



## **TASK 2 :- HR DATA ANALYSIS USING POWER BI AND MS EXCEL**



1. Using Excel, how would you filter the dataset to only show employees aged 30 and above? With the help of conditional formatting in excel, help us to sort the data With the help of number filter ,we can filter the employees aged 30 and above

The diagram illustrates the steps to filter data in Excel:

- Click on the 'Number Filters' option in the 'Filter by Color' menu.
- Select 'Greater Than Or Equal To...' from the list of filter options.
- In the 'Custom Autofilter' dialog box, set the criteria to 'is greater than or equal to 30'.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
Age	Attrition	BusinessTravel	Department	DistanceFromHome	EducationField	EmployeeCount	EmpLoyed	Gender	JobLevel	JobRole	MaritalStatus	MonthlyIncome	NumOfComplaints	OverTime	Percent	StandardHours	StockOptions	TotalWorkingHours	TrainingHours	YearsAtCompany	YearsSinceLastPromotion	YearsWithCurrentManager	
51	No	Travel_Rarely	Sales	6	2 Life Sciences	1	1	Female	1	Healthcare Married		131160	1 Y	11	8	0	1	6	1	0			
31	Yes	Travel_Frequently	Research & Dev	10	1 Life Sciences	1	2	Female	1	Research S Single		41890	0 Y	23	8	1	6	3	5	1			
32	No	Travel_Frequently	Research & Dev	17	4 Other	1	3	Male	4	Sales Execi Married		193280	1 Y	15	8	3	5	2	5	0			
38	No	Non-Travel	Research & Dev	2	5 Life Sciences	1	4	Male	3	Human Res Married		83210	3 Y	11	8	3	13	5	8	7			
32	No	Travel_Rarely	Research & Dev	10	1 Medical	1	5	Male	1	Sales Execi Single		23420	4 Y	12	8	2	9	2	6	0			
46	No	Travel_Rarely	Research & Dev	8	3 Life Sciences	1	6	Female	4	Research C Married		40710	3 Y	13	8	0	28	5	7	7			
31	No	Travel_Rarely	Research & Dev	1	3 Life Sciences	1	9	Male	3	Laboratory Married		20440	0 Y	21	8	0	10	2	9	7			
45	No	Travel_Rarely	Research & Dev	17	2 Medical	1	11	Male	2	Laboratory Married		79910	0 Y	13	8	2	21	2	20	4			
36	No	Travel_Rarely	Research & Dev	28	1 Life Sciences	1	12	Male	1	Laboratory Married		33770	0 Y	12	8	2	16	2	15	10			
55	No	Travel_Rarely	Research & Dev	14	4 Life Sciences	1	13	Female	1	Sales Execi Single		55380	0 Y	17	8	0	37	2	36	4			
47	Yes	Non-Travel	Research & Dev	1	1 Medical	1	14	Male	1	Research S Married		57620	1 Y	11	8	2	10	4	10	9			
37	No	Travel_Rarely	Research & Dev	1	3 Life Sciences	1	16	Male	2	Healthcare Married		53460	4 Y	11	8	0	7	2	5	0			
37	No	Non-Travel	Research & Dev	1	3 Medical	1	18	Male	2	Sales Execi Divorced		41270	2 Y	13	8	1	15	2	5	0			
35	No	Travel_Rarely	Sales	7	4 Life Sciences	1	19	Male	1	Sales Repr Divorced		24380	7 Y	16	8	0	10	5	7	6			
38	No	Travel_Rarely	Research & Dev	8	3 Life Sciences	1	20	Female	1	Manager Divorced		68700	1 Y	11	8	1	8	5	8	7			
50	No	Travel_Rarely	Sales	8	4 Life Sciences	1	22	Male	1	Research S Divorced		96670	3 Y	23	8	0	28	2	10	1			
53	No	Travel_Rarely	Research & Dev	11	4 Life Sciences	1	23	Female	2	Research S Married		21480	3 Y	11	8	0	21	2	5	1			
42	No	Travel_Rarely	Research & Dev	4	4 Life Sciences	1	24	Male	1	Manufact Married		89260	1 Y	14	8	0	NA	4	20	11			
55	No	Travel_Rarely	Research & Dev	1	4 Other	1	26	Female	1	Research S Married		67990	3 Y	11	8	0	12	2	10	0			
37	No	Travel_Rarely	Sales	5	1 Marketing	1	28	Male	1	Research S Single		27050	1 Y	11	8	0	17	2	17	5			
44	Yes	Travel_Frequently	Research & Dev	1	2 Medical	1	29	Male	2	Research S Divorced		103330	3 Y	14	8	1	19	2	1	0			
38	No	Travel_Rarely	Sales	2	3 Marketing	1	30	Female	1	Manager Divorced		44480	9 Y	12	8	0	10	3	2	1			
49	No	Travel_Frequently	Research & Dev	1	1 Medical	1	33	Female	2	Research S Single		35910	9 Y	13	8	0	22	2	3	1			
36	No	Travel_Rarely	Sales	5	3 Technical Degree	1	34	Male	3	Sales Execi Single		54050	4 Y	14	8	0	10	2	8	7			
31	No	Travel_Frequently	Research & Dev	9	4 Medical	1	35	Male	1	Sales Execi Divorced		46840	1 Y	16	8	1	2	4	2	2			
37	No	Travel_Frequently	Sales	9	1 Marketing	1	37	Male	1	Laboratory Married		15140	1 Y	14	8	0	4	3	6				
42	No	Travel_Frequently	Sales	2	2 Marketing	1	38	Male	3	Research C Married		29560	5 Y	13	8	0	23	2	20	4			
35	No	Travel_Rarely	Sales	20	2 Life Sciences	1	40	Male	1	Laboratory Married		51540	0 Y	19	8	0	12	2	11	6			
36	No	Travel_Frequently	Research & Dev	8	3 Other	1	41	Female	3	Sales Execi Married		69620	4 Y	12	8	2	4	2	1	0			
51	No	Travel_Rarely	Research & Dev	2	3 Life Sciences	1	42	Male	2	Laboratory Divorced		96750	5 Y	13	8	0	13	2	4	1			
41	No	Travel_Rarely	Research & Dev	29	1 Life Sciences	1	43	Male	1	Laboratory Single		23790	1 Y	12	8	0	22	6	22	0			
31	No	Travel_Rarely	Research & Dev	8	1 Technical Degree	1	46	Male	1	Manufact Married		29360	4 Y	12	8	1	10	2	8	7			
39	No	Travel_Rarely	Sales	5	4 Marketing	1	47	Female	2	Human Res Divorced		21050	0 Y	20	8	0	19	3	18	3			
36	No	Non-Travel	Research & Dev	5	4 Life Sciences	1	48	Male	1	Sales Execi Married		85780	7 Y	21	8	0	11	4	9	0			
32	No	Travel_Rarely	Sales	2	3 Marketing	1	49	Male	2	Laboratory Married		27060	1 Y	21	8	1	13	4	13	4			
38	No	Travel_Rarely	Research & Dev	5	2 Life Sciences	1	50	Female	3	Research S Married		63840	3 Y	19	8	2	19	4	10	0			
58	No	Non-Travel	Research & Dev	2	3 Life Sciences	1	52	Male	2	Manufact Divorced		39680	2 Y	13	8	2	12	3	5	1			
31	No	Travel_Rarely	Research & Dev	20	1 Technical Degree	1	52	Female	3	Research S Married		99070	0 Y	13	8	1	6	3	5	0			
31	No	Travel_Rarely	Sales	7	4 Marketing	1	53	Male	2	Sales Execi Married		132250	3 Y	21	8	1	9	2	2	1			
45	No	Travel_Frequently	Research & Dev	9	1 Medical	1	54	Female	1	Sales Execi Divorced		35400	1 Y	13	8	0	24	6	24	9			
31	No	Travel_Rarely	Sales	16	4 Marketing	1	55	Female	2	Research S Divorced		23040	0 Y	19	8	2	3	0	2	2			
33	No	Travel_Frequently	Research & Dev	9	3 Life Sciences	1	56	Male	4	Research C Married		193920	6 Y	12	8	1	12	3	10	8			
39	No	Travel_Rarely	Sales	1	4 Life Sciences	1	57	Male	1	Sales Execi Married		196950	1 Y	22	8	1	21	6	21	11			
43	No	Travel_Frequently	Research & Dev	7	4 Medical	1	58	Male	4	Research S Single		24390	0 Y	15	8	0	9	2	8	1			
49	No	Travel_Rarely	Research & Dev	1	3 Life Sciences	1	59	Male	3	Manufact Single		73140	7 Y	22	8	0	25	2	7	0			
52	Yes	Travel_Rarely	Research & Dev	7	1 Life Sciences	1	60	Female	2	Research S Married		47740	2 Y	18	8	1	11	2	8	7			
32	No	Travel_Rarely	Research & Dev	1	3 Life Sciences	1	62	Male	3	Research S Married		26620	1 Y	11	8	1	13	6	13	11			
31	No	Travel_Rarely	Sales	24	3 Life Sciences	1	64	Male	2	Healthcare Divorced		10810	4 Y	11	8	3	13	4	7	1			
general data																							
Ready Filter Mode													Average: 40.11888112 Count: 3433 Sum: 137688										



## 2. Create a pivot table to summarize the average Monthly Income by Job Role

Job Role	Average of MonthlyIncome
Healthcare Representative	60983.74046
Laboratory Technician	66314.05405
Manufacturing Director	69183.72414
Research Director	65473.125
Research Scientist	64975.68493
Sales Representative	65370.96386
Grand Total	65029.31293

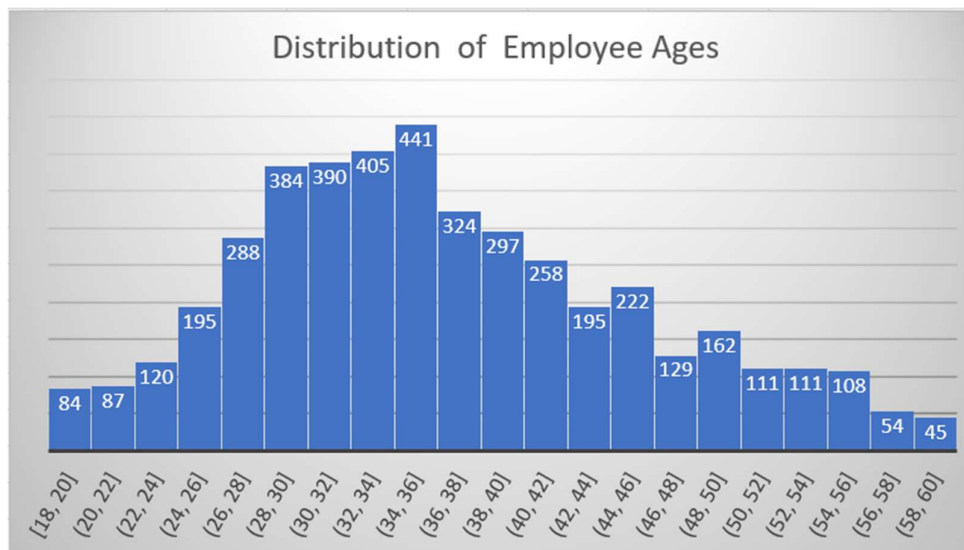
## 3. Apply conditional formatting to highlight employees with Monthly Income above the company's average income.

- Where Company's average taken as 64.7k
- The values which are formatted to green colour represents the values that are greater than monthly average income of employees

Age	Attrition	BusinessTravel	Department	Distance	Education	EducationField	Employee	Employed	Gender	JobLevel	JobRole	MaritalStatus	MonthlyIncome	NumC	Over 18	Percent	Star	StockSp	TotalWorking	Training	YearsAtCo	YearsSince	YearsWithCurrent	
51	No	Travel_Rarely	Sales	6	2	Life Sciences	1	1	Female	1	Healthcare Married	131180	1	Y	11	8	0	1	6	1	0	0		
31	Yes	Travel_Frequently	Research & Dev	10	1	Life Sciences	1	2	Female	1	Research Single	41890	0	Y	23	8	1	6	3	5	1	4		
32	No	Travel_Frequently	Research & Dev	17	4	Other	1	3	Male	3	Sales Exec Married	193280	1	Y	15	8	3	5	2	5	0	3		
38	No	Non-Travel	Research & Dev	2	5	Life Sciences	1	4	Male	3	Human Res Married	83210	3	Y	11	8	3	13	5	8	7	5		
32	No	Travel_Rarely	Research & Dev	10	1	Medical	1	5	Male	1	Sales Exec Single	23420	4	Y	12	8	2	9	2	6	0	4		
46	No	Travel_Rarely	Research & Dev	8	3	Life Sciences	1	6	Female	4	Research Married	40710	3	Y	13	8	0	28	5	7	7	7		
31	No	Travel_Rarely	Research & Dev	1	3	Life Sciences	1	9	Male	3	Laboratory Married	20440	0	Y	21	8	0	10	2	9	7	8		
45	No	Travel_Rarely	Research & Dev	17	2	Medical	1	11	Male	2	Laboratory Married	79910	0	Y	13	8	2	21	2	20	4	10		
36	No	Travel_Rarely	Research & Dev	28	1	Life Sciences	1	12	Male	1	Laboratory Married	33770	0	Y	12	8	2	16	2	15	10	11		
55	No	Travel_Rarely	Research & Dev	14	4	Life Sciences	1	13	Female	1	Sales Exec Single	55380	0	Y	17	8	0	37	2	36	4	13		
47	Yes	Non-Travel	Research & Dev	1	1	Medical	1	14	Male	1	Research Married	57620	1	Y	11	8	2	10	4	10	9	8		
37	No	Travel_Rarely	Research & Dev	1	3	Life Sciences	1	16	Male	2	Healthcare Married	53460	4	Y	11	8	0	7	2	5	0	1		
37	No	Non-Travel	Research & Dev	1	3	Medical	1	18	Male	2	Sales Exec Divorced	43270	2	Y	13	8	1	15	2	5	0	2		
35	No	Travel_Rarely	Sales	7	4	Life Sciences	1	19	Male	1	Sales Repr Divorced	24380	7	Y	16	8	0	10	5	7	6	2		
38	No	Travel_Rarely	Research & Dev	8	3	Life Sciences	1	20	Female	1	Manager Divorced	68700	1	Y	11	8	1	8	5	8	7	7		
50	No	Travel_Rarely	Sales	8	4	Life Sciences	1	22	Male	1	Research Divorced	96670	3	Y	23	8	0	28	2	10	1	6		
53	No	Travel_Rarely	Research & Dev	11	4	Life Sciences	1	23	Female	2	Research Married	21480	3	Y	11	8	0	21	2	5	1	3		
42	No	Travel_Rarely	Research & Dev	4	4	Life Sciences	1	24	Male	1	Manufact Married	89260	1	Y	14	8	0	NA	4	20	11	6		
55	No	Travel_Rarely	Research & Dev	1	4	Other	1	26	Female	1	Research Married	67990	3	Y	11	8	0	12	2	10	0	8		
37	No	Travel_Rarely	Sales	5	1	Marketing	1	28	Male	1	Research Single	27050	1	Y	11	8	0	17	2	17	5	7		
44	Yes	Travel_Frequently	Research & Dev	1	2	Medical	1	29	Male	2	Research Divorced	103330	3	Y	14	8	1	19	2	1	0	0		
38	No	Travel_Rarely	Sales	2	3	Marketing	1	30	Female	1	Manager Divorced	44480	9	Y	12	8	0	10	3	2	1	2		
49	No	Travel_Frequently	Research & Dev	1	3	Medical	1	33	Female	2	Research Single	35910	9	Y	13	8	0	22	2	3	1	2		
36	No	Travel_Rarely	Sales	5	3	Technical Degree	1	34	Male	3	Sales Exec Single	54050	4	Y	14	8	0	10	2	8	7	7		
51	No	Travel_Frequently	Research & Dev	9	4	Medical	1	35	Male	1	Sales Exec Divorced	46840	1	Y	16	8	1	2	4	2	2	2		
39	No	Travel_Rarely	Sales	9	1	Marketing	1	37	Male	1	Laboratory Married	15140	1	Y	14	8	0	4	3	4	1	2		
42	No	Travel_Frequently	Sales	2	2	Marketing	1	38	Male	3	Research Married	29560	5	Y	13	8	0	23	2	20	4	8		
35	No	Travel_Rarely	Sales	20	2	Life Sciences	1	40	Male	1	Laboratory Married	51540	0	Y	19	8	0	12	2	11	6	9		
36	No	Travel_Frequently	Research & Dev	8	3	Other	1	41	Female	3	Sales Exec Married	69620	4	Y	12	8	2	4	2	1	0	0		
51	No	Travel_Rarely	Research & Dev	2	3	Life Sciences	1	42	Male	2	Laboratory Divorced	56750	5	Y	13	8	0	13	2	4	1	2		
41	No	Travel_Rarely	Research & Dev	29	1	Life Sciences	1	43	Male	1	Laboratory Single	23790	1	Y	12	8	0	6	22	0	4	0		
51	No	Travel_Rarely	Research & Dev	8	1	Technical Degree	1	46	Male	1	Manufact Married	29360	4	Y	12	8	1	10	2	8	7	7		
39	No	Travel_Rarely	Sales	5	4	Marketing	1	47	Female	2	Human Res Divorced	21050	0	Y	20	8	0	19	3	18	3	7		
36	No	Non-Travel	Research & Dev	5	4	Life Sciences	1	48	Male	1	Sales Exec Married	85780	7	Y	21	8	0	11	4	9	0	8		
32	No	Travel_Rarely	Sales	2	3	Marketing	1	49	Male	2	Laboratory Married	27060	1	Y	11	8	1	18	4	13	4	8		
38	No	Travel_Rarely	Research & Dev	5	2	Life Sciences	1	50	Female	3	Research Married	63840	3	Y	19	8	2	19	4	10	0	1		
58	No	Non-Travel	Research & Dev	2	3	Life Sciences	1	51	Male	2	Manufact Divorced	39680	2	Y	13	8	2	12	3	5	1	2		
51	No	Travel_Rarely	Research & Dev	20	1	Technical Degree	1	52	Female	3	Research Married	99070	0	Y	13	8	1	6	5	0	0	3		
31	No	Travel_Rarely	Sales	7	4	Marketing	1	53	Male	2	Sales Exec Divorced	132250	3	Y	21	8	1	9	2	2	1	0		
45	No	Travel_Frequently	Research & Dev	3	1	Medical	1	54	Female	1	Sales Exec Divorced	35400	1	Y	13	8	0	24	6	24	9	11		
51	No	Travel_Rarely	Sales	16	4	Marketing	1	55	Female	2	Research Divorced	28040	0	Y	19	8	2	3	0	2	2	2		
53	No	Travel_Frequently	Research & Dev	9	3	Life Sciences	1	56	Male	4	Research Married	139360	6	Y	12	8	1	12	3	10	8	8		
39	No	Travel_Rarely	Sales	1	4	Life Sciences	1	57	Male	1	Sales Exec Married	196550	1	Y	22	8	1	21	6	21	11	10		
43	No	Travel_Frequently	Research & Dev	7	4	Medical	1	58	Male	4	Research Single	24390	0	Y	15	8	0	9	2	8	1	7		
49	No	Travel_Rarely	Research & Dev	1	3	Life Sciences	1	59	Male	3	Manufact Single	73140	7	Y	22	8	0	25	2	7	0	3		
52	Yes	Travel_Rarely	Research & Dev	7	1	Life Sciences	1	60	Female	2	Research Married	47740	2	Y	18	8	1	11	2	8	7	7		
32	No	Travel_Rarely	Research & Dev	1	3	Life Sciences	1	62	Male	3	Research Married	26620	1	Y	11	8	1	13	6	13	11	9		
51	No	Travel_Rarely	Sales	24	5	Life Sciences	1	64	Male	2	Healthcare Divorced	10810	4	Y	11	8	3	13	4	7	1	7		
general data																								
Average: 64705.50699 Count: 3433 Sum: 222069300																								

#### 4. Create a bar chart in Excel to visualize the distribution of employee ages

- To visualize 4410 employee ages in Bar chart is not an appropriate/right visual to present the Data, So I'm using an Histogram to observe the distribution of all employee ages.



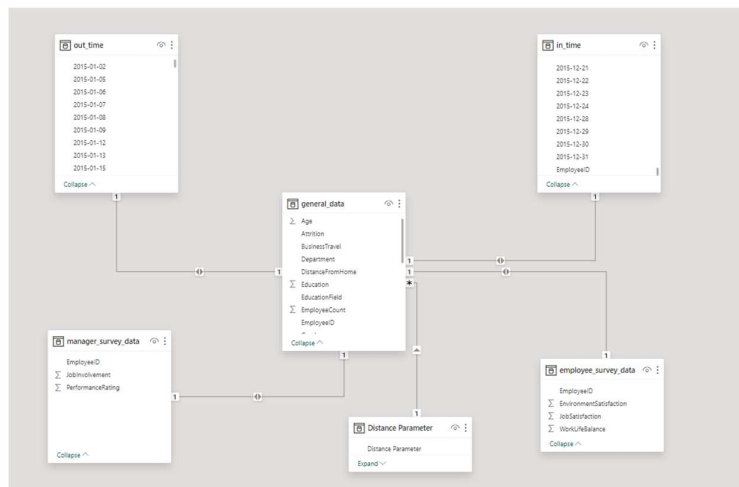
#### 5. Identify and clean any missing or inconsistent data in the "Department" column.

- There are no No Inconsistence or missing values are present inside the Department column



## 6. In Power BI, establish a relationship between the "EmployeeID" in the employee data and the "EmployeeID" in the time tracking data.

- The relation between general\_data (fact table) and time tracking data(in\_time & out\_time) are 1-1 relationship with employee id as the primary key between the tables.



## 7. Using DAX, create a calculated column that calculates the average years an employee has spent with their current manager.

Formula used to calculate Average years employee has spent with their current

**Avg\_Year\_With\_Curr\_Manager** =

**AVERAGEX(FILTER(general\_data,general\_data[YearsWithCurrManager]>1),  
general\_data[YearsWithCurrManager])**

- there are 782 Employees Who doesn't even worked for atleast 1 year with the current manager So by excluding those employees ,I've been calculated only for employees who have been worked for atleast 1 year with the current manager



File Home Help Table tools Column tools

Name Avg\_YearWithCurr... Format Decimal number Summarization Sum Data type Decimal number \$ % 2 Data category Uncategorized Sort by column Sort Data groups Groups Manage relationships Relationships New column Calculations

1 Avg\_YearWithCurrManager = AVERAGEX(FILTER(general\_data,general\_data[YearsWithCurrManager]>1),general\_data[YearsWithCurrManager])

level	TotalWorkingYears	TrainingTimesLastYear	YearsAtCompany	YearsSinceLastPromotion	YearsWithCurrManager	Avg_YearWithCurrManager
0	13	2	5	0	4	5.29
1	12	6	5	0	4	5.29
0	5	2	5	0	4	5.29
1	13	3	5	0	4	5.29
2	6	3	5	0	4	5.29
1	8	3	5	0	4	5.29
2	20	2	5	0	4	5.29
0	28	2	5	0	4	5.29
2	5	5	5	0	4	5.29
0	5	2	5	0	4	5.29
0	8	3	5	0	4	5.29
0	10	0	5	0	4	5.29
0	6	3	5	0	4	5.29
0	5	3	5	0	4	5.29
0	14	3	5	0	4	5.29
0	6	2	5	0	4	5.29
0	6	4	5	0	4	5.29
0	16	4	5	0	4	5.29
1	19	2	5	0	4	5.29
1	5	3	5	0	4	5.29
0	5	2	5	0	4	5.29
0	5	3	5	0	4	5.29

8. Using Excel, create a pivot table that displays the count of employees in each Marital Status category, segmented by Department.

Count of EmployeeCount	Column Labels				
Row Labels	Human Resources	Research & Development	Sales	Grand Total	
Divorced	21	621	339	981	
Married	96	1350	573	2019	
Single	72	912	426	1410	
<b>Grand Total</b>	<b>189</b>	<b>2883</b>	<b>1338</b>	<b>4410</b>	



## 9. Apply conditional formatting to highlight employees with both above-average Monthly Income and above-average Job Satisfaction.

EmployeeID	JobSatisfaction	Sum of MonthlyIncome
1	4	131160
4	4	83210
11	4	79910
25	4	65130
26	4	67990
32	4	96370
36	4	157870
52	4	99070
77	4	171740
83	4	133480
84	4	65830
85	4	81030
110	4	98880
114	4	66670
122	4	104480
140	4	86330
156	4	132060
165	4	76440
169	4	188800
171	4	135700
176	4	88370
179	4	66520
187	4	108540
189	4	99360
224	4	102480
251	4	134580
252	4	90690

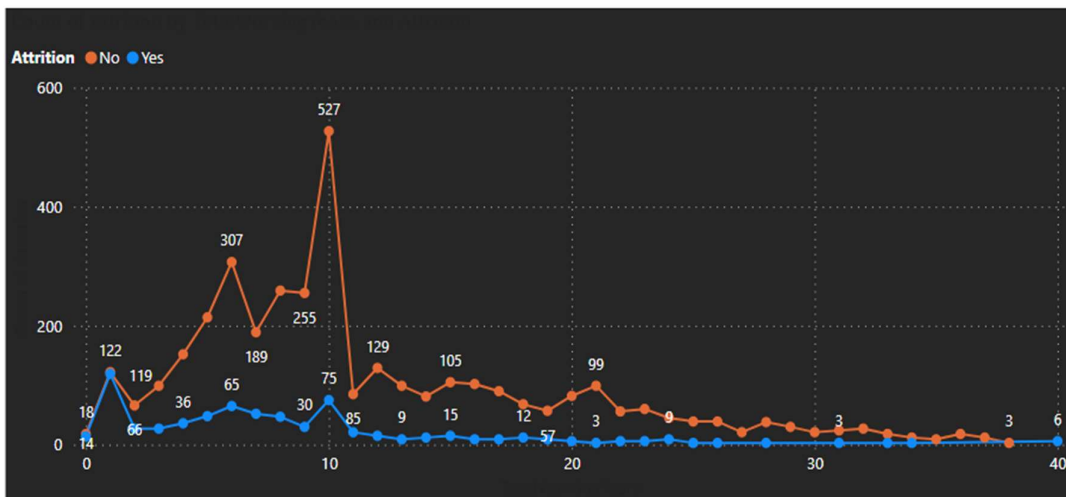
**2.72**

Avg Job Sat

**65.06K**

Avg\_monthly\_income

## 10. In Power BI, create a line chart that visualizes the trend of Employee Attrition over the years



X - axis represents Total Working Years

Y - axis represents Attrition Count



From above Fig

“Yes “ Represents that Employee has left the Company in previous year → Blue line

“No” Represents that Employee has not left the Company in previous year → Orange line

## 11. Describe how you would create a star schema for this dataset, explaining the benefits of doing so.

Consider general\_data table as an fact table and rest other tables as an Dimension tables, By connecting employee id column of fact table with all the dimension table of primary key(i.e, employee id) .

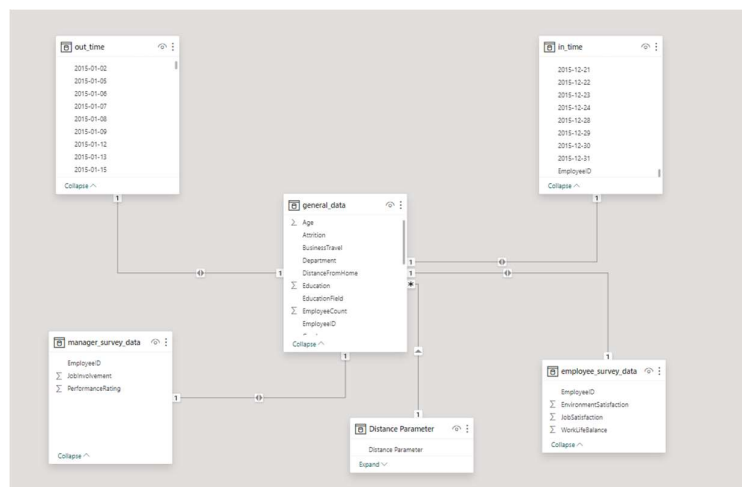
### BENEFITS :-

- **Simplicity and Ease of Understanding**

The star schema's simplicity makes it easy to understand and navigate for analysts and users. With direct links between the fact table and each dimension table, querying and analyzing data becomes more intuitive.

- **Improved Query Performance**

Query performance tends to be optimized in star schemas, especially with a 1-1 relationship, as it reduces the number of joins required to retrieve information. This streamlined structure generally leads to faster query execution







## 12.Using DAX, calculate the rolling 3-month average of Monthly Income for each employee.

From Given Data Source ,

Employees having only one Monthly income value . So it's not possible to calculate the

Rolling 3 months average for employees.

Incase, IF we are given with the past 3 months monthly income then average of 3 months can be calculated as follows :

Rolling 3-Month Avg Income =

```
VAR LastDate = MAX(YourIncomeTable[Date])
RETURN
CALCULATE( AVERAGE(YourIncomeTable[Income]),
FILTER(ALL(YourIncomeTable), YourIncomeTable[Date] <= LastDate &&
YourIncomeTable[Date] >= DATEADD(LastDate, -2, MONTH) ) )
```

## 13.Create a hierarchy in Power BI that allows users to drill down from Department to Job Role to further narrow their analysis.

1<sup>st</sup> level of Hierarchy in the below matrix table was Department

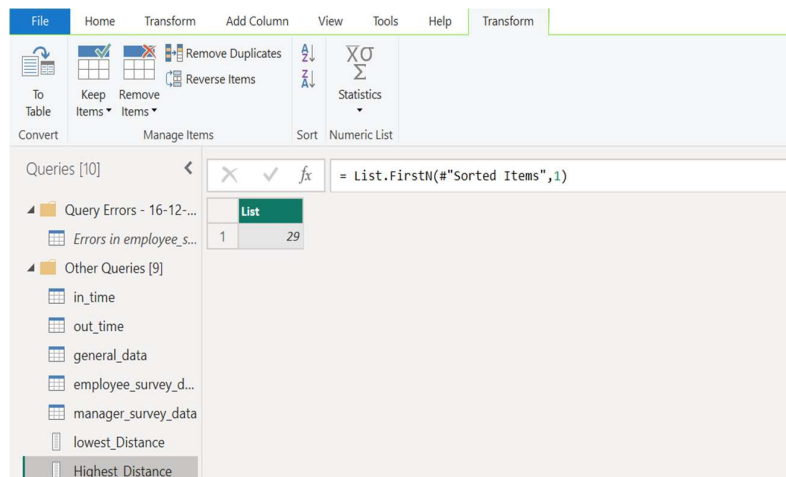
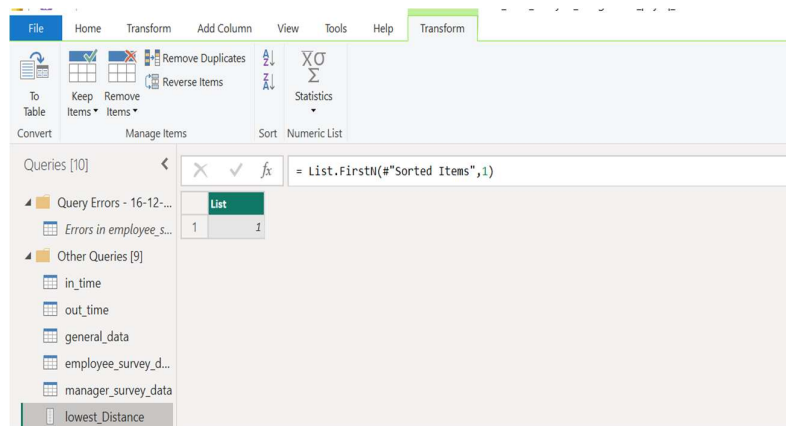
2<sup>nd</sup> level of Hierarchy in the below matrix table was Job Role

Department	Count of EmployeeID	Average of MonthlyIncome
<b>Human Resources</b>	<b>187</b>	<b>58101.44</b>
Healthcare Representative	8	97050.00
Human Resources	3	20140.00
Laboratory Technician	38	79142.11
Manager	9	87603.33
Manufacturing Director	24	55690.00
Research Director	3	74460.00
Research Scientist	36	52776.67
Sales Executive	54	45062.22
Sales Representative	12	28255.00
<b>Research &amp; Development</b>	<b>2865</b>	<b>67223.87</b>
Healthcare Representative	259	59481.81
Human Resources	108	64283.89
Laboratory Technician	491	67514.32
Manager	206	67942.38
Manufacturing Director	282	71393.79
Research Director	153	68191.50
Research Scientist	561	68071.55
Sales Executive	628	67617.63
Sales Representative	177	67140.85
<b>Sales</b>	<b>1330</b>	<b>61382.71</b>
Healthcare Representative	122	61911.80
Human Resources	45	47273.33
Laboratory Technician	244	61958.36
Manager	90	50610.00
Manufacturing Director	123	66965.37
Research Director	81	60535.56
Research Scientist	275	60106.11
Sales Executive	293	63762.49
Sales Representative	57	69017.89
<b>Total</b>	<b>4382</b>	<b>65061.70</b>



#### 14.How can you set up parameterized queries in Power BI to allow users to filter data based on the Distance from Home column?

- Firstly we have to create an New Querys in the power query editor as below , which should be the lowest distance value and highest Distance value



- Then ,We have to set the parameters under manage parameters section by assigning the above created queries to the Parameters

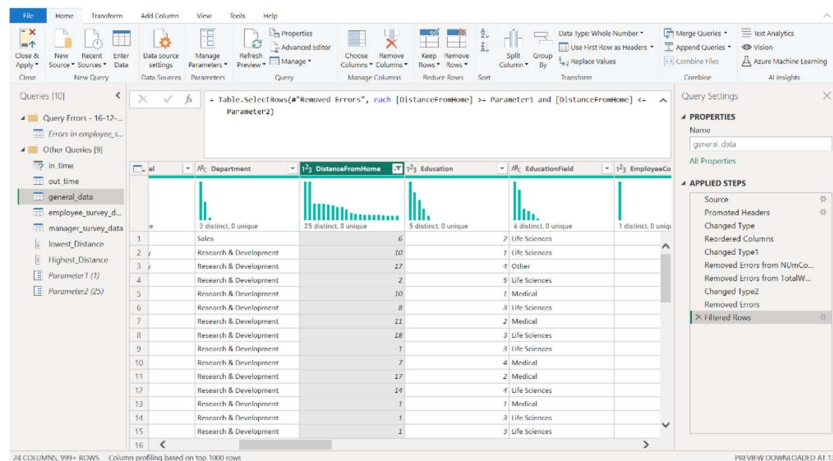


Manage Parameters

Name	Description	Required	Type	Suggested Values	Query	Current Value
Parameter1		<input checked="" type="checkbox"/>	Decimal Number			
Parameter2		<input checked="" type="checkbox"/>	Decimal Number			

OK Cancel

- In next step we have to set the number filter for Distance from home column measure by assigning the created parameters as an range values for the column

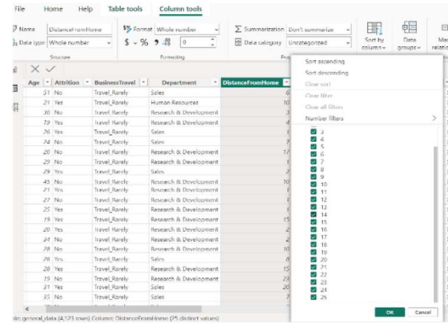


- Save & close the power query editor
- Now, Save the file in type of power BI Desktop type.
- After, user can customise the data according his requirement
- Where I had given the parameter 3 as an lowest distance and 25 as an highest distance from home, So which loads the data only between 3km and 25km distance from home values, which was been depicted in below SS.



DistanceFromHome  
1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

25  
Count of DistanceFromHome



**15. In Excel, calculate the total Monthly Income for each Department, considering only the employees with a Job Level greater than or equal to 3.**

JobLevel	(Multiple Items)
Row Labels	Average of MonthlyIncome
Human Resources	54319
Research & Development	71052.98805
Sales	62771.39344
Grand Total	67630.50891

**16. Explain how to perform a What-If analysis in Excel to understand the impact of a 10% increase in Percent Salary Hike on Monthly Income.**

To understand the impact of a 10% increase in the Percent Salary Hike on monthly income, follow these steps in Excel:



#### 1. Prepare your data:

- Ensure your table includes columns for:  
Employee Name: To distinguish individuals.  
Current Salary: Monthly salary before the hike.  
Percent Salary Hike: Percentage increase applied to the base salary (currently set at 0%).

#### 2. Calculate New Salary:

- Insert a new column named "New Salary."  
enter the formula: `=Current Salary * 1+Percent Salary Hike/100.`

#### 3. Calculate Increased Income:

- Insert another column named "Increased Income."  
formula: `=New Salary - Current Salary.`

#### 4. Explore Scenarios:

- Change the value in the "Percent Salary Hike" cell to analyze different scenarios (e.g., 5%, 10%, 15%).
- Use Goal Seek to find the salary hike needed to achieve a desired "Increased Income" for a specific employee.

By following these steps, we can effectively perform a What-If analysis in Excel to understand the impact of a 10% increase (or any other percentage) in Percent Salary Hike on monthly income for all the employees. This versatile tool allows to explore different scenarios and gain valuable insights for informed decision-making.

### 17. Verify if the data adheres to a predefined schema. What actions would you take if you find inconsistencies?

**Yes,** the data is completely adhere to a predefined schema

if we find any inconsistencies in data , These are Actions that can be performed to address Inconsistencies in data



## **IDENTIFY INCONSISTENCIES :**

Review the predefined schema or data model to understand the expected structure, formats, and data types. Compare the actual data against the predefined schema to identify inconsistencies, such as missing fields, incorrect data types, unexpected values, or structural deviations.

## **DOCUMENT ISSUES :**

Document all inconsistencies, errors, or deviations found in the data. Create a report outlining the specific issues encountered compared to the predefined schema.

## **DATA CLEANSING :**

Perform data cleansing activities to rectify inconsistencies, such as correcting data types, removing duplicates, filling missing values, or transforming data to match the expected format.

## **NORMALIZATION OR STANDARDIZATION :**

Normalize or standardize the data to ensure it adheres to the predefined schema. This might involve reformatting data, restructuring columns, or applying consistent naming conventions.

## **VALIDATION AND VERIFICATION :**

Apply validation checks or scripts to verify the modified data against the predefined schema. Confirm that the inconsistencies have been addressed and the data now aligns with the expected structure.

## **COMMUNICATE WITH STAKEHOLDERS :**

Communicate findings and actions taken to relevant stakeholders, such as data owners, analysts, or decision-makers. Discuss any challenges encountered and proposed solutions.

## **UPDATE DOCUMENTATION :**

Update documentation or data dictionaries to reflect any changes made to accommodate the data inconsistencies. Maintain clear documentation for future reference.

## **ITERATIVE PROCESS :**

Continuous monitoring and refinement are essential. Regularly review and validate data against the predefined schema, as data may evolve or new inconsistencies may arise.