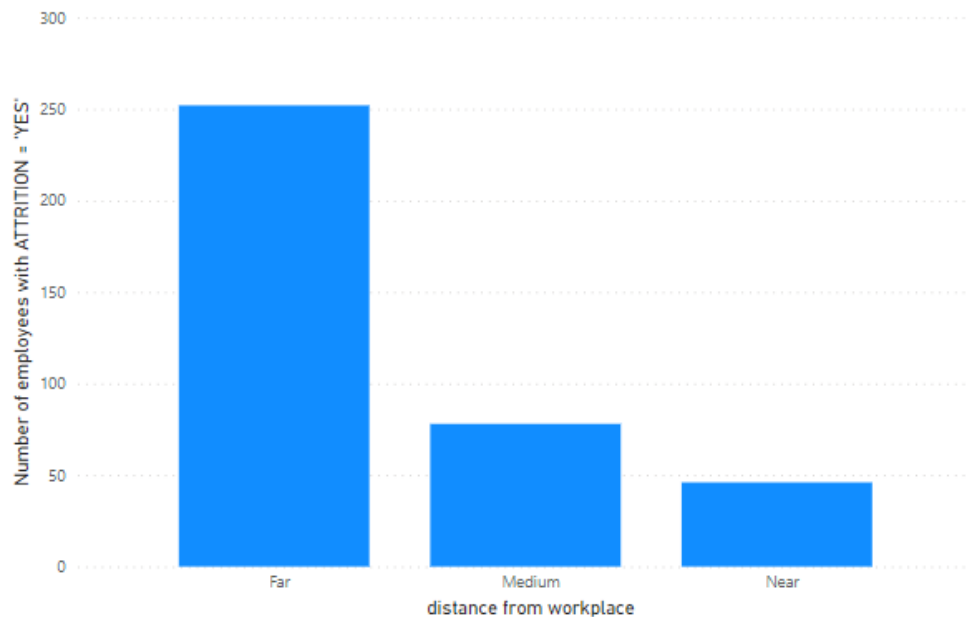
Salary > 1000000 is 'High', Salary > 400000 AND Salary <= 1000000 is 'Medium'

- Employees with high salary tend to leave the company, 200 out of 376 have high salary.
- Next highest is the employees with medium salary tend to leave the company, 109 out of 376 have medium salary.

### F] Distance\_from\_work And Attrition

	distancefromwork	Attrition_Yes	percentage_Attrition_Yes
▶	Far	252	67.0213
	Medium	78	20.7447
	Near	46	12.2340

Number of employees with ATTRITION = 'YES' by distance from workplace



Distancefromwork > 20 is 'Far', Distancefromwork >10 AND Distancefromwork <=20 is 'Medium'.

- Employees who live distant from work are more likely to depart the organization. About 67% of departing employees reside far away.
- Employees living near their workplace did not contribute to attrition.

#### 4.2. Insights on impact of training programs on performance

Training\_Hours attribute is used to gain insights on impact of training programs on performance as there is no other attribute available. A new column 'Traininghourrange' is added to the data such that it is: **High** when Training\_Hours > 35, **Medium** when Training\_Hours > 20 AND Training\_Hours <= 35 and **Low** when Training\_Hours <= 20.

##### A] Promotion And Training\_Hours

	Traininghourrange	Employees_Promoted	Employees_not_Promoted	Percentageimpact
▶	High	86	156	35.5372
	Low	89	184	32.6007
	Medium	77	158	32.7660

- $\text{Percentageimpact} = \left( \frac{\text{Employees\_Promoted}}{\text{Employees\_Promoted} + \text{Employees\_not\_Promoted}} \right) * 100$ .
- The promotion rate was a bit higher (about 2 % higher) for the employees who took up the training program for longer duration.
- The promotion rate was almost equal (of about 32.6 %) for the employees who took up the training program for shorter and medium duration.



### B] Attrition And Training\_Hours

	Traininghoursrange	ATTRITION_YES	ATTRITION_NO	Percentageimpact
►	Low	134	139	50.9158
	Medium	117	118	50.2128
	High	125	117	48.3471

- $\text{Percentageimpact} = (\text{ATTRITION\_NO} / (\text{ATTRITION\_YES} + \text{ATTRITION\_NO})) * 100$ .
- The employees who took up the training program for shorter and medium duration tend to stay with the company a bit more than the employees who took up the training program for longer duration.

### C] AveragePerformance\_Rating And Training\_Hours

	Traininghoursrange	AveragePerformance_Rating
	High	2.9917
►	Low	2.9744
	Medium	3.0000

- The Average Performance\_Rating is almost the same for all the categories of employees who took up the training program for shorter, medium and longer duration.

### D] AverageEmployee\_Satisfaction\_Score And Training\_Hours

	Traininghoursrange	AverageEmployee_Satisfaction_Score
►	High	3.0165
	Low	3.0842
	Medium	3.1872

- The AverageEmployee\_Satisfaction\_Score is almost the same for all the categories of employees who took up the training program for shorter, medium and longer duration.

### E] AverageEmployee\_Engagement\_Score And Training\_Hours

	Traininghoursrange	AverageEmployee_Engagement_Score
►	High	3.0702
	Low	2.9011
	Medium	3.0851

- The AverageEmployee\_Engagement\_Score is almost the same for all the categories of employees who took up the training program for shorter, medium and longer duration.

## **5. FINAL RECOMMENDATION :**

### **5.1. Data-backed strategies to bolster retention**

- The highest attrition was seen with the employees having year of experience equal to 0 and 1. There were no much promotion rate seen for this category of employees. If the promotions are given at the early stage then it would motivate the employees to stay in the Company.
- Employees with high education level tend to stay more with the company than the employees with lower education level. Employees with higher education levels may be in roles that align more closely with their educational background, providing a better fit and increased job satisfaction. They may also have access to more specialized career opportunities within the company. Retaining employees with lower education levels in a company involves addressing their unique needs, providing opportunities for growth, and creating a supportive work environment.
- Employees with Lower salary tend to stay more with the company than the employees with high salaries. Typically, there is a positive correlation between salary levels and employee retention. Observing a trend where lower-salaried employees are staying longer with the company may indicate various factors at play.
- Employees who live far from the work place tend to leave the company. To overcome the challenge of employees leaving the company due to a far distance from the workplace, you can implement strategies to enhance their work experience (Provide stipends or allowances to employees who work from home to cover expenses related to setting up a home office or improving their remote work environment), improve flexibility (remote work options or flexible scheduling), and address commuting-related concerns (subsidies for public transportation, carpooling programs, or assistance with ride-sharing services).

### **5.2. Strategies fostering skill development and enhancing performance**

Evaluating the effectiveness of training initiatives and suggesting improvements for skill development and performance enhancement in a company requires collecting diverse sets of information. There is not enough information in the data. For instance, types of training delivery methods used (e.g., classroom sessions, online modules, workshops), results of assessments conducted before training to gauge participants' baseline knowledge or skills and results of assessments conducted after training to measure knowledge gain or skill improvement, information on how participants are applying the learned skills in their daily tasks or projects, feedback from participants regarding the training content, delivery, and overall effectiveness. Feedback from managers on observed changes in employee performance and behaviour after training. Key performance indicators (KPIs) related to job performance (e.g., productivity, error rates, customer satisfaction). The aforementioned information would collectively facilitate the process of determining strategies that promote skill development and performance enhancement.

## PowerBI-report

