HR DATA ANALYSIS

PSYLIQ DATA ANALYST INTERNSHIP

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TASK 1

HR EMPLOYEE ANALYSIS

Department: Human Resources | Research & Development | Sales

Gender: Female | Male

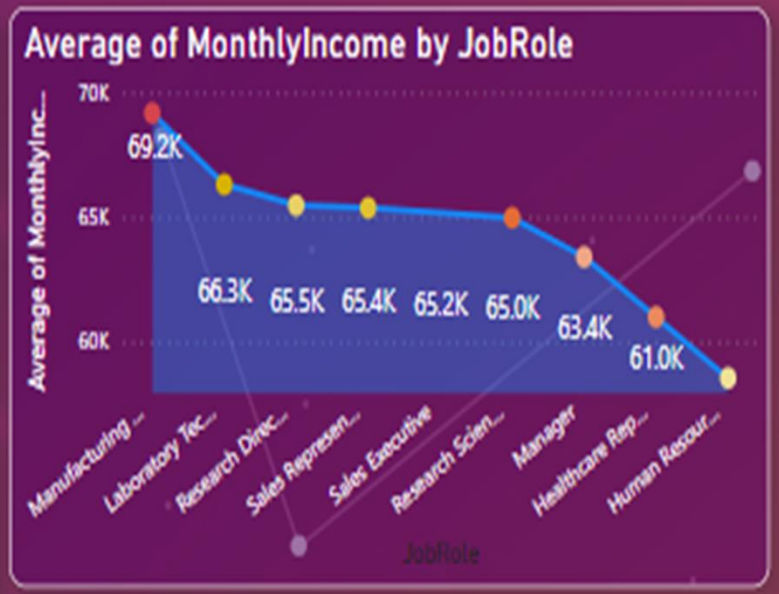
Total Employees
4410

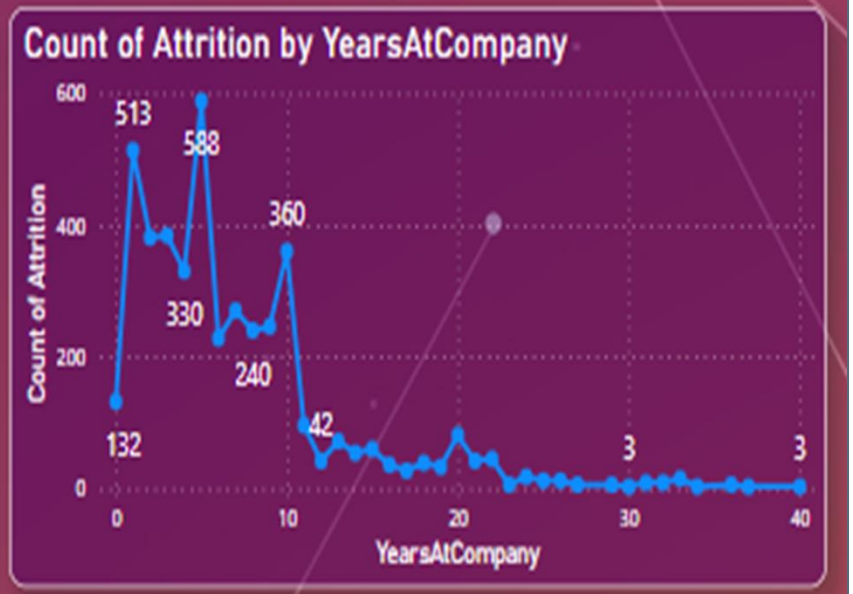
Attrition
711

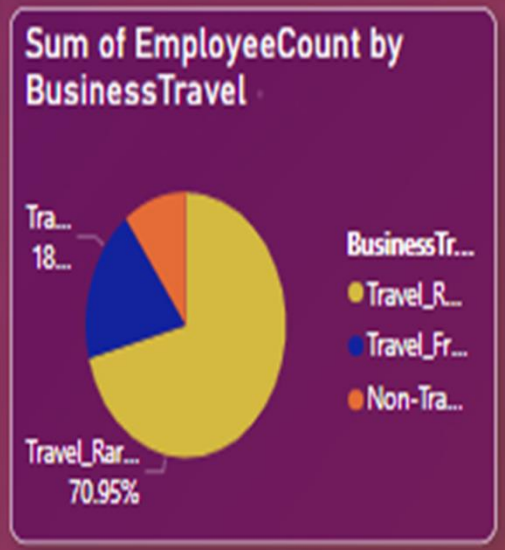
Average Salary
65.00K

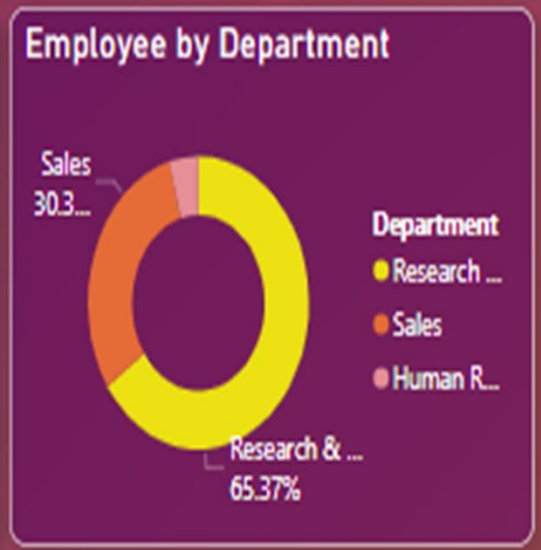
Average Age
36.92

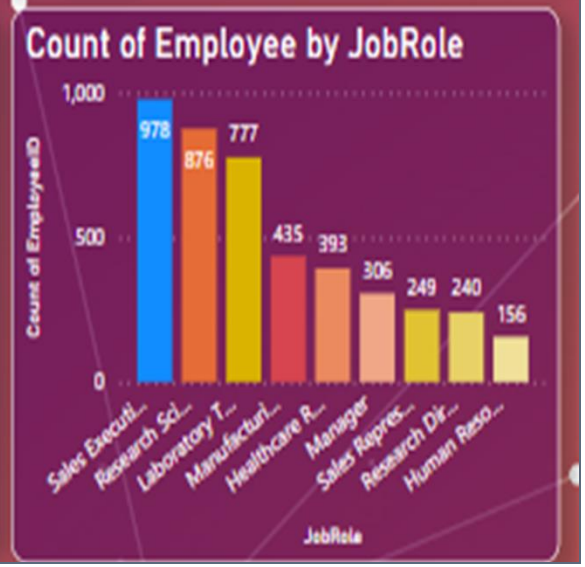
Terminated Employees
557



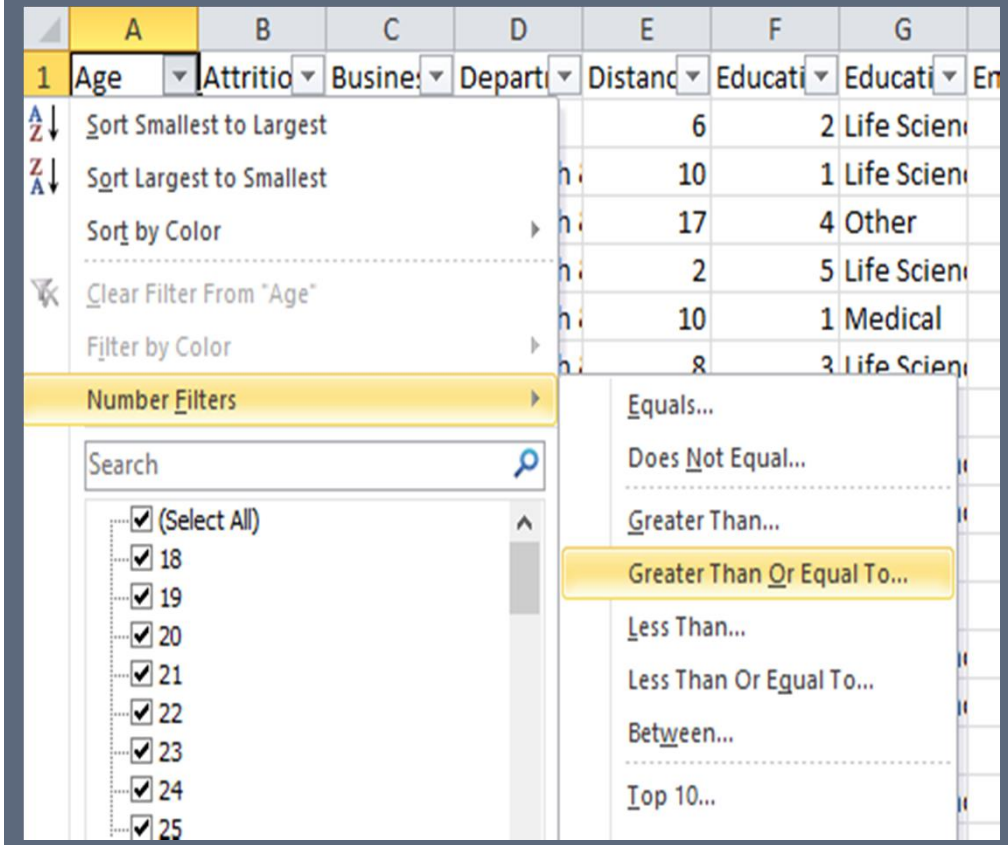


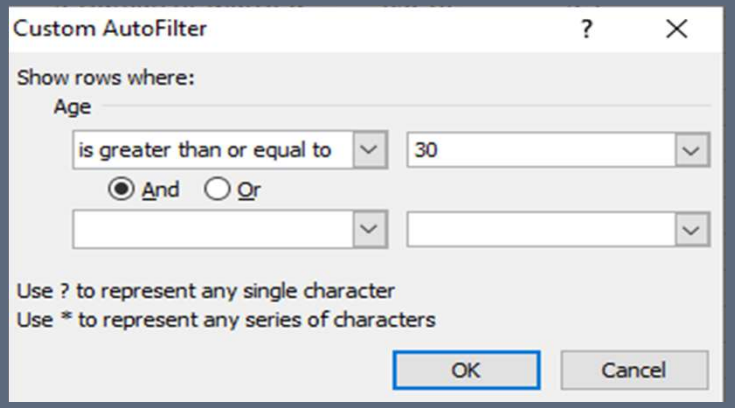


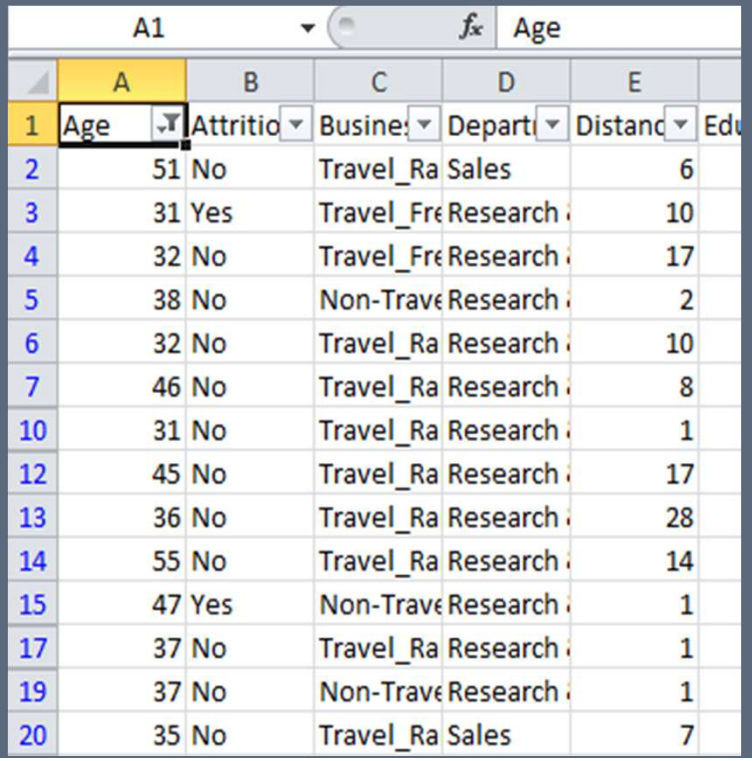




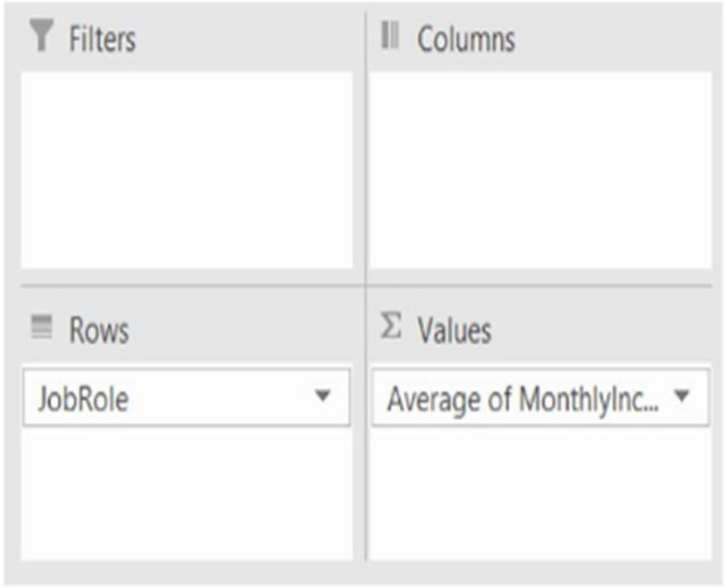
1. Using Excel, how would you filter the dataset to only show employees aged 30 and above?





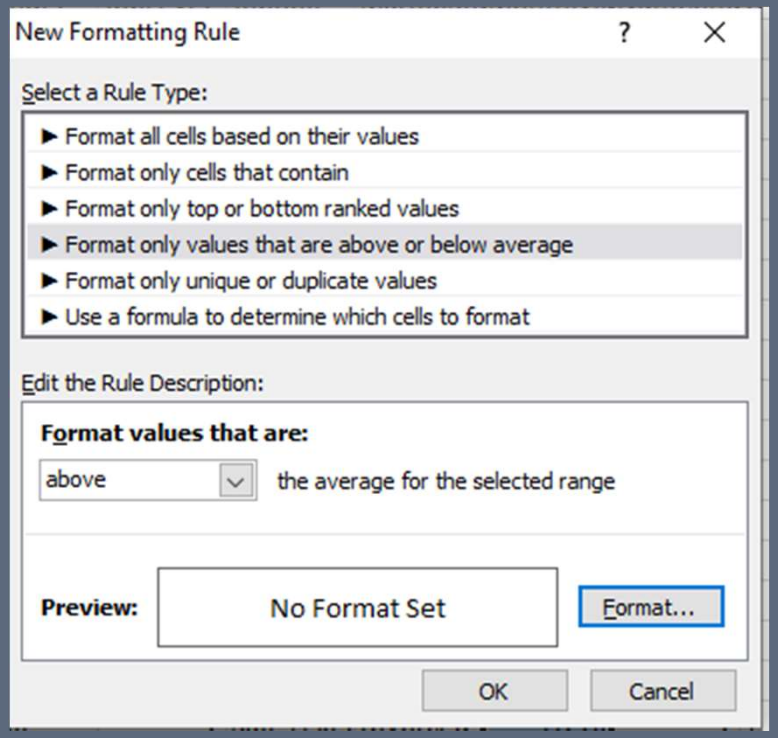


2. Create a pivot table to summarize the average Monthly Income by Job Role.



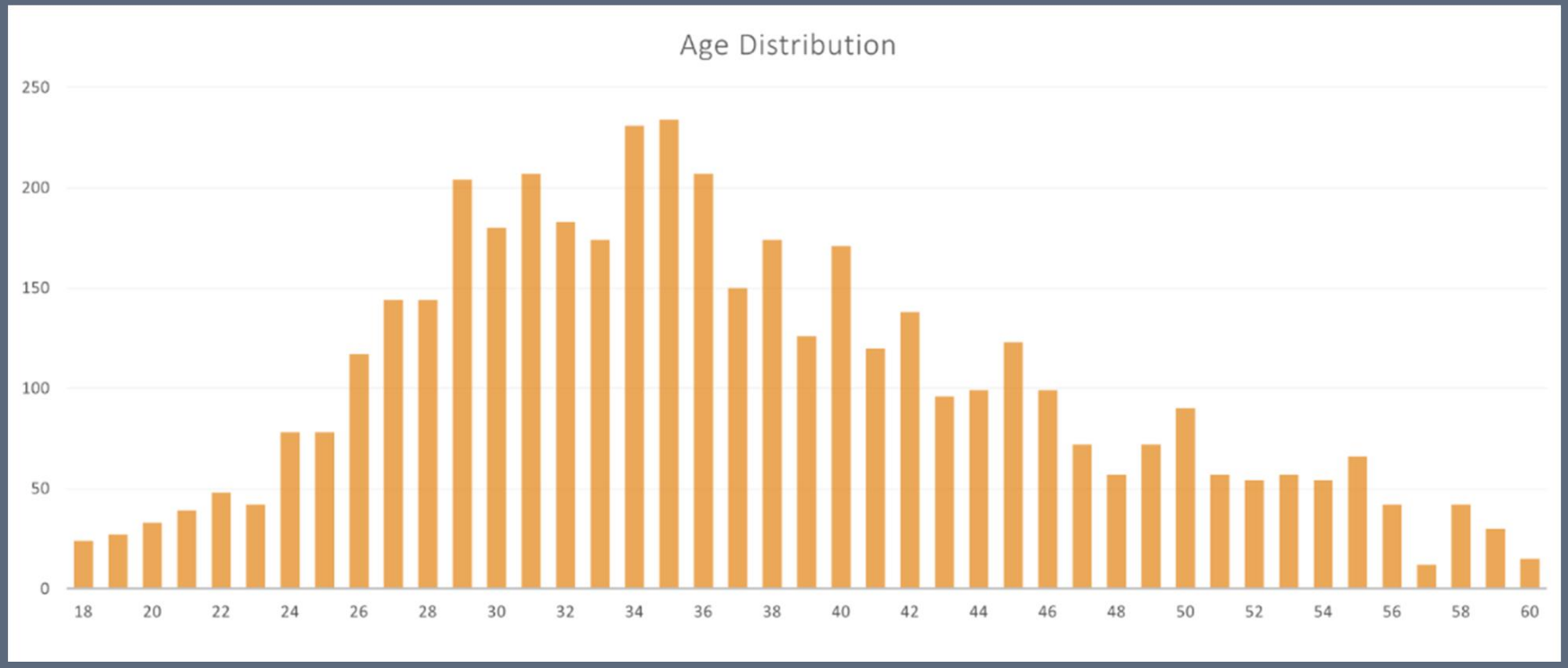
Job Role	Average of MonthlyIncome
Healthcare Representative	$ 60,983.74
Human Resources	$ 58,528.08
Laboratory Technician	$ 66,314.05
Manager	$ 63,395.88
Manufacturing Director	$ 69,183.72
Research Director	$ 65,473.13
Research Scientist	$ 64,975.68
Sales Executive	$ 65,186.69
Sales Representative	$ 65,370.96
Grand Total	**$ 65,029.31**

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



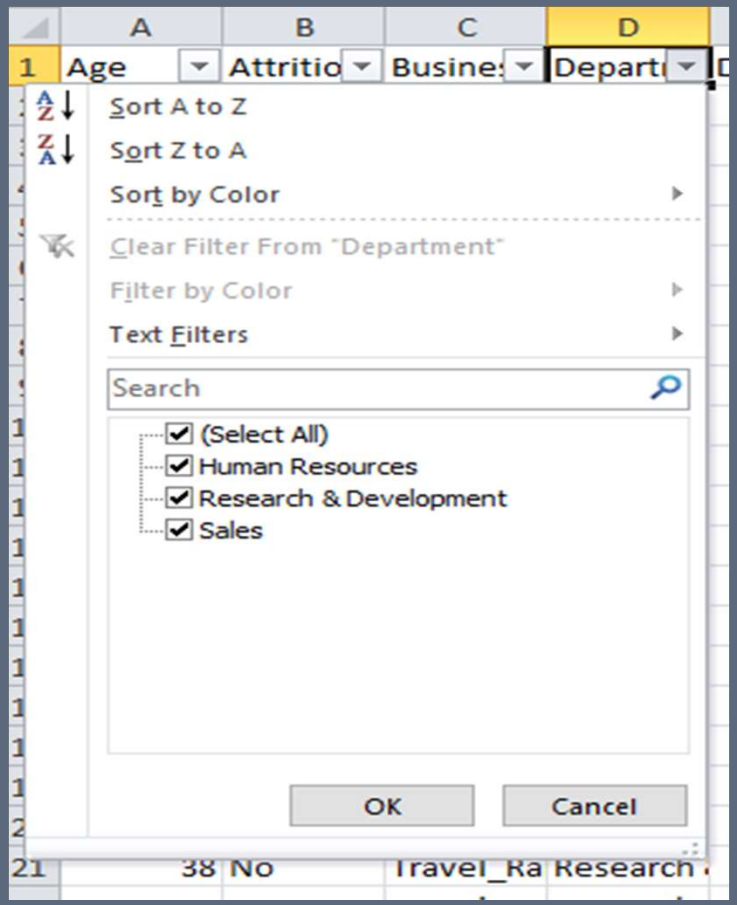
	H	I	J	K	L	M	N	C
n	Employee	Employee	Gender	JobLevel	JobRole	MaritalSta	MonthlyIr	Numc
	1	1	Female	1	Healthcar	Married	131160	
	1	2	Female	1	Research	Single	41890	
	1	3	Male	4	Sales Exec	Married	193280	
	1	4	Male	3	Human Re	Married	83210	
	1	5	Male	1	Sales Exec	Single	23420	
	1	6	Female	4	Research	Married	40710	
	1	7	Male	2	Sales Exec	Single	58130	
	1	8	Male	2	Sales Exec	Married	31430	
	1	9	Male	3	Laborator	Married	20440	
	1	10	Female	4	Laborator	Divorced	134640	
	1	11	Male	2	Laborator	Married	79910	
	1	12	Male	1	Laborator	Married	33770	
	1	13	Female	1	Sales Exec	Single	55380	
	1	14	Male	1	Research	Married	57620	
	1	15	Male	1	Manufact	Married	25920	
	1	16	Male	2	Healthcar	Married	53460	
	1	17	Male	1	Laborator	Single	42130	

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



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

- There are No missing values or inconsistent data in the Department column.



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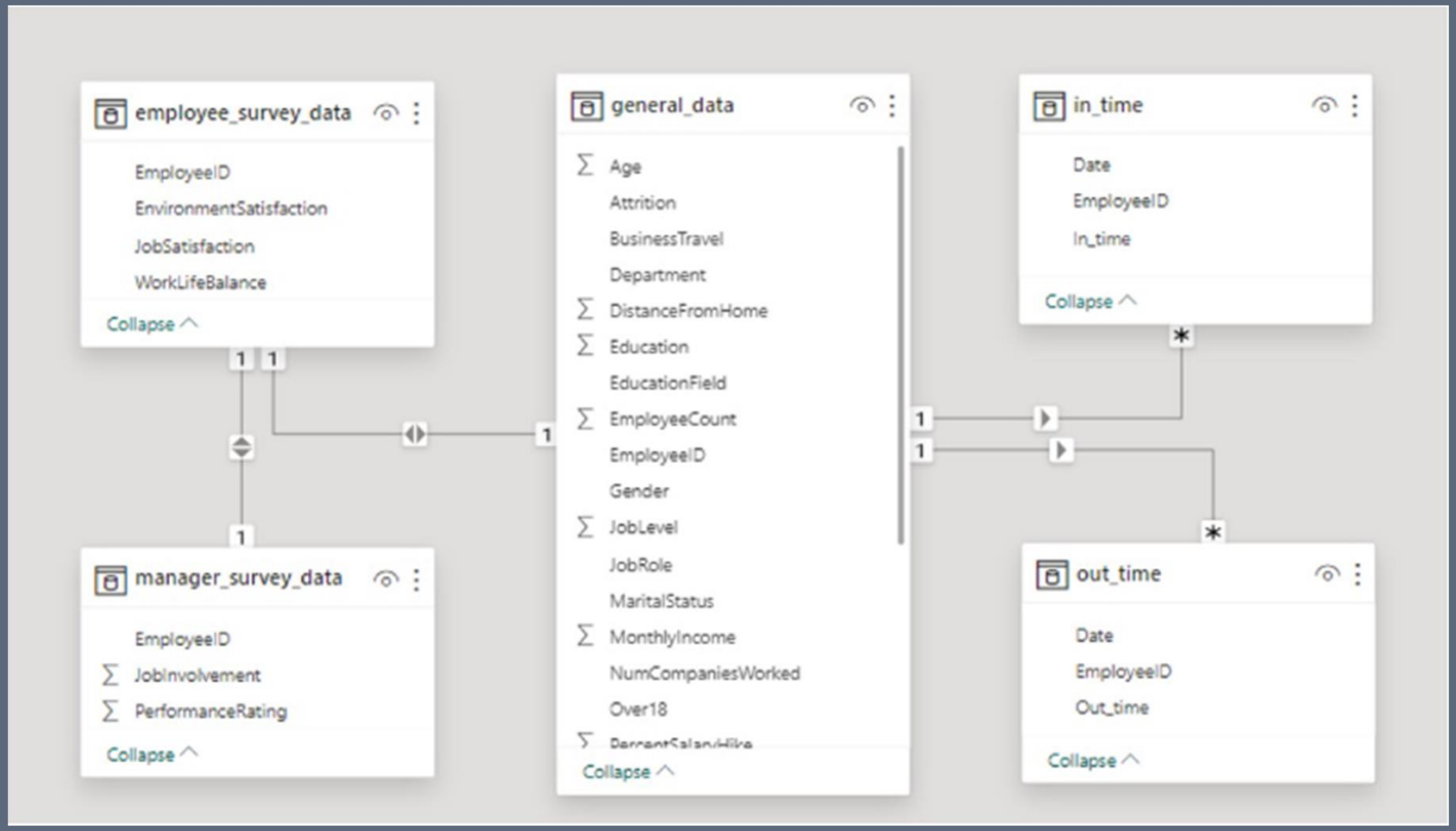
6. In Power BI, establish a relationship between the "EmployeeID" in the employee data and the "EmployeeID" in the time tracking data.

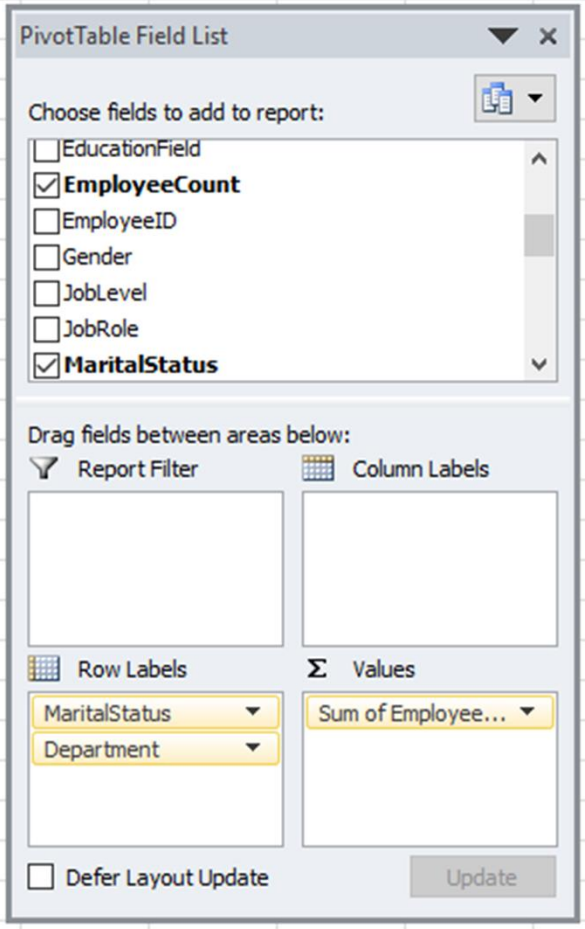


7. Using DAX, create a calculated column that calculates the average years an employee has spent with their current manager

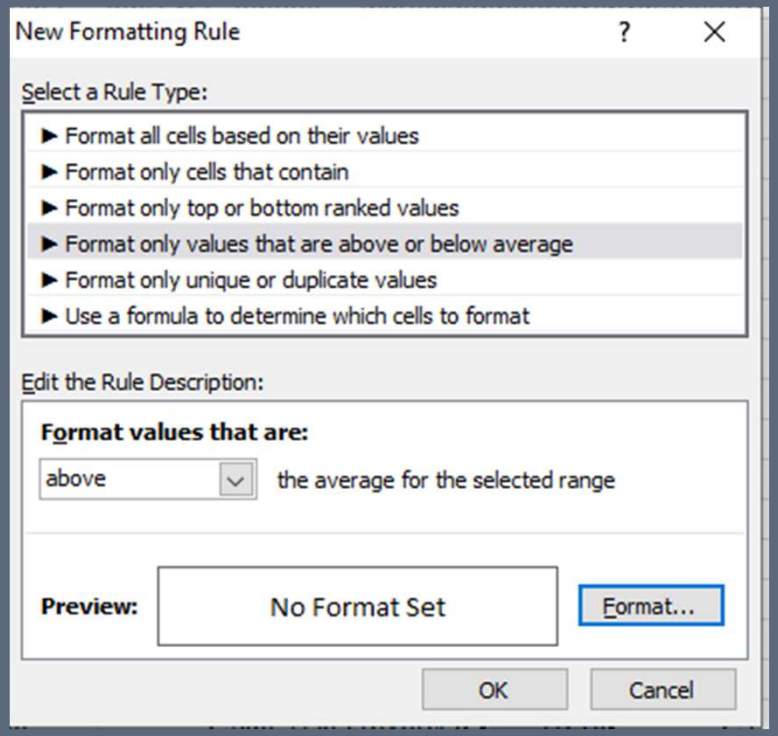
```
Average_yearswcurrmanager = AVERAGE(general_data[YearsWithCurrManager])
```

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

Row Labels	Sum of EmployeeCount
Divorced	**981**
Human Resources	21
Research & Development	621
Sales	339
Married	**2019**
Human Resources	96
Research & Development	1350
Sales	573
Single	**1410**
Human Resources	72
Research & Development	912
Sales	426
Grand Total	**4410**

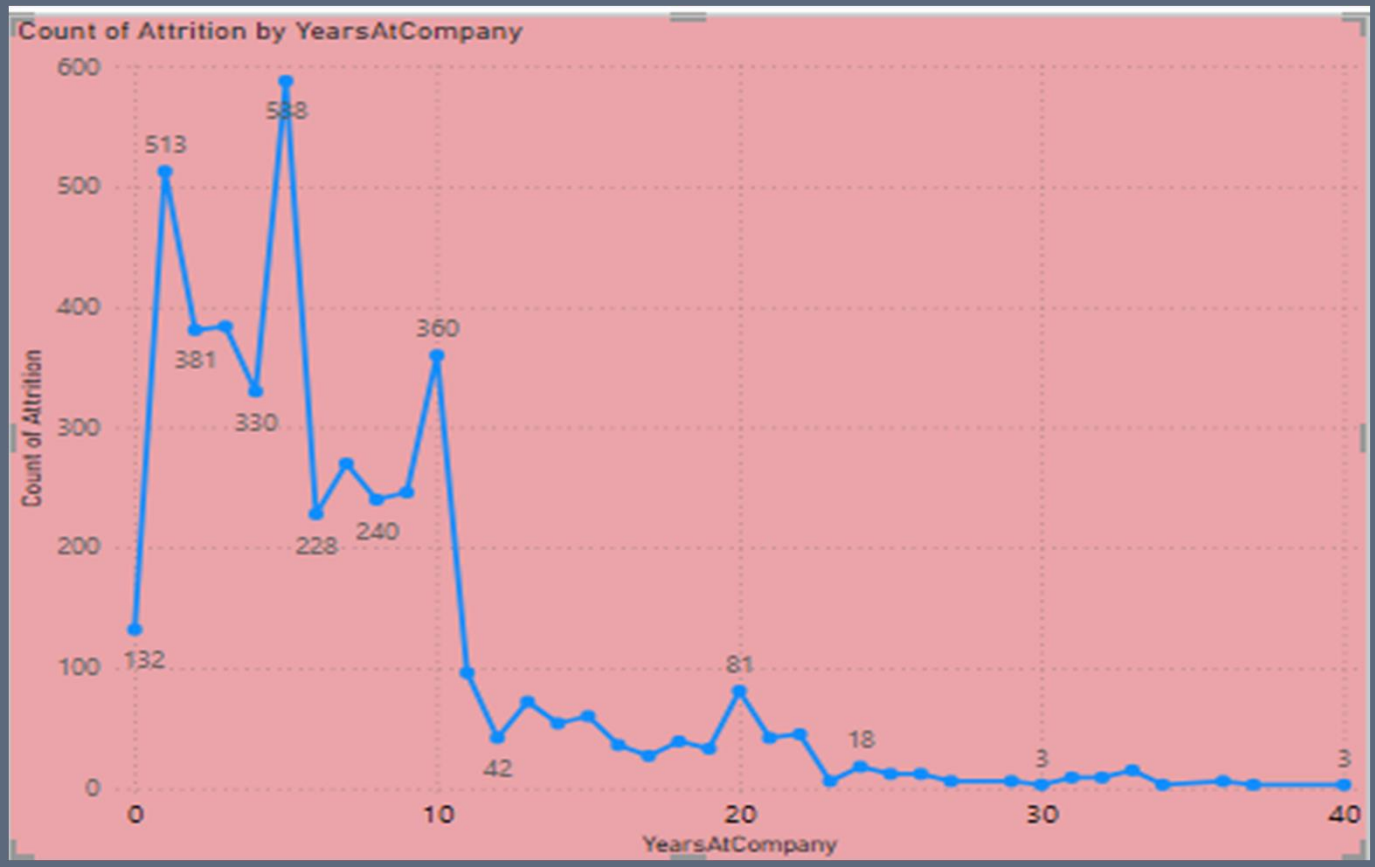


9. Apply conditional formatting to highlight employees with both above-average Monthly Income and above-average Job Satisfaction.



M	N	O	P
ritalSta	MonthlyIr	NumComp	Over18
rried	131160	1	Y
gle	41890	0	Y
rried	193280	1	Y
rried	83210	3	Y
gle	23420	4	Y
rried	40710	3	Y
gle	58130	2	Y
rried	31430	2	Y
rried	20440	0	Y
orced	134640	1	Y
rried	79910	0	Y
rried	33770	0	Y
gle	55380	0	Y
rried	57620	1	Y
rried	25920	1	Y
rried	53460	4	Y
gle	42130	1	Y
orced	41270	2	Y
orced	24380	7	Y

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



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

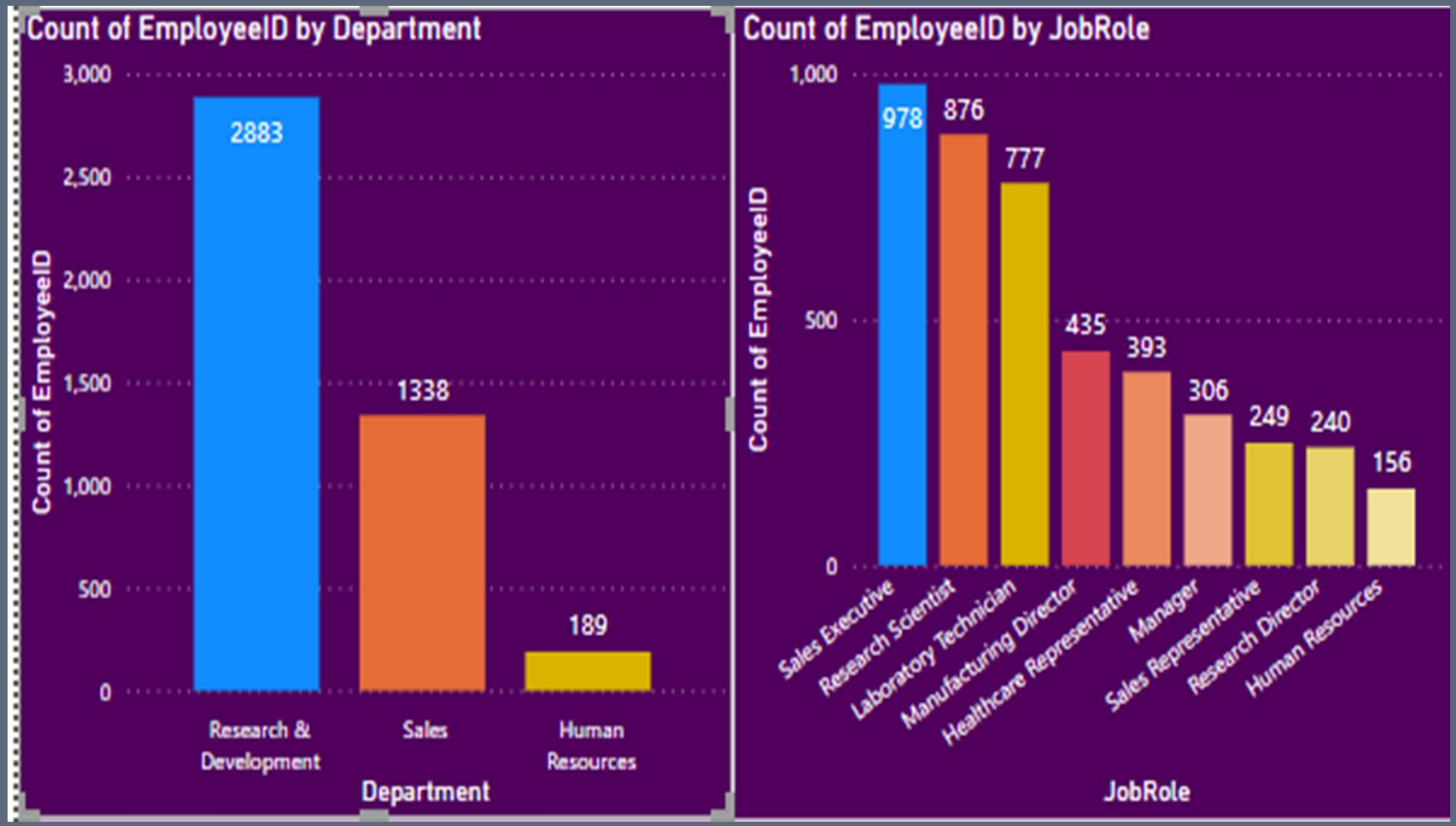
- Steps to Create star schema for this dataset :
  - Import all the tables
  - Load all the table.
  - Go to the Model view section
  - Take General_data as central query.
  - Establish relationship with employee_survey_data, in_time, out_time,manager_survey.

- Benefits :
  - Simple and easy-to understand structure
  - Better Performance for analytical queries
  - Fewer joins to access data

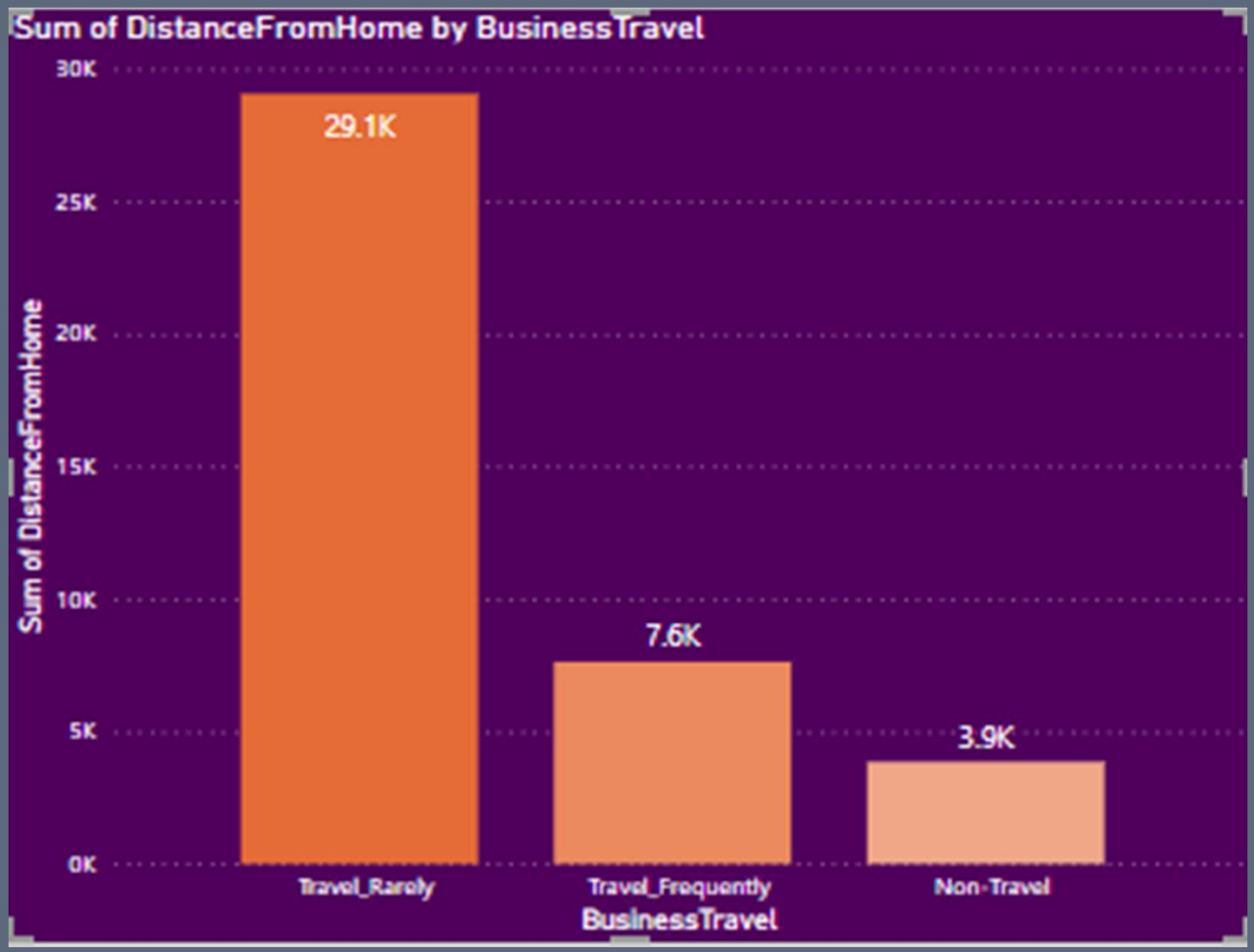
12. Using DAX, calculate the rolling 3-month average of Monthly Income for each employee.

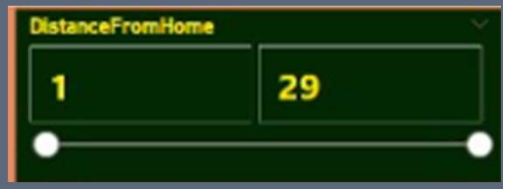
```
Rolling 3-Month Average =
 CALCULATE(
AVERAGE(general_data'[Monthly Income]),
 DATESINPERIOD(
‘general_data'[Date],
 LASTDATE(‘general_data'[Date]),
 -3,
MONTH ) )
```

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



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





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.

```
=SUMIFS(Gral[ [ MonthlyIncome ] ], Gral[Department], [@Department], Gral[JobLevel], ">=" & 3)
```

Department	Monthly Income	
Human Resources	$	3,259,140
Research & Development	$	53,502,900
Sales	$	22,974,330

Sum of MonthlyIncome	Column Labels			
Row Labels	Human Resources	Research & Development	Sales	Grand Total
3	1648500	28117740	11792400	41558640
4	754800	15277290	8753070	24785160
5	855840	10107870	2428860	13392570
Grand Total	**3259140**	**53502900**	**22974330**	**79736370**

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

Calculate the average monthly income.

Multiply the average monthly income by 1 + the 10% of salary hike.

% Salary hike	Avg Monthly Inco	Income after salary hike
10%	$ 65,029	$ 71,532

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

To verify if the data adheres to a predefined schema we need to first understand the business rules to make sure that our relations, tables, columns and data types are the correct ones.

In the case I find inconsistencies, I would correct some of them manually, and others using a software process to clean my data , communicate my findings with the interested parts and actualize the schema if necessary.