

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

The screenshot shows the Excel interface with the 'Age' column selected. The filter menu is open, and the 'Greater Than Or Equal To...' option is highlighted. The 'Number Filters' section is expanded, showing a list of age values from 18 to 25, all of which are checked. The 'Search' box is empty. The 'OK' and 'Cancel' buttons are visible at the bottom of the filter menu.

Age	Attrition	BusinessTravel	Department
25	45	Yes	Travel
26	27	No	Travel
27	33	No	Travel

The 'Custom Autofilter' dialog box is shown. The 'Show rows where:' section is set to 'Age'. The criteria are 'is greater than or equal...' with the value '30'. The 'And' radio button is selected. The 'OK' and 'Cancel' buttons are at the bottom right.

The screenshot shows the Excel spreadsheet with the data filtered to show only employees aged 30 and above. The rows are numbered 3 through 35. The columns are Age, Attrition, BusinessTravel, and Department.

Age	Attrition	BusinessTravel	Department
3	36	No	Non-Travel
4	33	Yes	Travel_Rarely
6	54	No	Travel_Rarely
8	38	No	Travel_Rarely
9	55	Yes	Travel_Rarely
10	55	Yes	Travel_Rarely
11	36	No	Travel_Rarely
12	35	No	Travel_Rarely
14	48	No	Travel_Rarely
15	50	No	Non-Travel
16	40	No	Travel_Rarely
20	44	Yes	Travel_Rarely
22	42	No	Travel_Frequent
23	44	No	Travel_Rarely
25	45	Yes	Travel_Rarely
27	33	No	Travel_Frequent
28	34	No	Travel_Rarely
29	42	No	Travel_Frequent
30	36	No	Travel_Rarely
32	49	No	Travel_Rarely
34	44	No	Travel_Rarely
35	36	No	Travel_Rarely

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

Value Field Settings

Source Name: MonthlyIncome

Custom Name: Average of MonthlyIncome

Summarize Values By Show Values As

Summarize value field by

Choose the type of calculation that you want to use to summarize data from the selected field

- Sum
- Count
- Average**
- Max
- Min
- Product

Number Format OK Cancel

Rows: JobRole Values: Sum of MonthlyIncome

Row Labels	Average of MonthlyIncome
Healthcare Representative	60983.74046
Human Resources	58528.07692
Laboratory Technician	66314.05405
Manager	63395.88235
Manufacturing Director	69183.72414
Research Director	65473.125
Research Scientist	64975.68493
Sales Executive	65186.68712
Sales Representative	65370.96386
(blank)	
Grand Total	65029.31293

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

New Formatting Rule

Select a Rule Type:

- Format all cells based on their values
- Format only cells that contain
- Format only top or bottom ranked values
- Format only values that are above or below average
- Format only unique or duplicate values
- Use a formula to determine which cells to format

Edit the Rule Description:

Format values that are:

above the average for the selected range

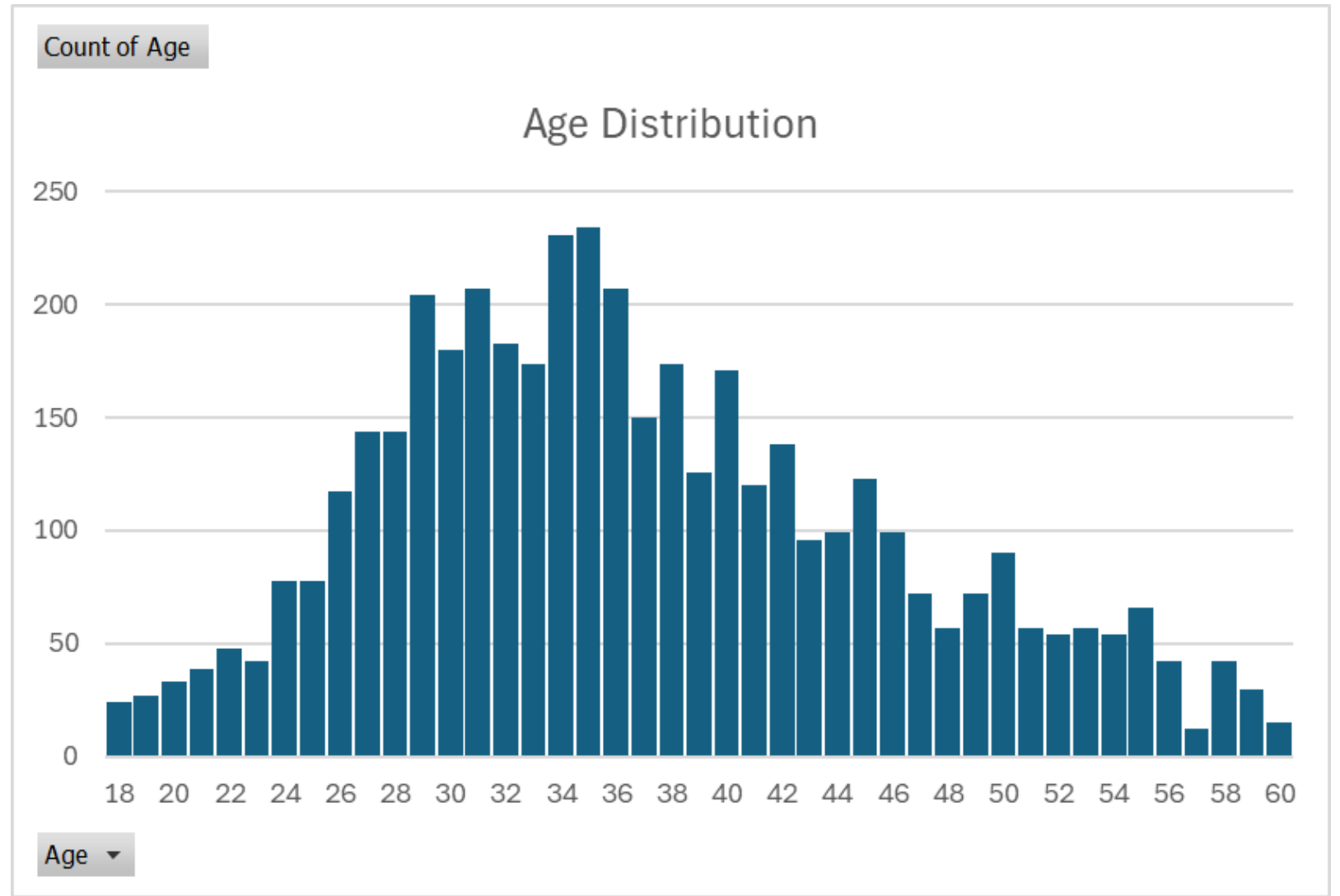
Preview: AaBbCcYyZz

Format...

OK Cancel

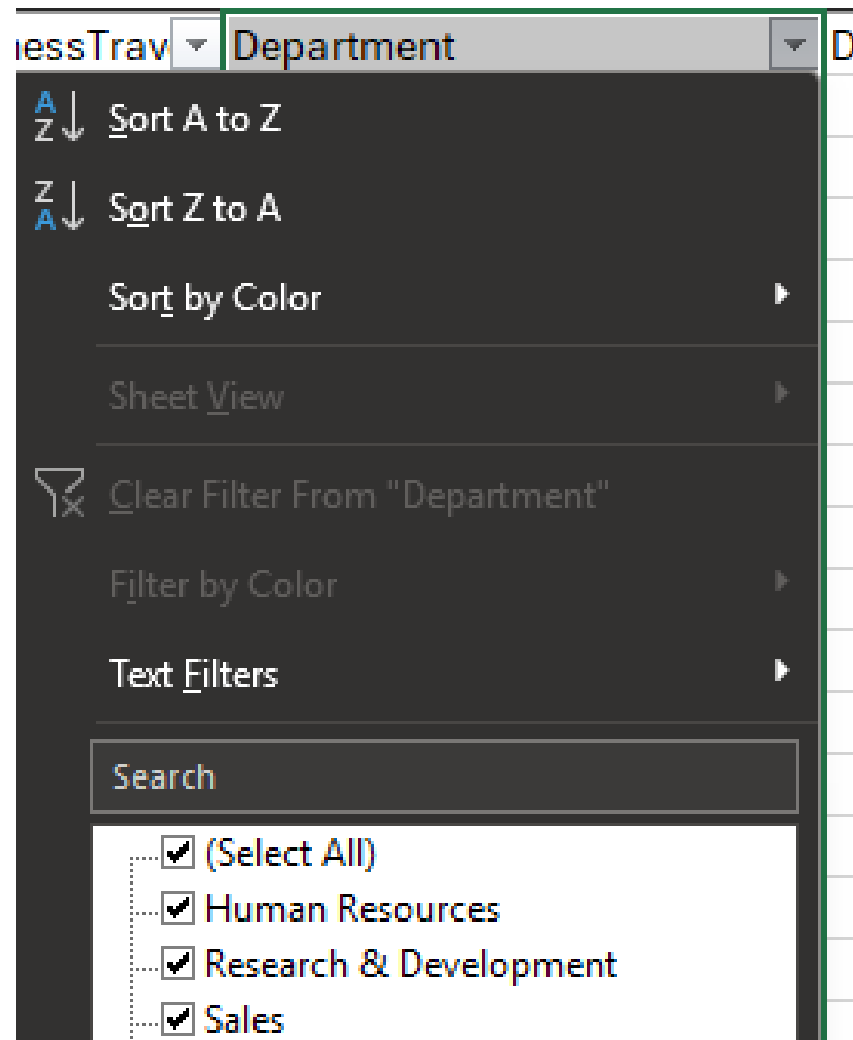
N	
MonthlyIncome	
	25870
	24320
	55610
	53730
	63230
	86330
	20140
	74280
	43190
	79180
	136750
	27230
	45540
	36880
	24550
	63470
	82680
	67810
	45580
	28860
	106480
	76320
	68110
	43060
	66320

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

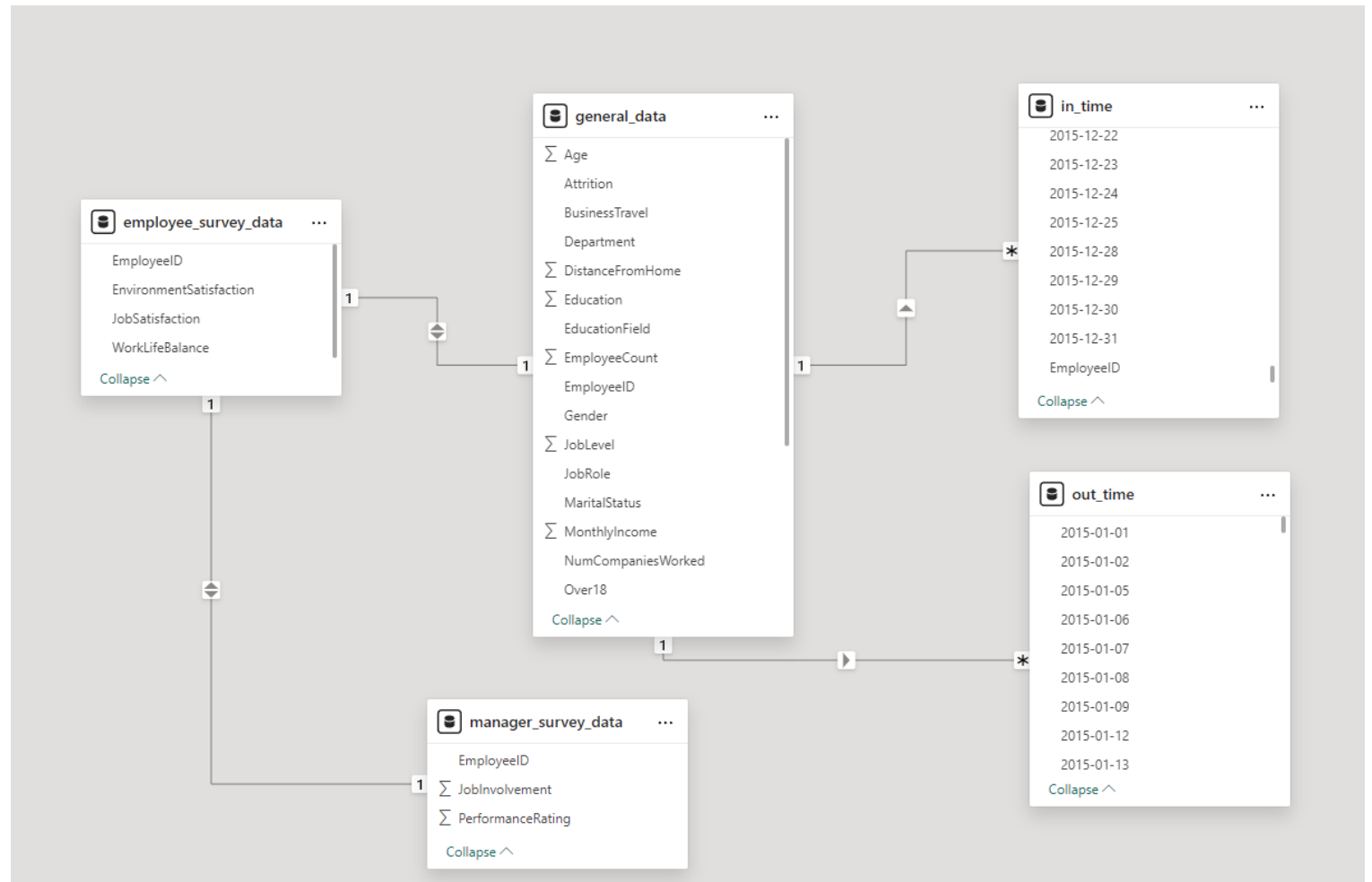


5. Identify and clean any missing or inconsistent data in the "Department" column.

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



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.



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

Drag fields between areas below:

Filters	Columns	Rows	Values
		Department ▼	Sum of EmployeeCount ▼
		MaritalStatus ▼	

Row Labels	Sum of EmployeeCount
Human Resources	189
Divorced	21
Married	96
Single	72
Research & Development	2883
Divorced	621
Married	1350
Single	912
Sales	1338
Divorced	339
Married	573
Single	426
Grand Total	4410

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

New Formatting Rule

Select a Rule Type:

- Format all cells based on their values
- Format only cells that contain
- Format only top or bottom ranked values
- Format only values that are above or below average**
- Format only unique or duplicate values
- Use a formula to determine which cells to format

Edit the Rule Description:

Format values that are:

above the average for the selected range

Sort & Filter Find & Select Add-ins

Sort Smallest to Largest

Sort Largest to Smallest

Custom Sort...

Filter

Clear

Reapply

Sort

My data has headers

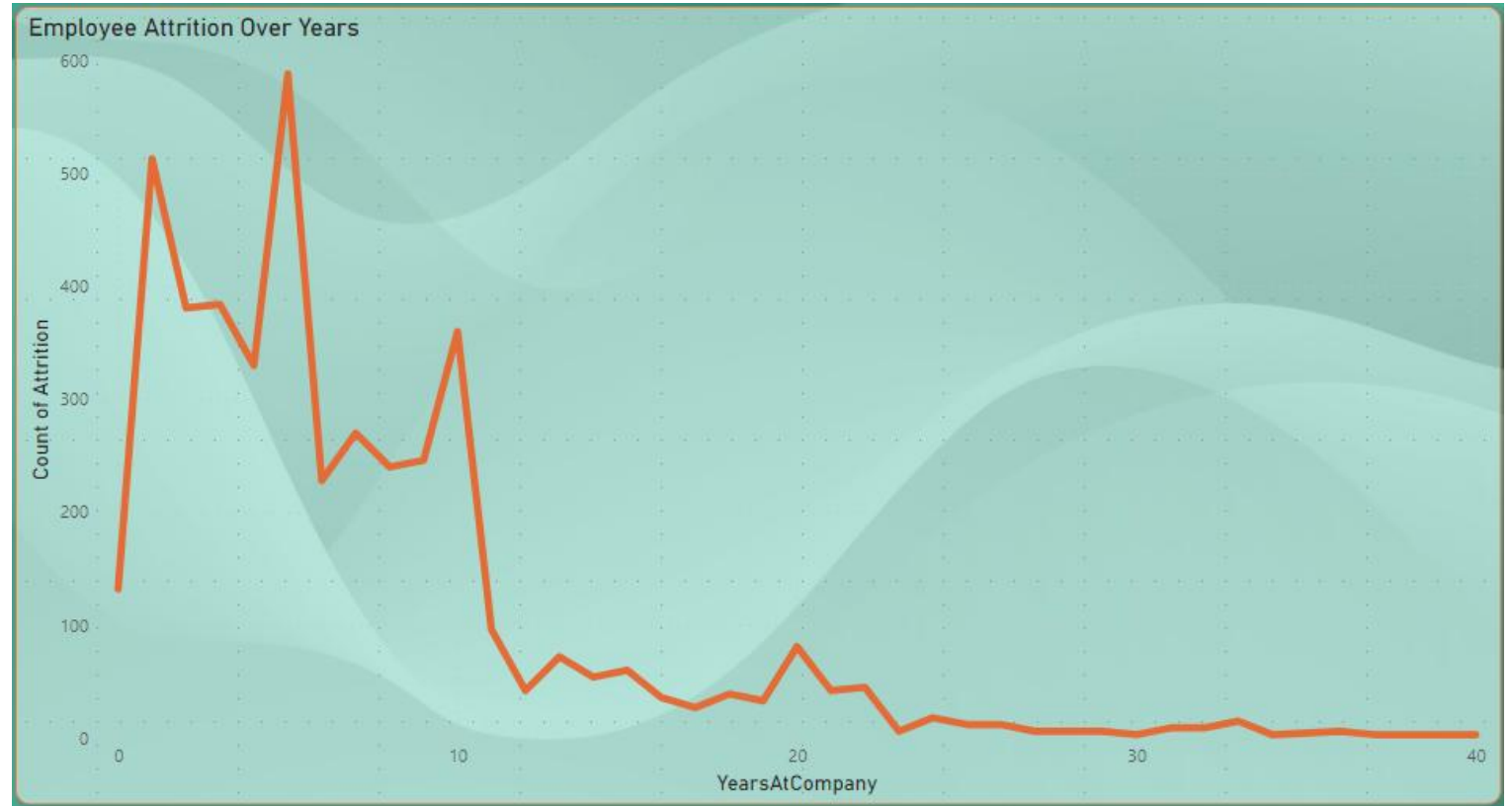
Sort by MonthlyIncome Sort On Cell Color Order On Top

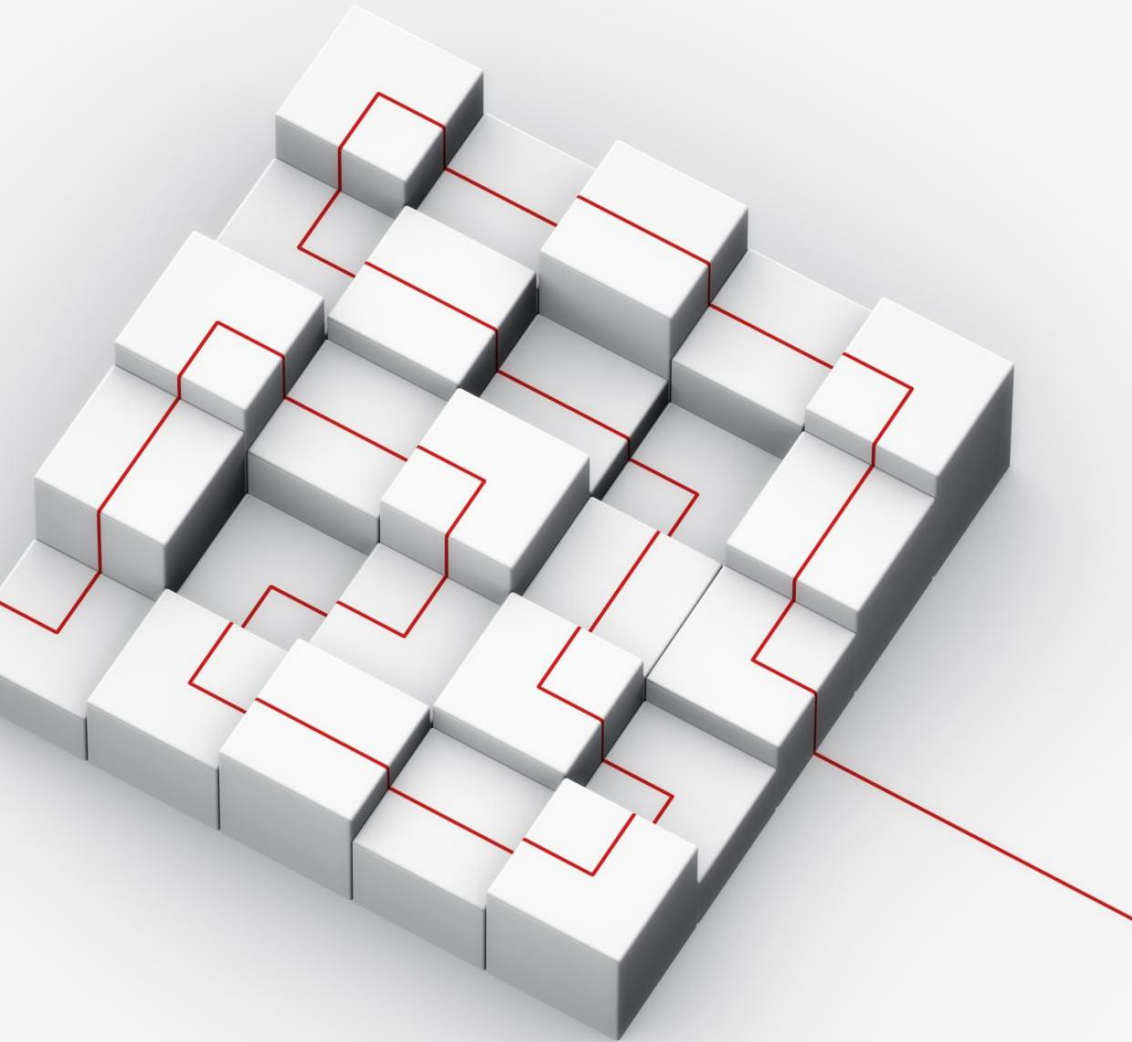
Then by JobSatisfaction Sort On Cell Color Order On Top

OK Cancel

JobSatisfaction	MonthlyIncome
4	131160
4	83210
4	79910
3	89260
4	65130
4	67990
3	103330
4	96370
4	157870
4	99070
3	73140
3	97130
4	171740
4	133480
4	65830
4	81030
3	68340
3	98540
3	191610
4	98880
3	86280
4	66670
3	96790
4	104480
3	196360
4	86330

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.

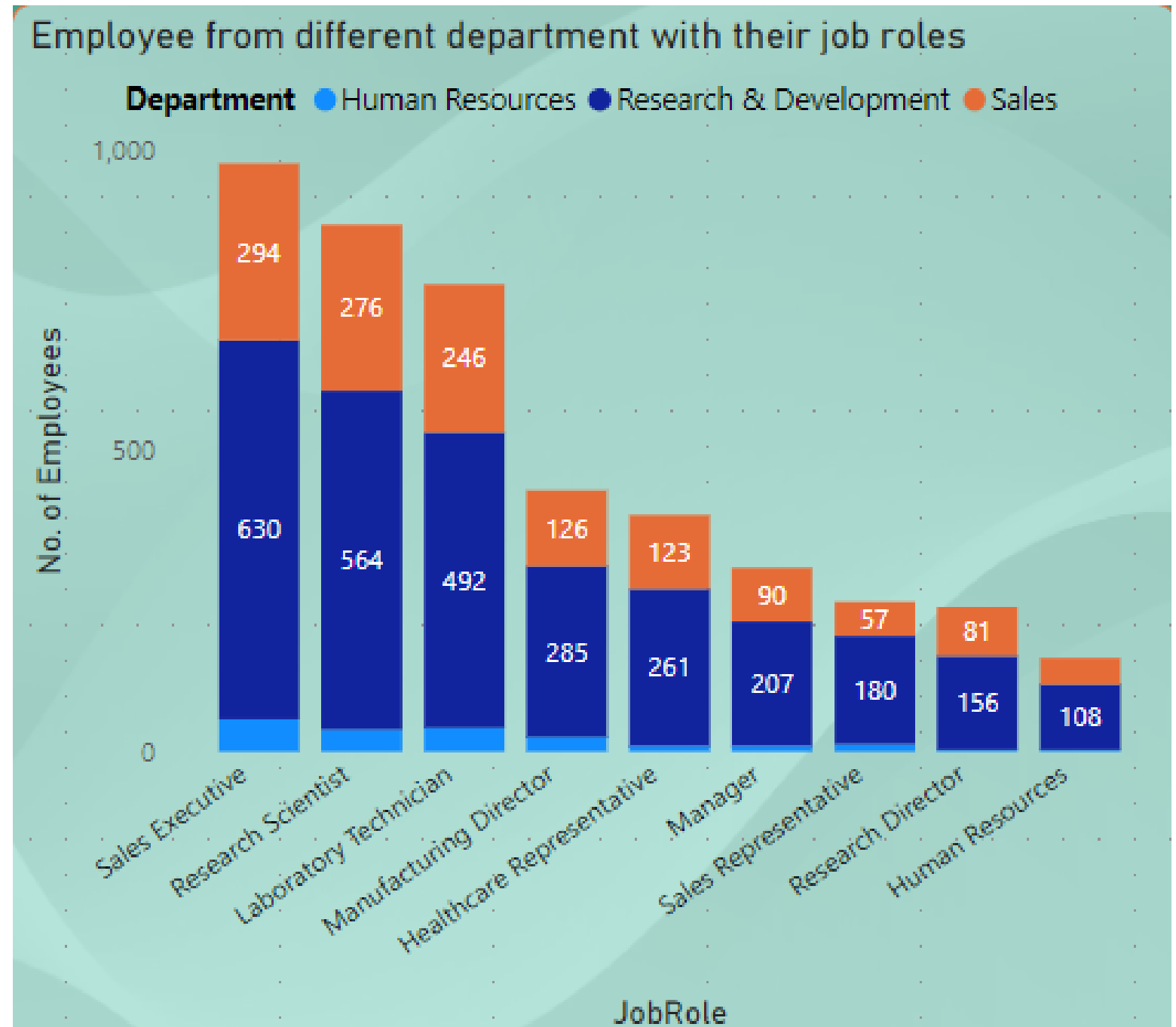
Benefits :

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

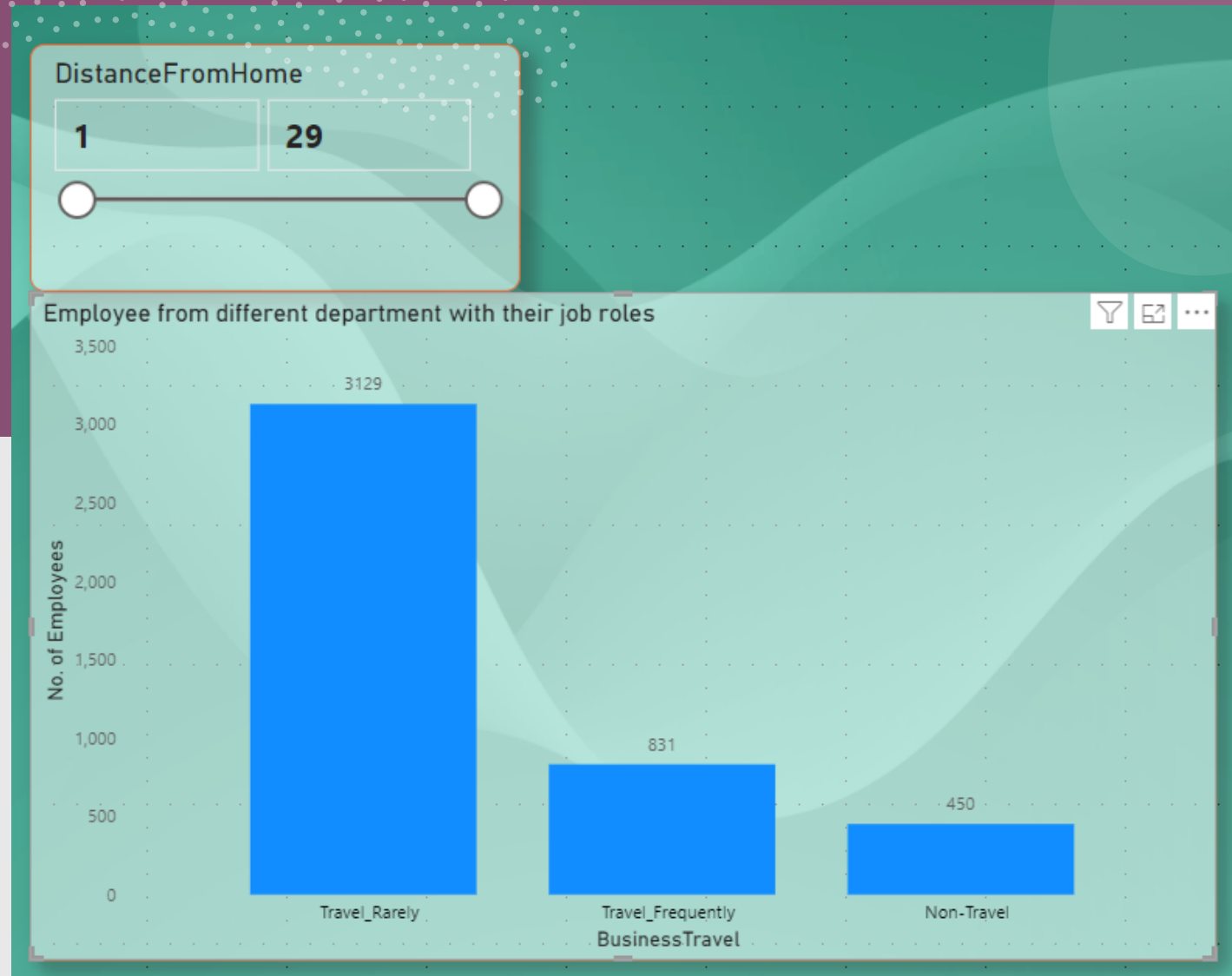
12. Using DAX,
calculate the rolling
3-month average of
Monthly Income for
each employee.

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.

Filters	Columns
JobLevel	
Rows	Values
Department	Sum of MonthlyIncome

The image shows a PivotTable with 'JobLevel' as the column label and '(All)' as the selected value. A selection dialog box is open, allowing the user to choose specific job levels. The dialog box lists '(All)', 1, 2, 3, 4, and 5. Checkboxes next to 3, 4, and 5 are checked. The 'Select Multiple Items' checkbox at the bottom is also checked. The 'OK' button is highlighted.

JobLevel	(Multiple Items)
Row Labels	Sum of MonthlyIncome
Human Resources	3259140
Research & Development	53502900
Sales	22974330
Grand Total	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

Percentage Salary Hike	Average Monthly Salary	Income After Salary Hike
10	=AVERAGE(N2:N4411)	
	AVERAGE(number1, [number2], ...)	

Percentage Salary Hike	Average Monthly Salary	Income After Salary Hike
10	65029.31293	=N4416+((N4416*10)/100)

Percentage Salary Hike	Average Monthly Salary	Income After Salary Hike
10	65029.31293	71532.24422

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.