HR_DATA_ANALYSIS

PSYLIQ

1. **Data Import and Transformation: Can you show me how to import the employee data from the Excel files and transform it to remove any unnecessary columns or rows?**

- In Power BI, start by opening Power BI Desktop, selecting "Get Data," and choosing your Excel file. Navigate to the relevant worksheet and load the data. In the Power Query Editor, remove unwanted columns or rows, and perform additional transformations.
- Use the "Close & Apply" button to save changes. Back in Power BI Desktop, save the file, and create visualizations or reports with the transformed data. Power BI keeps a transformation record, facilitating future reproductions. Refresh data by clicking "Refresh." Adjustments may be necessary based on specific data requirements.
- This streamlined process ensures efficient importing and transformation of employee data in Power BI.

4. Joining Data: Explain what kind of join you would use to combine the employee data with the in-time and out-time data, and why.

- Load employee data into Power BI.
- Import in-time and out-time data as separate queries.
- Open Power Query Editor from the "Home" tab.
- Select the employee data query.
- Click "Merge Queries" and choose the time data query.
- Define matching columns and select join type (Inner, Left, Right, Full).
- Click "OK" to perform the merge operation.
- Expand the merged columns to access the combined data.
- Adjust data types and apply necessary transformations.
- Click "Close & Apply" to save changes and return to Power BI Desktop.

5. Calculated Columns: Create a calculated column to determine the age group of employees (e.g., under 30, 30-40, 40-50, over 50).

```
Age Group =
SWITCH(TRUE(),
    'general_data'[Age] < 30, "30",
    'general_data'[Age] >= 30 && 'general_data'[Age] <= 40, "30-40",
    'general_data'[Age] > 40 && 'general_data'[Age] <= 50, "40-50",
    'general_data'[Age] > 50, "50",
    "Unknown"
)

```

aryHike	StandardHours	StockOptionLevel	TotalWorkingYears	TrainingTimesLastYear	YearsAtCompany	YearsSinceLastPromotion	YearsWithCurrManager	Age Group
11	8	0	1	6	1	0	0	50
21	8	1	1	3	1	0	0	30-40
12	8	1	1	2	1	0	0	30
13	8	0	1	3	1	0	0	30-40
15	8	2	1	2	1	0	0	30
22	8	0	1	3	1	0	0	30
12	8	0	1	4	1	0	0	30
13	8	2	1	3	1	0	0	30
13	8	3	1	2	1	0	0	30
13	8	2	1	2	1	0	0	30
12	8	2	1	2	1	0	0	40-50

7. Time Intelligence: How can you use DAX to calculate the year-over-year growth in monthly income for employees?

```
1  YoY Growth =
2  VAR CurrentYearIncome = 'general_data'[MonthlyIncome]
3  VAR PreviousYearIncome =
4      CALCULATE(
5          MAX('general_data'[MonthlyIncome]),
6          FILTER(
7              ALL('general_data'),
8              'general_data'[EmployeeID] = EARLIER('general_data'[EmployeeID]) &&
9              'general_data' = YEAR(EARLIER('general_data'[YearsAtCompany])) - 1
10         )
11     )
12 RETURN
13     IF(ISBLANK(PreviousYearIncome), BLANK(), (CurrentYearIncome - PreviousYearIncome) / PreviousYearIncome)
14
```

The expression refers to multiple columns. Multiple columns cannot be converted to a scalar value.

dardHours	StockOptionLevel	TotalWorkingYears	TrainingTimesLastYear	YearsAtCompany	YearsSinceLastPromotion	YearsWithCurrManager	Age Group	YoY Growth
8	0	1	6	1	0	0	50	#ERROR

9. Advanced DAX Calculation: Calculate the attrition rate for each department and visualize it using a heatmap.

10. Advanced Join: Combine the employee data with a different dataset using a left join and explain the potential pitfalls

When combining employee data with another dataset using a left join, potential pitfalls include introducing null values for unmatched records in the right dataset.

This can affect subsequent analyses, causing misinterpretations if not handled properly. Ensure proper handling of nulls and carefully assess the impact on downstream calculations.

Additionally, verify that the join keys are unique to prevent unintended duplications in the result, maintaining data integrity in the combined dataset.

12. Advanced Time Intelligence: Calculate the moving average of monthly income over a rolling 3-month period using DAX

```
1 Moving Average 3-Months =
2 CALCULATE(
3     AVERAGE('general_data'[MonthlyIncome]),
4     DATESINPERIOD('general_data'[Date], LASTDATE('general_data'[Date]), -3, MONTH)
5 )
6
```

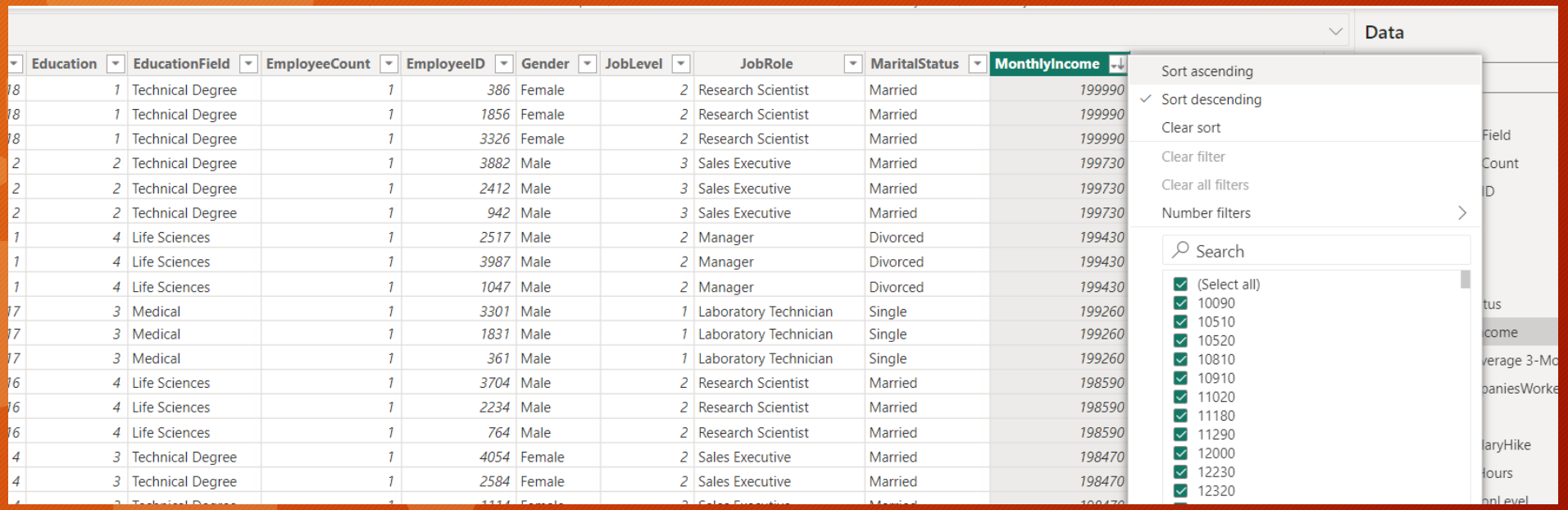
ne	Education	EducationField	EmployeeCount	EmployeeID	Gender	JobLevel	JobRole	MaritalStatus	MonthlyIncome	NumCompaniesWorked	Ove
6	2	Life Sciences	1	1	Female	1	Healthcare Representative	Married	131160	1	Y
28	2	Human Resources	1	106	Female	5	Manager	Single	55610	1	Y
10	2	Human Resources	1	113	Male	1	Laboratory Technician	Single	53730	1	Y
3	3	Life Sciences	1	124	Female	2	Manager	Married	59680	1	Y
4	3	Medical	1	165	Male	1	Sales Executive	Single	76440	1	Y
1	3	Marketing	1	206	Female	2	Manufacturing Director	Single	24260	1	Y
7	3	Medical	1	219	Female	1	Laboratory Technician	Married	12320	1	Y
17	4	Medical	1	230	Female	1	Sales Representative	Single	22930	1	Y
1	2	Medical	1	289	Female	1	Sales Executive	Single	106730	1	Y
2	4	Marketing	1	332	Female	4	Research Scientist	Married	106500	1	Y
10	4	Life Sciences	1	346	Male	1	Research Director	Single	56050	1	Y
1	3	Medical	1	406	Male	2	Sales Executive	Single	104000	1	Y
1	3	Medical	1	413	Male	1	Research Scientist	Single	20580	1	Y

Data

Search

- Education
- EducationField
- EmployeeCount
- EmployeeID
- Gender
- JobLevel
- JobRole
- MaritalStatus
- MonthlyIncome
- Moving Average 3-Months
- NumCompaniesWorked
- Over18
- PercentSalaryHike
- StandardHours
- StockOptionLevel

13. Conditional Formatting: Apply conditional formatting to a table to highlight employees with the highest and lowest monthly incomes.



Education	EducationField	EmployeeCount	EmployeeID	Gender	JobLevel	JobRole	MaritalStatus	MonthlyIncome
1	Technical Degree	1	386	Female	2	Research Scientist	Married	199990
1	Technical Degree	1	1856	Female	2	Research Scientist	Married	199990
1	Technical Degree	1	3326	Female	2	Research Scientist	Married	199990
2	Technical Degree	1	3882	Male	3	Sales Executive	Married	199730
2	Technical Degree	1	2412	Male	3	Sales Executive	Married	199730
2	Technical Degree	1	942	Male	3	Sales Executive	Married	199730
4	Life Sciences	1	2517	Male	2	Manager	Divorced	199430
4	Life Sciences	1	3987	Male	2	Manager	Divorced	199430
4	Life Sciences	1	1047	Male	2	Manager	Divorced	199430
3	Medical	1	3301	Male	1	Laboratory Technician	Single	199260
3	Medical	1	1831	Male	1	Laboratory Technician	Single	199260
3	Medical	1	361	Male	1	Laboratory Technician	Single	199260
4	Life Sciences	1	3704	Male	2	Research Scientist	Married	198590
4	Life Sciences	1	2234	Male	2	Research Scientist	Married	198590
4	Life Sciences	1	764	Male	2	Research Scientist	Married	198590
3	Technical Degree	1	4054	Female	2	Sales Executive	Married	198470
3	Technical Degree	1	2584	Female	2	Sales Executive	Married	198470