



**Psyliq**  
Internship

# HR DATA Analytics

## Navigating the Future through Data-Driven Insights

PRESENTED BY SUHAIL AHMED



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# DESCRIPTION

As a Data Analyst Intern at PSYLIQ, my role is pivotal in deciphering the complexities of the company's recruitment strategy to bolster organizational success. I delve into analyzing critical aspects of the hiring process, such as rejection rates, interview efficiencies, and the nature of vacancies, which are instrumental in refining recruitment approaches. Entrusted with the evaluation of PSYLIQ's extensive historical hiring data, my mission is to unearth actionable insights that can streamline and enhance the recruitment framework. This endeavor aims to empower the Hiring Department with data-backed recommendations, fostering informed decision-making. My analysis is geared towards identifying trends and patterns that can optimize hiring tactics, thus attracting elite talent and contributing significantly to PSYLIQ's overarching ambitions for growth and operational excellence. This initiative underscores the value of data-driven strategies in achieving recruitment excellence and organizational goals.

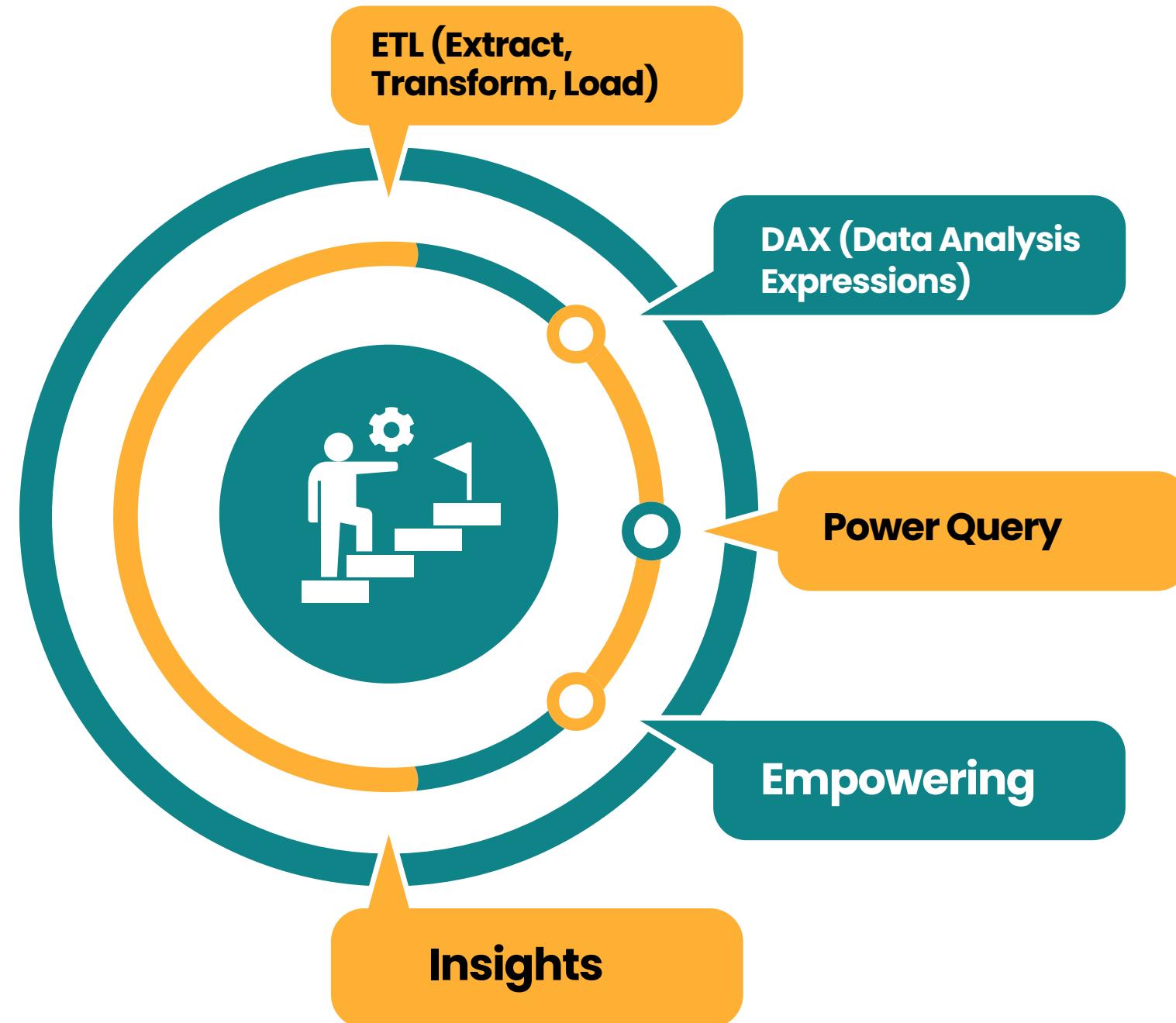




## APPROACH

### Clarify the project's overall objectives and goals.

The project's goal is to enhance PSYLIQ's hiring strategies using a data-driven analysis. Starting with an ETL process, it involves extracting essential hiring data from PSYLIQ's records, including job roles, salary changes, and employment outcomes. During the transformation phase, data will be standardized and errors corrected using Power Query in Excel. The analysis in Power BI will focus on deep insights through advanced features, examining variables like departmental performance, marital status, and salary hikes using DAX for complex calculations. The final aim is to provide PSYLIQ's Hiring Department with actionable insights to optimize recruitment processes and attract top talent effectively.



# TECH-STACK



## EXCEL

A wide number of industries, including business, finance, education, and research, utilize Microsoft Excel extensively because of its versatility and diversity of uses.



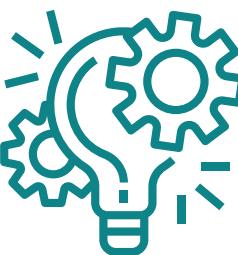
## POWER BI

Power BI, serves as a potent business analytics tool, aiding in data visualization and analysis to inform decision-making processes by professionals worldwide.

# INSIGHTS

Brief discusses the key insights  
for the Project

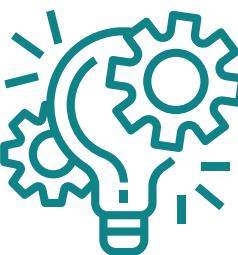
# FILTERING EMPLOYEES AGED 30 AND ABOVE IN POWER BI



To filter employees aged 30 and above in Power BI, you would apply a filter to the 'Age' column in your dataset. In the visualization pane or the data tab, you would set the filter to only include rows where the 'Age' value is greater than or equal to 30. This action will refine the displayed data, ensuring that all subsequent analysis, reports, and visualizations consider only employees who meet this age criterion. It's a useful technique for focusing on a specific demographic, perhaps to analyze patterns related to more experienced staff, such as attrition rates, department distribution, or travel requirements for this age group within the organization.

Age	Attrition	BusinessTravel	Department
33	No	Travel_Rarely	Research & Development
41	Yes	Travel_Rarely	Research & Development
31	No	Travel_Rarely	Sales
56	No	Travel_Rarely	Human Resources
46	No	Travel_Rarely	Research & Development
31	No	Travel_Rarely	Research & Development
30	No	Travel_Rarely	Sales
40	No	Travel_Rarely	Research & Development
32	No	Travel_Rarely	Research & Development
41	No	Travel_Rarely	Research & Development
31	No	Travel_Rarely	Research & Development
37	No	Travel_Rarely	Research & Development
43	No	Travel_Rarely	Research & Development
44	Yes	Travel_Rarely	Human Resources
30	No	Travel_Rarely	Research & Development
35	Yes	Travel_Rarely	Sales
31	No	Travel_Rarely	Research & Development
49	No	Travel_Rarely	Sales
42	No	Travel_Rarely	Sales
30	No	Travel_Rarely	Research & Development
44	No	Travel_Rarely	Sales
45	No	Travel_Rarely	Research & Development
40	No	Travel_Rarely	Research & Development
33	No	Travel_Rarely	Research & Development
41	Yes	Travel_Rarely	Research & Development
31	No	Travel_Rarely	Sales
56	No	Travel_Rarely	Human Resources
46	No	Travel_Rarely	Research & Development
31	No	Travel_Rarely	Research & Development

# REMOVE THE NULL AND EMPTY VALUES FROM DATASET



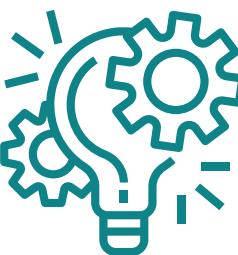
To ensure data integrity for our analysis, we employ the Transform Data feature in Power BI to remove rows with null or empty values. This crucial data cleansing step prevents potential inaccuracies and prepares the dataset for reliable analysis and reporting, supporting sound HR decision-making.

Queries [5]

= Table.TransformColumnTypes(#"Promoted Headers",{{"Age", Int64.Type}, {"Attrition", type text}, {"BusinessTravel", type text}, {"Department", type text}, {"DistanceFromHome", Int64.Type}, {"Education", Int64.Type}, {"EducationField", type text}})

	Age	Attrition	BusinessTravel	Department	DistanceFromHome	Education	EducationField
1	51	No	Travel_Rarely	Sales	6	2	Life Sciences
2	31	Yes	Travel_Frequently	Research & Development	10	1	Life Sciences
3	32	No	Travel_Frequently	Research & Development	17	4	Other
4	38	No	Non-Travel	Research & Development	2	5	Life Sciences
5	32	No	Travel_Rarely	Research & Development	10	1	Medical
6	46	No	Travel_Rarely	Research & Development	8	3	Life Sciences
7	28	Yes	Travel_Rarely	Research & Development	11	2	Medical
8	29	No	Travel_Rarely	Research & Development	18	3	Life Sciences
9	31	No	Travel_Rarely	Research & Development	1	3	Life Sciences
10	25	No	Non-Travel	Research & Development	7	4	Medical
11	45	No	Travel_Rarely	Research & Development	17	2	Medical
12	36	No	Travel_Rarely	Research & Development	28	1	Life Sciences
13	55	No	Travel_Rarely	Research & Development	14	4	Life Sciences
14	47	Yes	Non-Travel	Research & Development	1	1	Medical
15	28	No	Travel_Rarely	Research & Development	1	3	Life Sciences
16	37	No	Travel_Rarely	Research & Development	1	3	Life Sciences
17	21	No	Travel_Rarely	Research & Development	3	2	Life Sciences
18	37	No	Non-Travel	Research & Development	1	3	Medical
19	35	No	Travel_Rarely	Sales	7	4	Life Sciences
20	38	No	Travel_Rarely	Research & Development	8	3	Life Sciences
21	26	No	Travel_Frequently	Research & Development	1	4	Other
22	50	No	Travel_Rarely	Sales	8	4	Life Sciences
23	53	No	Travel_Rarely	Research & Development	11	4	Life Sciences
24	42	No	Travel_Rarely	Research & Development	4	4	Life Sciences
25	29	No	Travel_Frequently	Research & Development	16	4	Medical
26	55	No	Travel_Rarely	Research & Development	1	4	Other

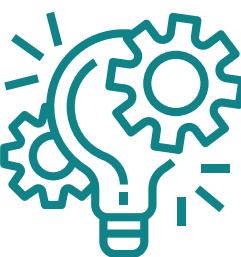
# AVERAGE MONTHLY INCOME BY JOB ROLE



The table presents a breakdown of average monthly incomes by job role, illustrating the salary distribution across various positions in the organization. It highlights the financial disparities between roles, serving as a reference for HR in compensation planning and strategy.

Job Role	Average of Monthly Income
Human Resources	9130380
Research Director	15713550
Sales Representative	16277370
Manager	19399140
Healthcare Representative	23966610
Manufacturing Director	30094920
Laboratory Technician	51526020
Research Scientist	56918700
Sales Executive	63752580
<b>Grand Total</b>	<b>286779270</b>

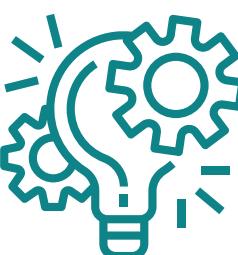
# HIGHLIGHTING EMPLOYEES WITH MONTHLY INCOME ABOVE COMPANY



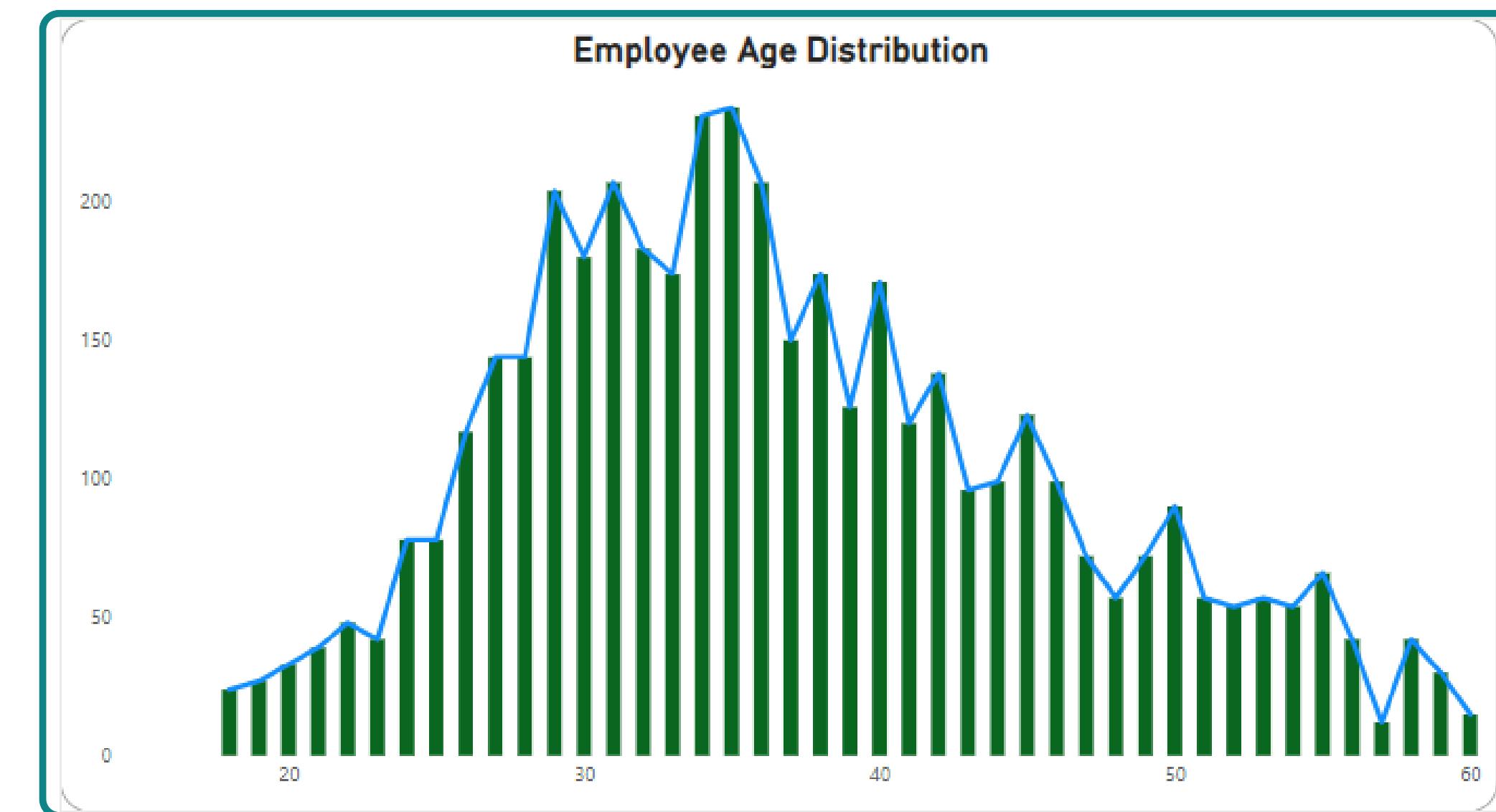
The image shows a column of monthly incomes with highlighted entries, indicating employees who earn above a particular benchmark. This visual tool is essential for quickly identifying high earners and assessing compensation patterns within the company.

N	MonthlyIncome
	131160
	41890
	193280
	83210
	23420
	40710
	58130
	31430
	20440
	134640
	79910
	33770
	55380
	57620
	25920
	53460
	42130
	41270
	24380
	68700
	104470
	96670
	21480
	89260
	65130
	67990
	162910
	-----

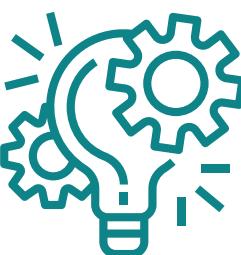
# VISUALIZING EMPLOYEE AGE DISTRIBUTION



The graph titled "Employee Age Distribution" depicts the age profile of a company's workforce. The bell-shaped distribution indicates a concentration of mid-career employees, with fewer younger and older workers, suggesting a mature workforce with implications for recruitment and succession planning.



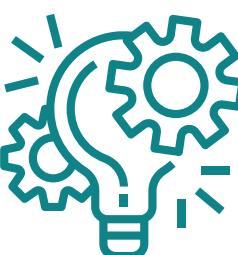
# CLEANING MISSING OR INCONSISTENT DATA IN THE "DEPARTMENT" COLUMN



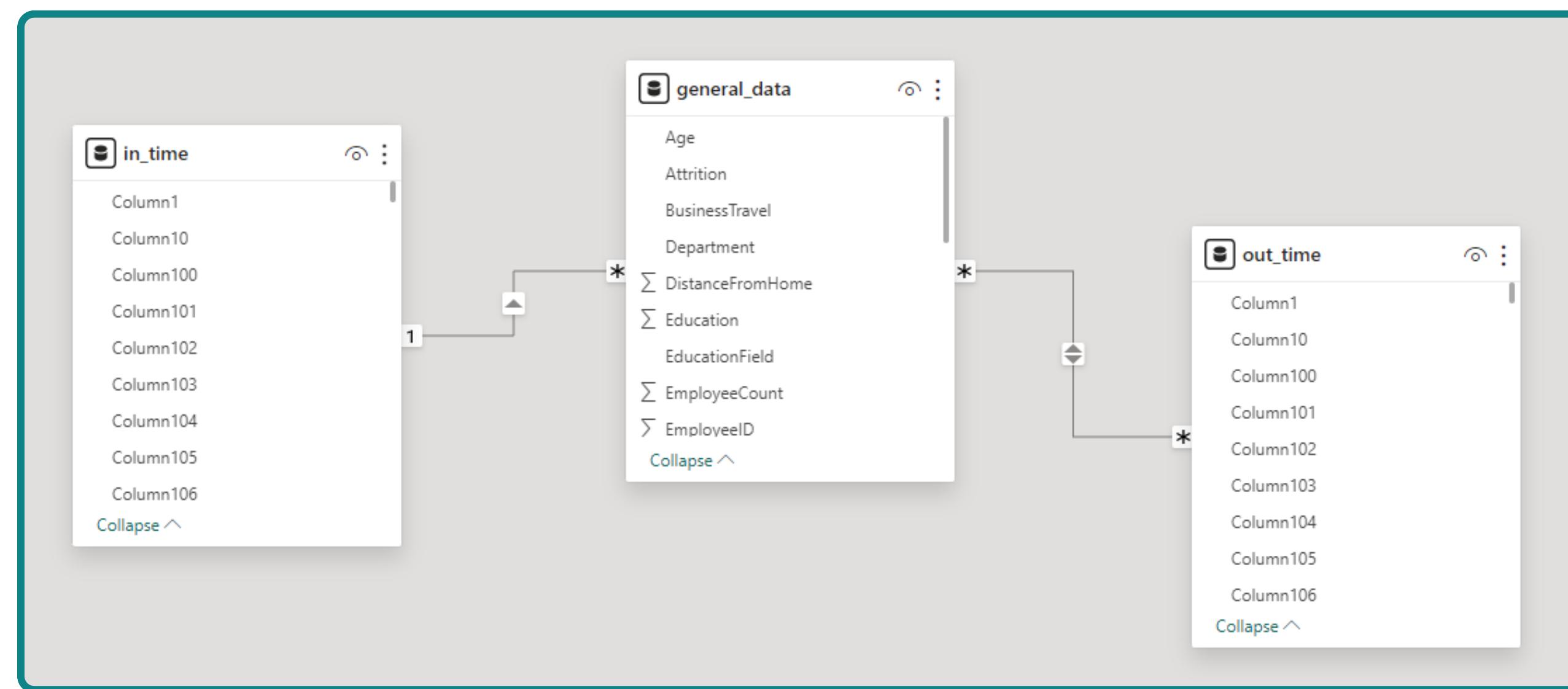
It's shows a filter applied to the "Department" column, selecting only "Human Resources," "Research & Development," and "Sales." This step cleanses the dataset by excluding missing or inconsistent entries, crucial for precise HR data analysis.

The screenshot shows a data filtering dialog box. At the top, there are dropdown menus for 'Department', 'DistanceFromHome', 'Education', and 'Education'. The 'Department' dropdown is open, displaying a list of department names: Research & Development, Research & Development, Sales, Human Resources, Research & Development, Research & Development, Sales, Research & Development, Human Resources. To the right of the list are several options: 'Sort ascending', 'Sort descending', 'Clear sort', 'Clear filter', 'Clear all filters', and 'Text filters'. Below these is a search bar with the placeholder 'Search'. A list of checked filters is shown, including '(Select all)', 'Human Resources', 'Research & Development', and 'Sales'. At the bottom right are 'OK' and 'Cancel' buttons.

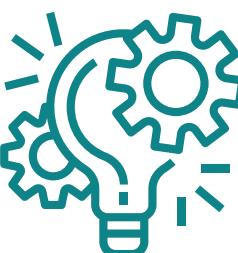
# RELATIONSHIP BETWEEN EMPLOYEE ID IN EMPLOYEE AND TIME TRACKING DATA IN POWER BI



It's shows a Power BI relationship model, linking 'EmployeeID' across 'general\_data', 'in\_time', and 'out\_time' tables, essential for merging employee information with time tracking data for analysis.



# CALCULATING AVERAGE YEAR WITH CURRENT MANAGER USING DAX

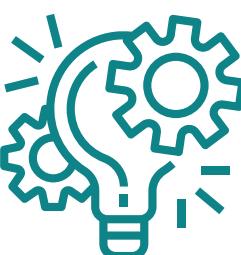


It's show a DAX formula used in Power BI to calculate the average number of years employees have spent with their current manager. The result, displayed in a card visual, indicates that on average, employees have worked for 4.12 years under their current manager.

Structure	Formatting	Properties
1	Avg_Current_Manager = AVERAGE(general_data[YearsWithCurrManager])	



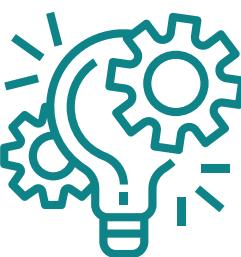
# COUNT OF EMPLOYEES BY MARTIAL STATUS AND DEPARTMENT



It displays a count of employees by marital status—Divorced, Married, Single—across various departments such as Healthcare, HR, and Research. It provides a clear depiction of the demographic composition of the workforce, which is crucial for HR in tailoring benefits and support programs.

Martial Status and Department	Divorced	Married	Single	Total
Healthcare Representative	102	192	99	<b>393</b>
Human Resources	24	75	57	<b>156</b>
Laboratory Technician	183	348	246	<b>777</b>
Manager	78	111	117	<b>306</b>
Manufacturing Director	108	204	123	<b>435</b>
Research Director	42	96	102	<b>240</b>
Research Scientist	186	384	306	<b>876</b>
Sales Executive	204	492	282	<b>978</b>
Sales Representative	54	117	78	<b>249</b>
<b>Total</b>	<b>981</b>	<b>2019</b>	<b>1410</b>	<b>4410</b>

# EMPLOYEE WITH ABOVE-AVERAGE MONTHLY INCOME AND JOB SATISFACTION



It's show tables listing the monthly income and job satisfaction of employees. We are identifying those with above-average income and high job satisfaction. High income would mean more than the average of the numbers in the first image, while high job satisfaction is indicated by the highest number in the scale used in the second image.

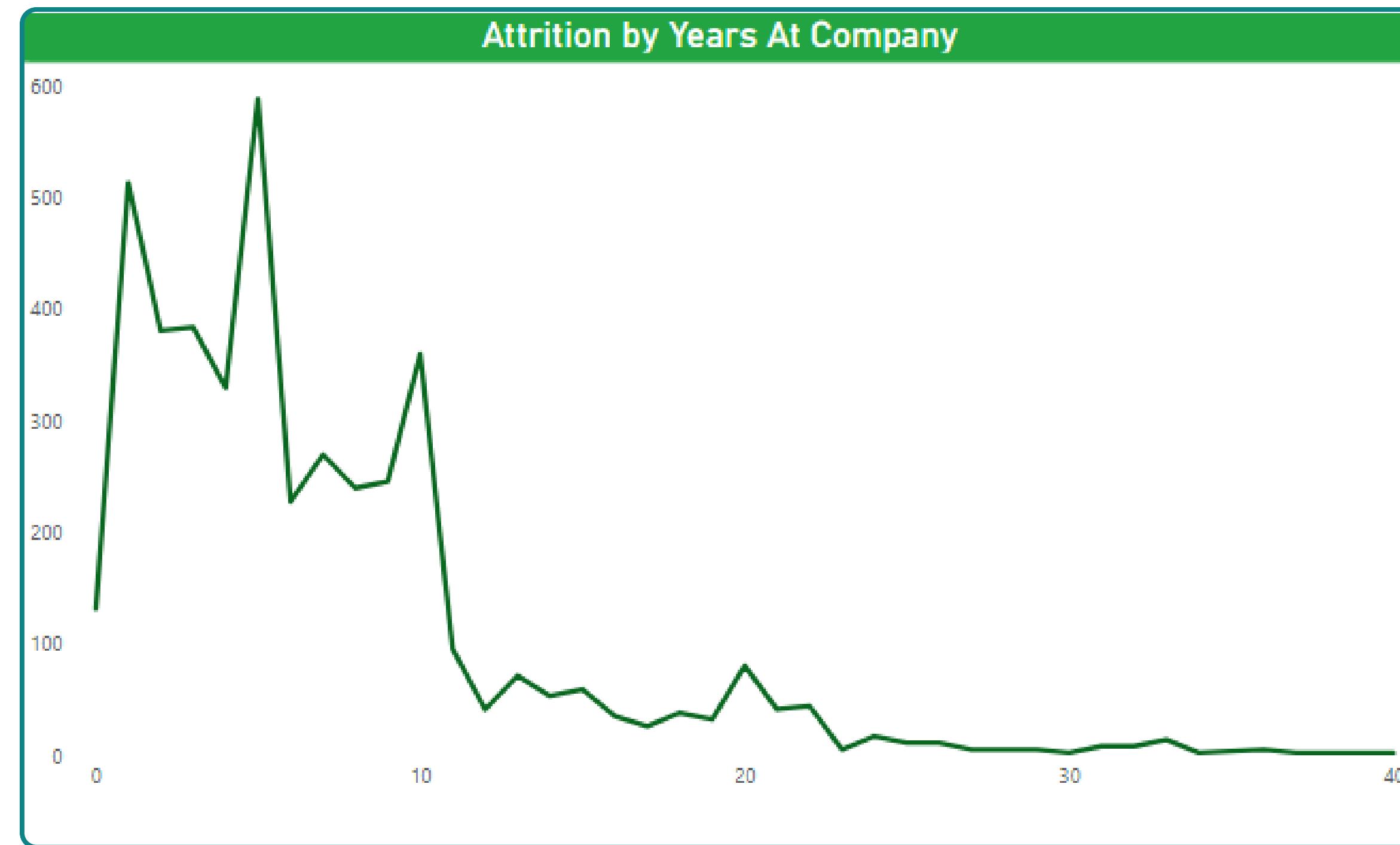
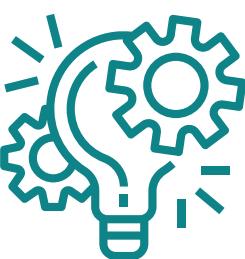
N	MonthlyIncome
1	131160
2	41890
3	193280
4	83210
5	23420
6	40710
7	58130
8	31430
9	20440
10	134640
11	79910
12	33770
13	55380
14	57620
15	25920
16	53460
17	42130
18	41270
19	24380
20	68700
21	104470
22	96670
23	21480
24	89260
25	65130
26	67990
27	162910

JobSatisfaction
4
2
2
4
1
2
3
2
4
1
4
4
4
1
2
4
4
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4
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1
2
2
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3
4
4
1

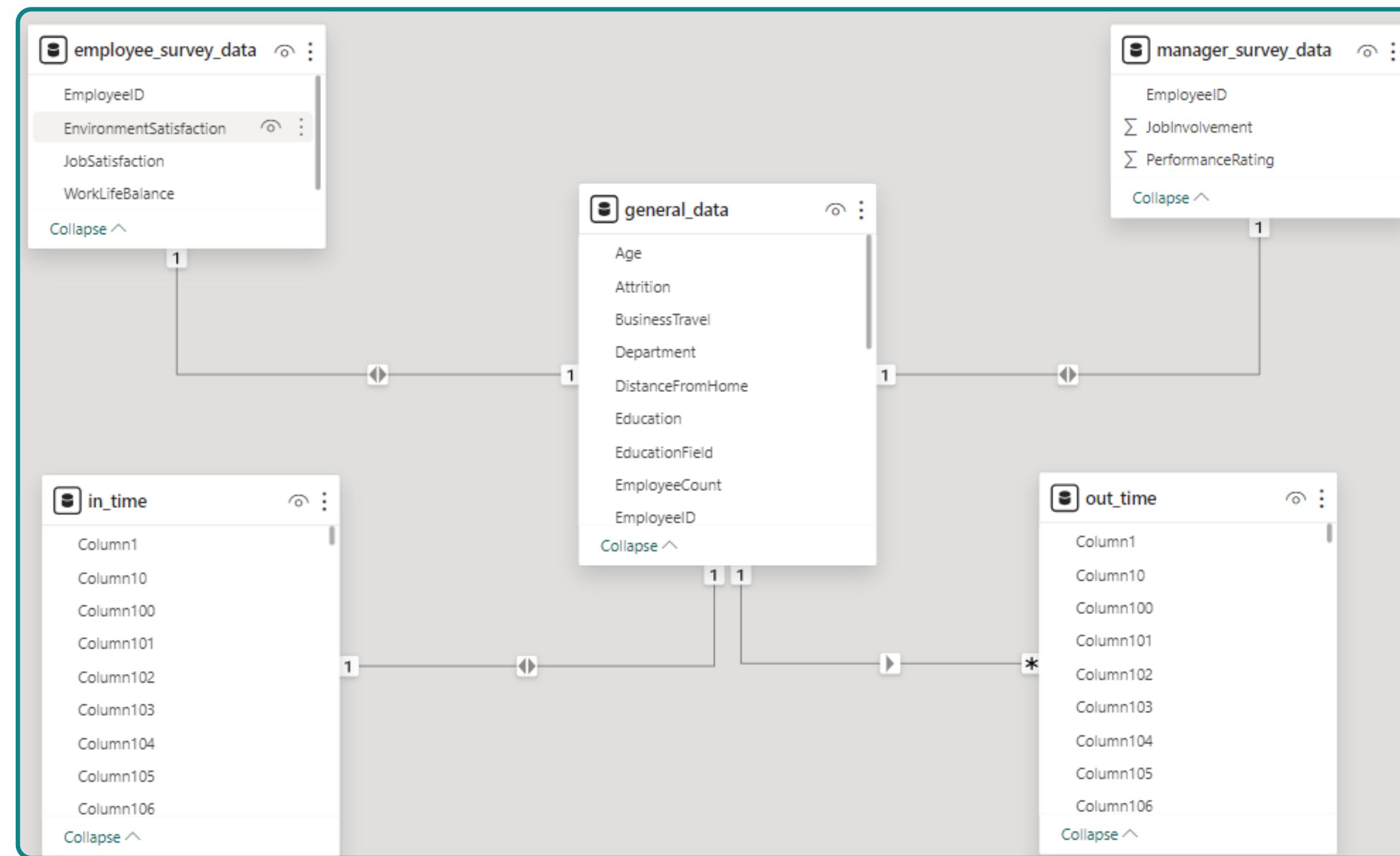
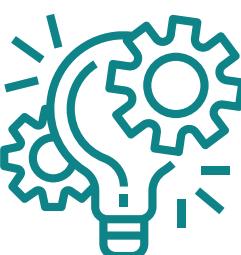
MONTHLY  
INCOME

JOB  
SATISFACTION

# EMPLOYEE ATTRITION TREND OVER THE YEARS IN POWER BI



# CREATING A STAR SCHEMA FOR DATASET AND IT'S BENEFIT



# CREATING A STAR SCHEMA: BENEFITS AND PROCESS

Streamlining data analysis and reporting process for improving comprehension and efficiency



## Identify Key Elements

Recognize the main components of your data, like departments, employees, and time, which become dimension tables, and the measurable data, like sales or revenue, which becomes the fact table.



## Organize Dimension Tables

Break down dimension tables into smaller, focused tables, each representing a unique aspect, such as Department, Employee, or Time, with their specific details



## Connect Tables

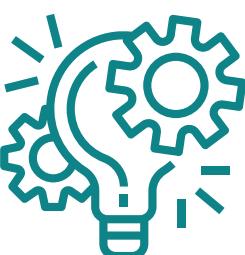
Establish connections between dimension tables and the fact table using keys. Each dimension table should have a unique identifier that links to related records in the fact table.



## Simplify Views

Establishing simplified, flattened views of your data streamlines the reporting and analysis process, making it easier to comprehend.

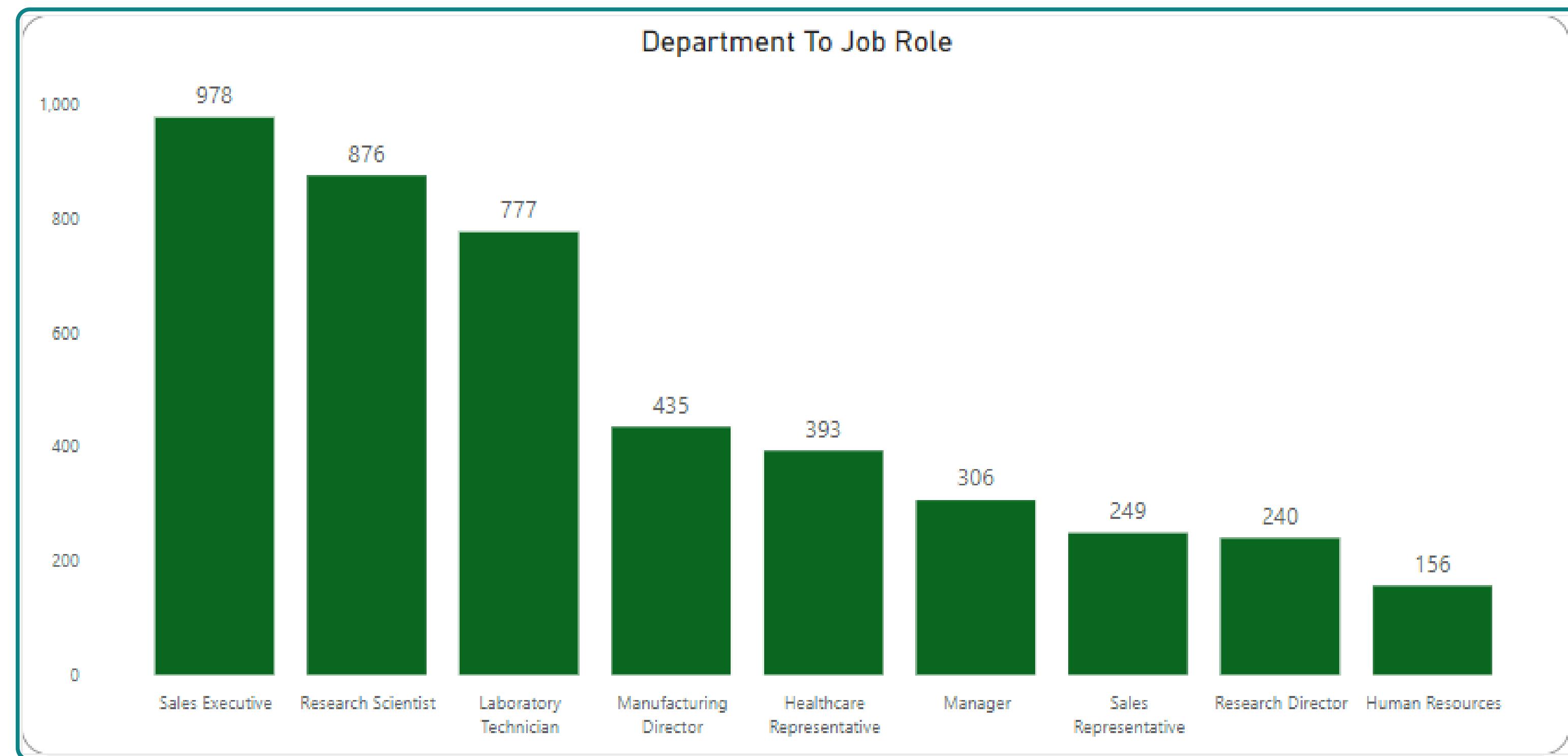
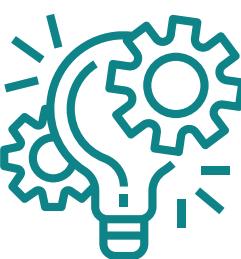
# CALCULATING ROLLING 3-MONTH AVERAGE MONTHLY INCOME USING DAX



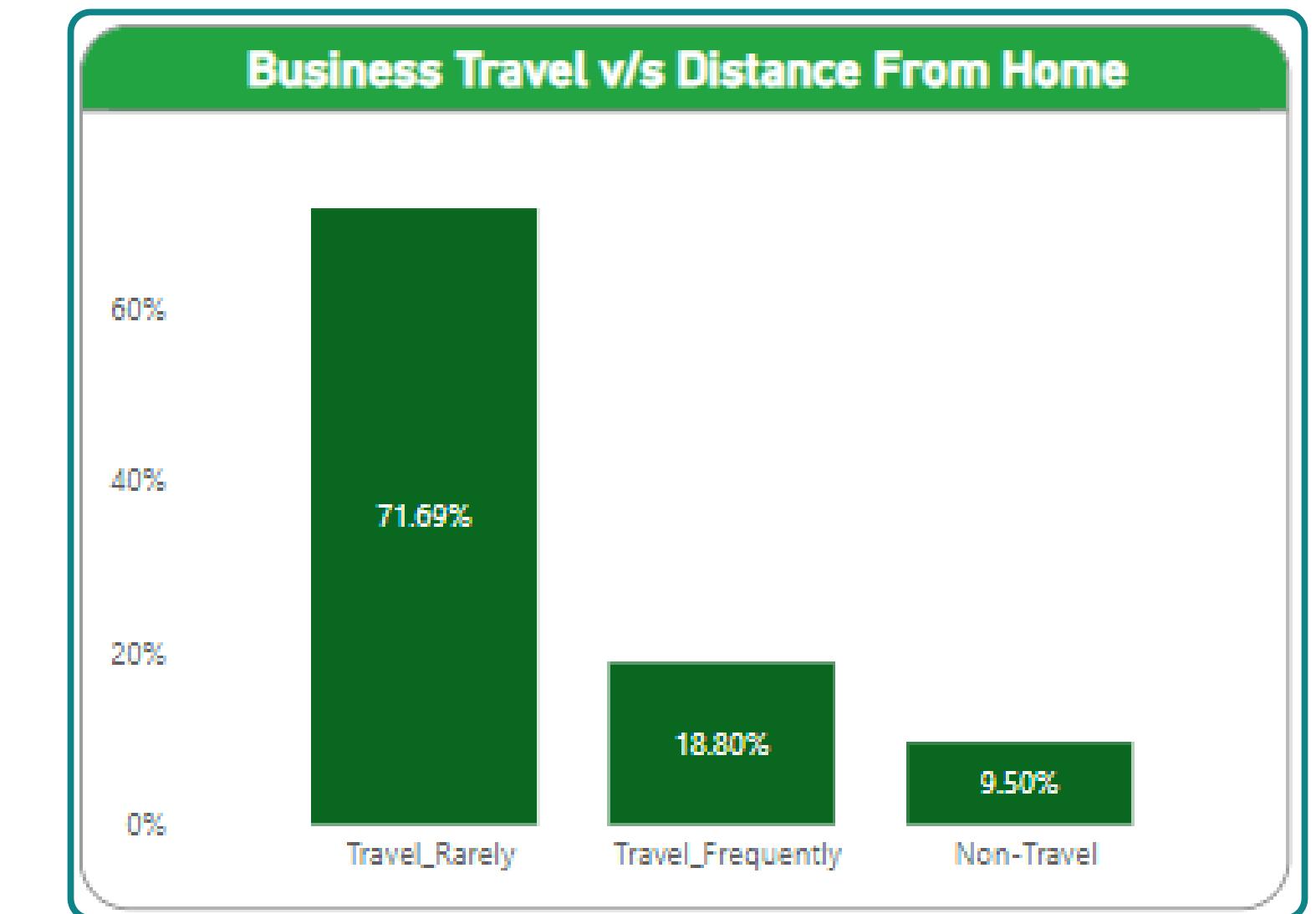
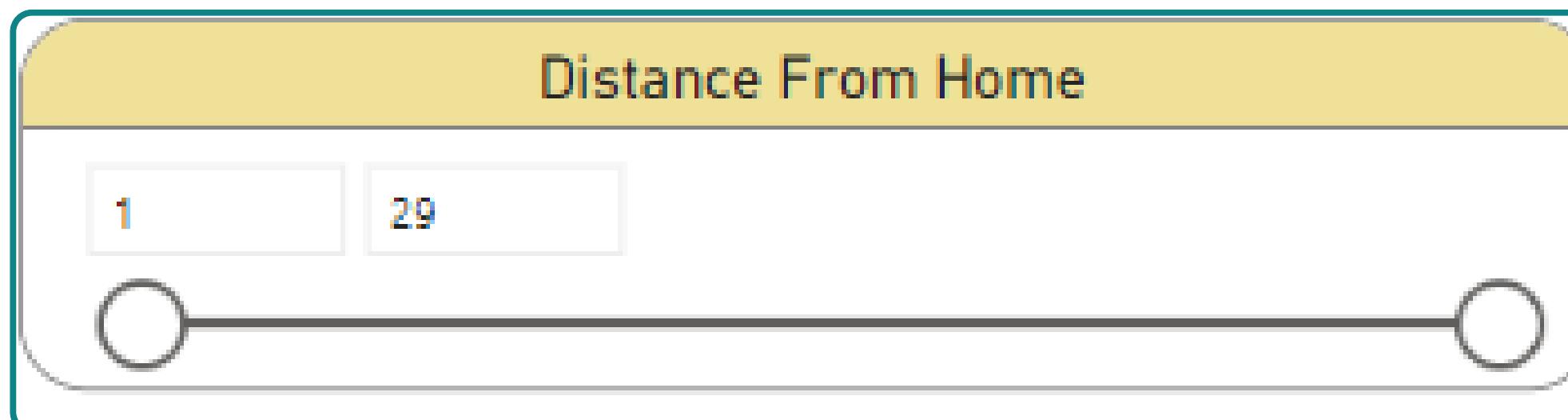
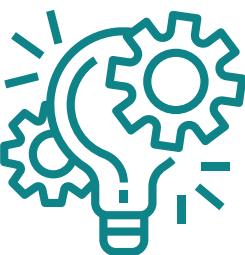
fx - Table.TransformColumnTypes(#"Changed Type with Locale",{{"3\_MonthlyIncome", Currency.Type}})

	1/3 YearsSinceLastPromotion	1/3 YearsWithCurrManager	A/3 Job Satisfaction	1/3 Performance Rating	\$ 3_MonthlyIncome
1%	• Valid 100%	• Valid 100%	• Valid 100%	• Valid 100%	• Valid 100%
1%	• Error 0%	• Error 0%	• Error 0%	• Error 0%	• Error 0%
1%	• Empty 0%	• Empty 0%	• Empty 0%	• Empty 0%	• Empty 0%
1	1 0	0 4	0 4	3	3,93,480.00
2	5 1	4 2	4 2	4	1,25,670.00
3	5 0	3 2	3 2	3	5,79,840.00
4	8 7	5 4	5 4	3	2,49,630.00
5	6 0	4 1	4 1	3	70,260.00
6	7 7	7 2	7 2	3	1,22,130.00
7	0 0	0 3	0 3	4	1,74,390.00
8	0 0	0 2	0 2	4	94,290.00
9	9 7	8 4	8 4	4	61,320.00
10	6 1	5 1	5 1	3	4,03,920.00
11	20 4	10 4	10 4	3	2,39,730.00
12	15 10	11 4	11 4	3	1,01,310.00
13	36 4	13 1	13 1	3	1,66,140.00
14	10 9	9 2	9 2	3	1,72,860.00
15	5 0	4 4	4 4	3	77,760.00
16	5 0	1 4	1 4	3	1,60,380.00
17	3 1	0 3	0 3	3	1,26,390.00
18	5 0	2 4	2 4	3	1,23,810.00
19	7 6	2 2	2 2	3	73,140.00
20	8 7	7 1	7 1	3	2,06,100.00

# CREATING DEPARTMENT TO JOB ROLE IN POWER BI



# PARAMETERIZED QUERIES FOR FILTERING DATA BY DISTANCE FROM HOME IN POWER BI



# PARAMETERIZED QUERIES FOR DISTANCE-FROM-HOME FILTERING



**Start by creating a new parameter in Power BI Desktop under the "Home" tab.**



**Make sure the data in your query reflects the filter you want based on this parameter.**

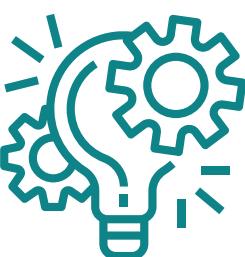


**Save your changes in the Query Editor.**



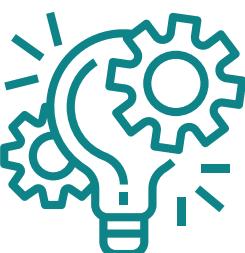
**Finally, add a slicer to your report view so users can interactively filter data using this parameter**

# TOTAL MONTHLY INCOME BY DEPARTMENT FOR EMPLOYEES WITH JOB LEVEL



Monthly Income by Department	1	2	3	4	5	Total
Human Resources	57	72	30	12	18	<b>189</b>
Research & Development	1098	1032	435	192	126	<b>2883</b>
Sales	474	498	189	114	63	<b>1338</b>
<b>Total</b>	<b>1629</b>	<b>1602</b>	<b>654</b>	<b>318</b>	<b>207</b>	<b>4410</b>

# IMPACT OF 10% INCREASE IN PERCENT SALARY HIKE ON MONTHLY INCOME



MonthlyIncome	PercentSalaryHike	OrginallIncome	10% Hike	10%NewPercentSalaryHike
131160	11	1573920	10%	144276
41890	23	1005360	10%	46079
193280	15	3092480	10%	212608
83210	11	998520	10%	91531
23420	12	304460	10%	25762
40710	13	569940	10%	44781
20440	21	449680	10%	22484
79910	13	1118740	10%	87901
33770	12	439010	10%	37147
55380	17	996840	10%	60918
57620	11	691440	10%	63382
53460	11	641520	10%	58806
41270	13	577780	10%	45397
24380	16	414460	10%	26818
68700	11	824400	10%	75570
96670	23	2320080	10%	106337
21480	11	257760	10%	23628
89260	14	1338900	10%	98186
67990	11	815880	10%	74789
27050	11	324600	10%	29755
103330	14	1549950	10%	113663

# CREATING A WHAT-IF ANALYSIS FOR PERCENT SALARY HIKE

## STEP 1

First, input all your data and the formulas you need.



## STEP 2

Next, find the cell where you calculated the Percent Salary Hike.



## STEP 3

Then, go to the "Data" tab and choose "What-if Analysis" and then "Data Table."



## STEP 4

Now, input the cells containing the original data and the Percent Salary Hike into the appropriate boxes.



## STEP 5

Now, input the cells containing the original data and the Percent Salary Hike into the appropriate boxes,





# DASHBOARD



## HR ANALYTICS DASHBAORD

No. of Employees

**4.41K**

Average Age

**36.92**

Year At Company

**7.01**

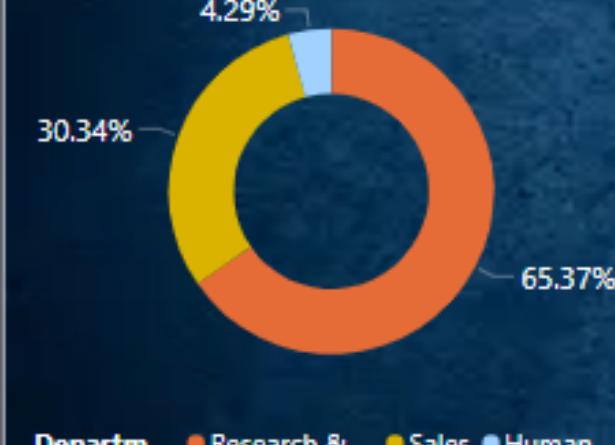
Distance From Home

1 29

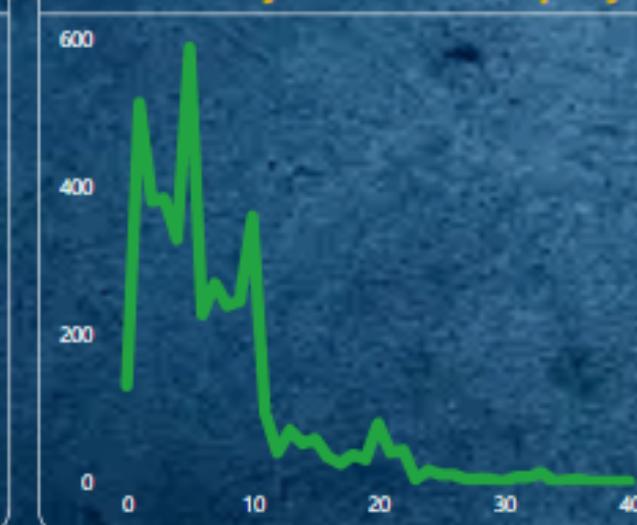
Hike of Salary

**15.21**

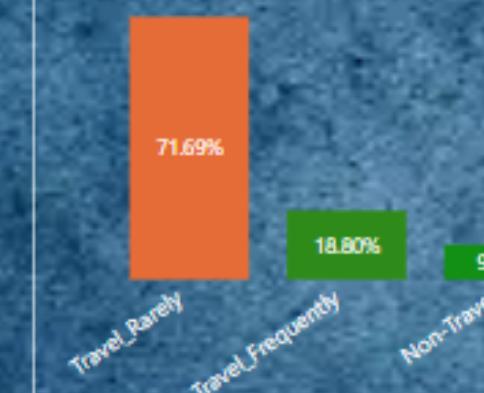
Attrition by Department



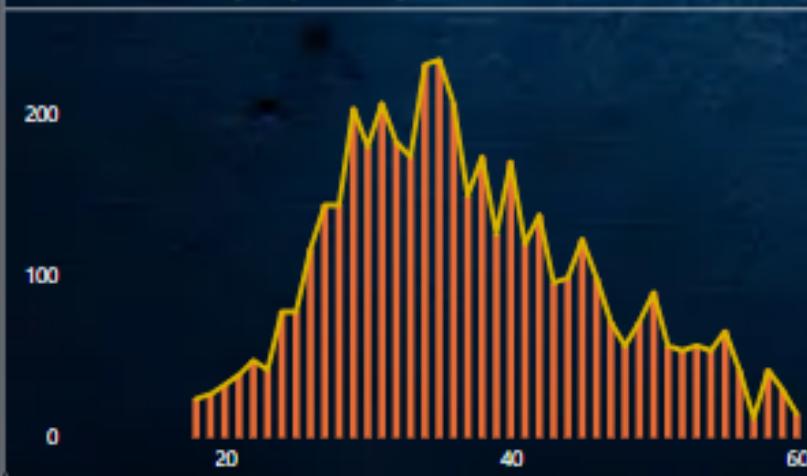
Attrition by Years At Company



Business Travel v/s Distance From Home



Employee Age Distribution



Department To Job Role



JobRole

JobRole	Average of Monthly Income
Human Resources	9130380
Research Director	15713550
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Monthly Income by Department

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Martial Status and Department

	Divorced	Married	Single	Total
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Sales Executive	204	492	282	978
Sales Representative	54	117	78	249
<b>Total</b>	<b>981</b>	<b>2019</b>	<b>1410</b>	<b>4410</b>

# VERIFYING DATA ADHERENCE TO PREDEFINED SCHEMA AND ACTIONS FOR INCONSISTENCIES

Verifying data adherence to a predefined schema involves several steps:



**Schema Verification:** Compare the data fields with the predefined schema to ensure they match in terms of data types, formats, and allowed values.



**Consistency Checks:** Identify any inconsistencies such as missing values, duplicate entries, or outliers that deviate from the expected patterns outlined in the schema.



**Error Handling:** Address any data inconsistencies by implementing appropriate error-handling mechanisms, such as data cleansing techniques or validation rules.



**Record Keeping:** Maintain records of any inconsistencies found and the actions taken to resolve them for future reference and transparency.



**Iterative Improvement:** Continuously monitor and refine the data validation process to maintain data quality and ensure ongoing adherence to the predefined schema.

# MAXIMIZING HR ANALYTICS ENGAGEMENT



## Targeted Messaging

Tailor communication to address HR professional's pain points, highlighting how your analytics solutions address their specific challenges.



## Strategic Engagement

Engage with HR audiences on platforms like LinkedIn and HR forums, offering valuable insights and resources related to data analysis in HR.



## Value-driven Content

Provide HR professionals with data-driven content and expertise, showcasing how your analytics tools can optimize workforce management and drive organizational growth.

# CONCLUSION

Employee Age Distribution revealed peaks in the 34-36 age group and lows in the 58-60 range. Average Monthly Income Analysis unveiled the top salary for Manufacturing Director at, 183 and the lowest in Human Resources at, 528. Marital Status Exploration discovered the prevalence of married employees, with Research and Development leading at 1,350, contributing to the overall highest count of 2,883. Attrition Trends Examination revealed a peak of 588 occurrences over the years. Establishing a star schema and employing hierarchical drill-downs in Power BI streamline data organization and facilitate deeper analysis, while also enabling dynamic filtering, and enhancing data exploration and analysis. Ultimately, these findings empower HR professionals with actionable insights to optimize workforce management strategies and foster organizational growth, benefiting Psyliq by facilitating the implementation of special steps. and providing valuable advice.



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# Thank You

