

Job Performance, Satisfaction, and Attrition Analysis

MS Azure: MI - 462

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Introduction

- I am interested in focusing on data analytics and internal efforts and strategies within companies
 - If you can't keep your employees happy, will your own customers be happy?
 - Internal Market Research
- Was able to find dataset that would let me practice that.
- While training on MS Azure, I tried many different platforms.
- Landed on Data Explorer because it was user friendly.

More about the Data Set

- Found on Kaggle
- Based on IRL company and their data
- Dataset includes information pertaining to attrition(how many employees leave a company), job satisfaction and other important employee data that pertain to their job
- Contains categorical and numerical data



Data Set In Depth

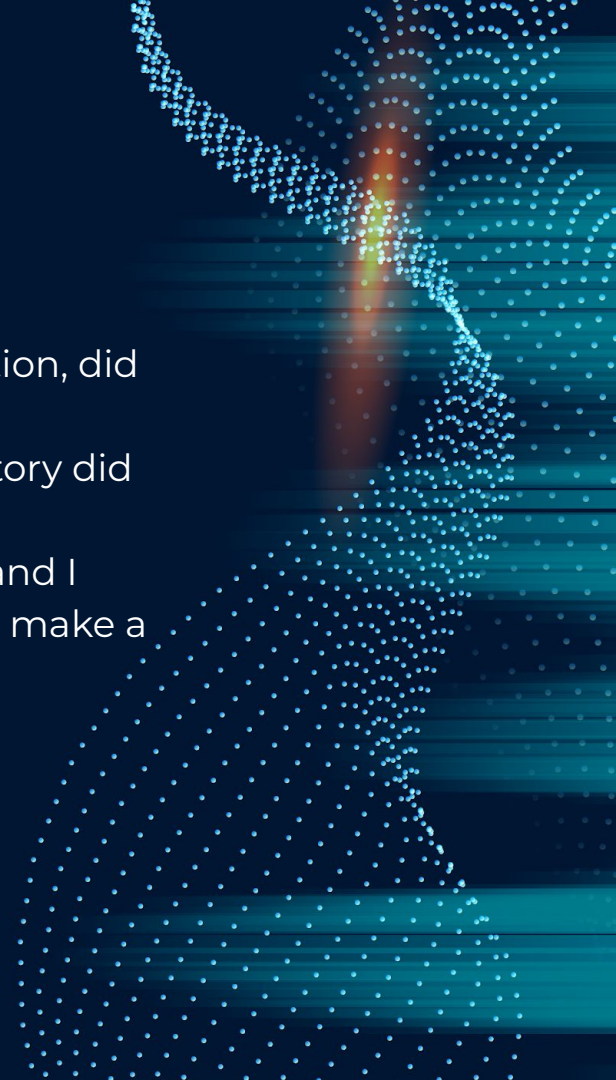
Age, Attrition, Business Travel, DailyRate, Department, distance from home, Education, Education field, EmployeeCount, Employee number, Environment Satisfaction, Gender, Hourly Rate, Job Involvement, Job Level, Job Role, Job Satisfaction, Marital Status, Monthly Income, Monthly Rate, Number of Companies Worked, Over 18, Overtime, Percent Salary Hike, Performance Rating, Relationship Satisfaction, Standard Hours, Stock Option Level, Total Working Years, Training Times last year, Work life balance, Years at company, Years in current role, Years since last promotion, years with current manager

No Nulls !

Over 1400 entries !

Problems with MS Azure

- Original Dataset was too big for MS Azure and data factory
- Started on Data factory and tried to use the notebook function, did not work because my file was too big
- When I used my newest dataset, datasynapse and data factory did not like my data either
- While I was doing all of everything my subscription ended and I wasn't able to do everything I wanted to and I was unable to make a new account



What I went with

- Data Explorer
- ETL process was super easy
- Interface was user friendly
- Making visuals was very easy
- Only barrier was learning KQL
 - Had to translate from SQL TO KQL



Goals and Questions for this Analysis

Attrition

Investigate why people are leaving.
What factors are making them leave?

Satisfaction and Performance

How do our employees feel about working here?
Do they feel accomplished?

Improvement

In what ways can we improve attrition and increase retention? How can we maintain satisfaction and job performance rankings?

Attrition... What is it and why is it important?

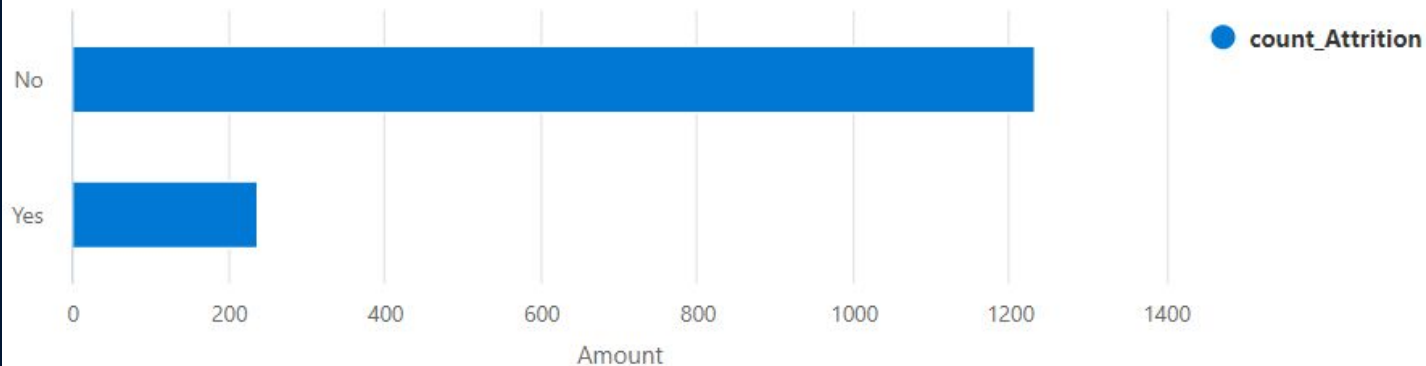
- You might have heard of Retention
 - How employers keep their employees and how many stay
- Attrition is the opposite
 - How many employees leave a company
- Why do employees leave? Is there any factors that could contribute to them leaving? How can we improve it?



Attrition Overview

```
1 job_performance_table  
2 | summarize count(Attrition) by Attrition
```

Employee Attrition



How is Attrition looking for this company?

- Majority of the company is staying!
- Retention is high and attrition is low
- About 84% of employees will be staying
- What about the other 16%?
 - This is moderately high number, why are people leaving?



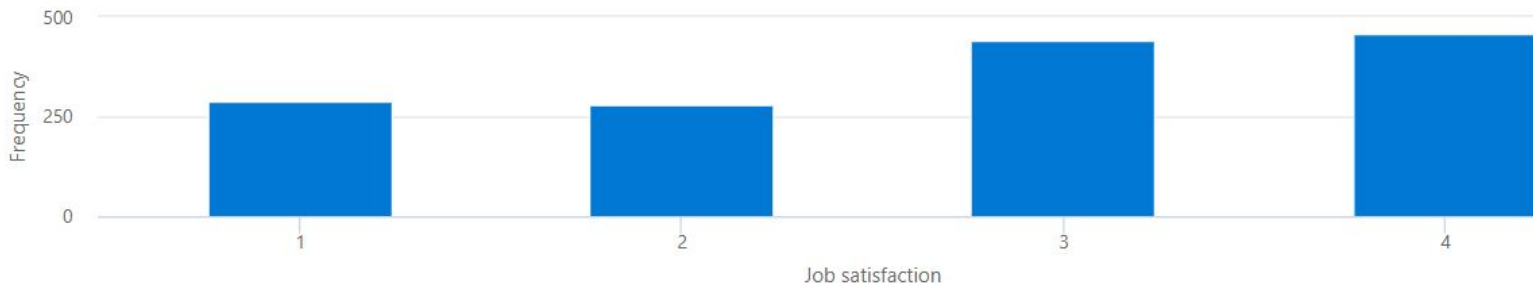
What does our overall Job Satisfaction look like?

Using KQL, I created a histogram of the distribution of what employees put for their satisfaction

1 being the not satisfied at all and 4 being extremely satisfied

```
1 job_performance_table  
2 | summarize count() by bin(JobSatisfaction, 1) | render columnchart with (title = ("Histogram of job satisfaction"), xtitle =
```

Histogram of job satisfaction



What does the histogram show?

- Our distribution is slightly skewed left and almost flat
- Majority of the responses are positive being a 4 and second being 3
- This shows most employees are satisfied with their job and work



What about work life balance?

```
1  job_performance_table  
2  | summarize count() by bin(WorkLifeBalance, 1) | render columnchart with (title = ("Histogram of Work Life Balance Rating"),
```

Histogram of Work Life Balance Rating



What does this histogram show?

- Our distribution is more normal looking (bell curve)
- Most of our responses are concentrated in the middle
- Most employees have an average work life balance
- There is still a good portion who rated a 2
 - Might be worthy to be investigated later



Gender Analysis

Making sure equity and inclusion is kept to a high standard is an important part of retention and job satisfaction in a company

If there is a problem with how different genders are treated, that could impact the data and job satisfaction and attrition.



Gender Analysis Basics

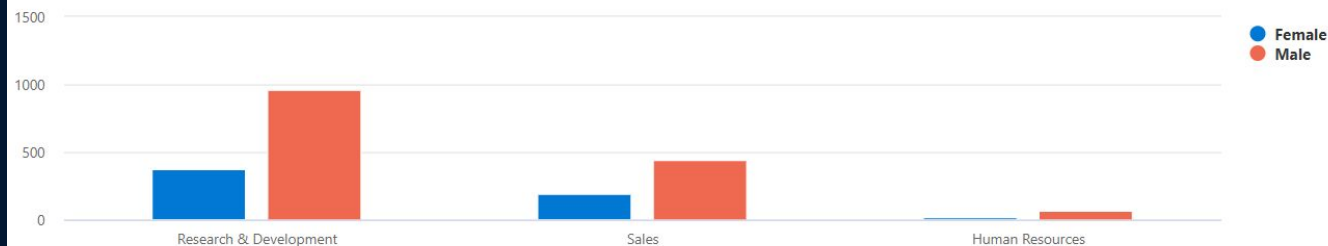
	Gender	avg_Age
>	Male	36.6530612244898
>	Female	37.32993197278912

```
1 job_performance_table
2 | summarize avg(MonthlyIncome) by Gender
```

	Gender	avg_MonthlyIncome
>	Male	6,380.507936507936
>	Female	6,686.566326530612

```
1 job_performance_table
2 | summarize Female = countif(Gender contains "Female"), Male = countif(Gender contains "Male") by Department
```

Amount of each Gender by Department



Gender Analysis

The average age for both genders is very close being 36 and 37

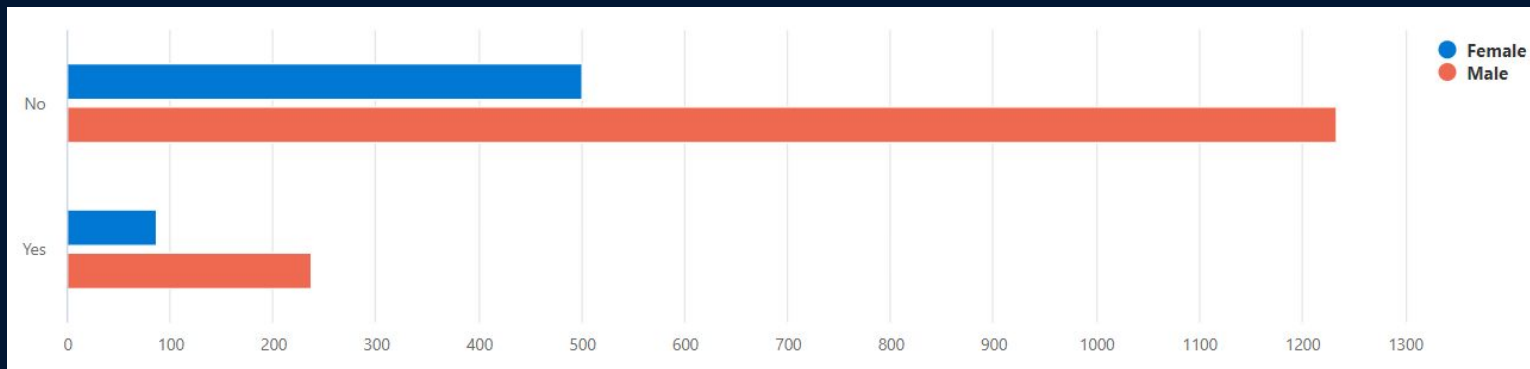
Their monthly income is also very close

This ensures that there is no income gap

There is a more males than females in each department

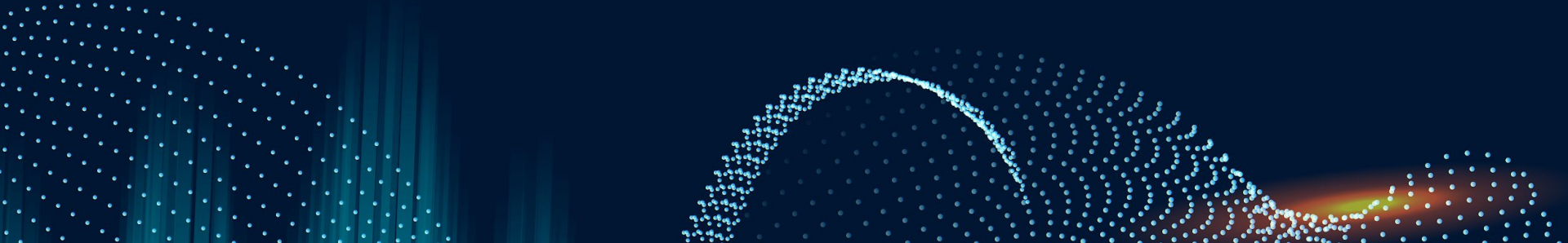
Gender Analysis Cont.

```
1 job_performance_table  
2 | summarize Female = countif(Gender contains "Female"), Male = countif(Gender contains "Male") by Attrition
```



Gender and Attrition

- The previous bar chart displayed the amount of male and females who said they were staying and who were leaving the company
- Because there is more men in the set, the males are the majority in each response
- The biggest insight to this chart is that for the “No” response the amount of males and females are very close
 - This shows that there is no issues with Gender at the company that would cause someone to leave

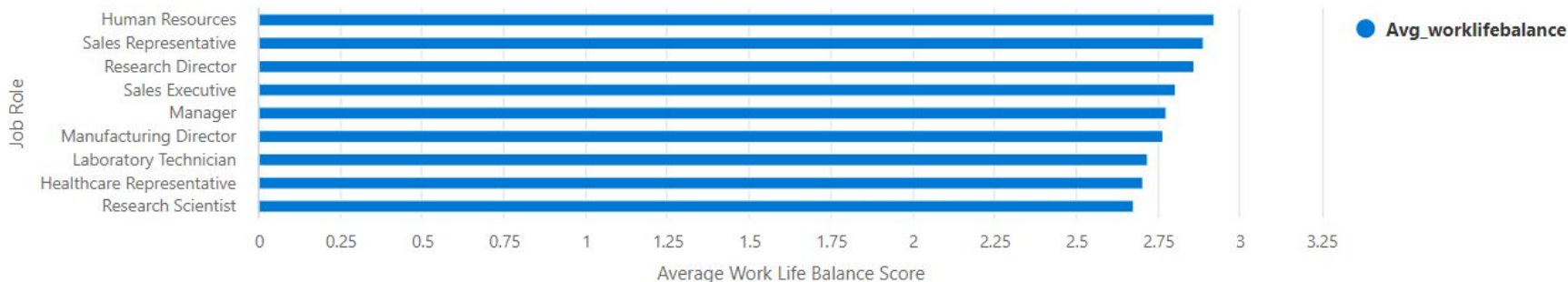


Does your Job Role impact your work life balance?

Let's look at how different Job Roles rate their work life balance

```
1  ∨ job_performance_table
2  | summarize Avg_worklifebalance = avg(WorkLifeBalance) by JobRole | sort by Avg_worklifebalance desc
```

Average Work Life Balance by Job Role



What is the chart telling us?

All job roles have very similar average work life balance ratings

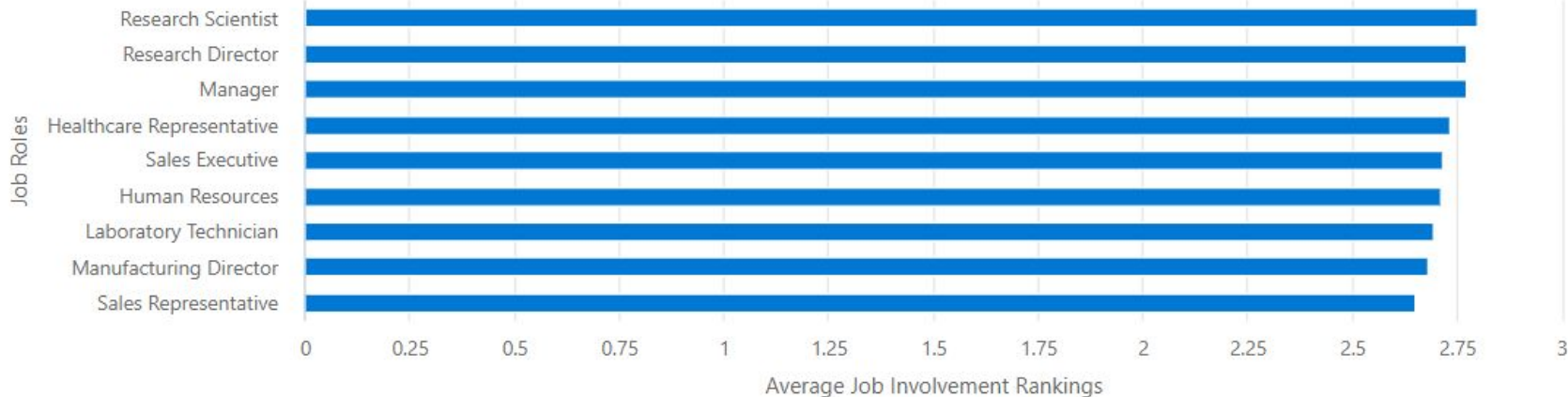
Human Resources have the highest average score and Research Scientist have the lowest average score

Our their jobs too hard?



What does the average Job involvement ranking for each Job role look like?

```
1  ∨ job_performance_table  
2  | summarize avg(JobInvolvement) by JobRole | sort by avg_JobInvolvement desc
```



What does this mean? Is there any patterns?

- Research Scientist report to have the highest Job Involvement average
 - They are reporting that their job is pretty demanding
- Sales Representatives report to have the lowest job involvement
- The two bar graphs seems to be almost inverse of each other with Research Scientist having the highest job involvement but the lowest work life balance
 - Are we giving employees too much work?

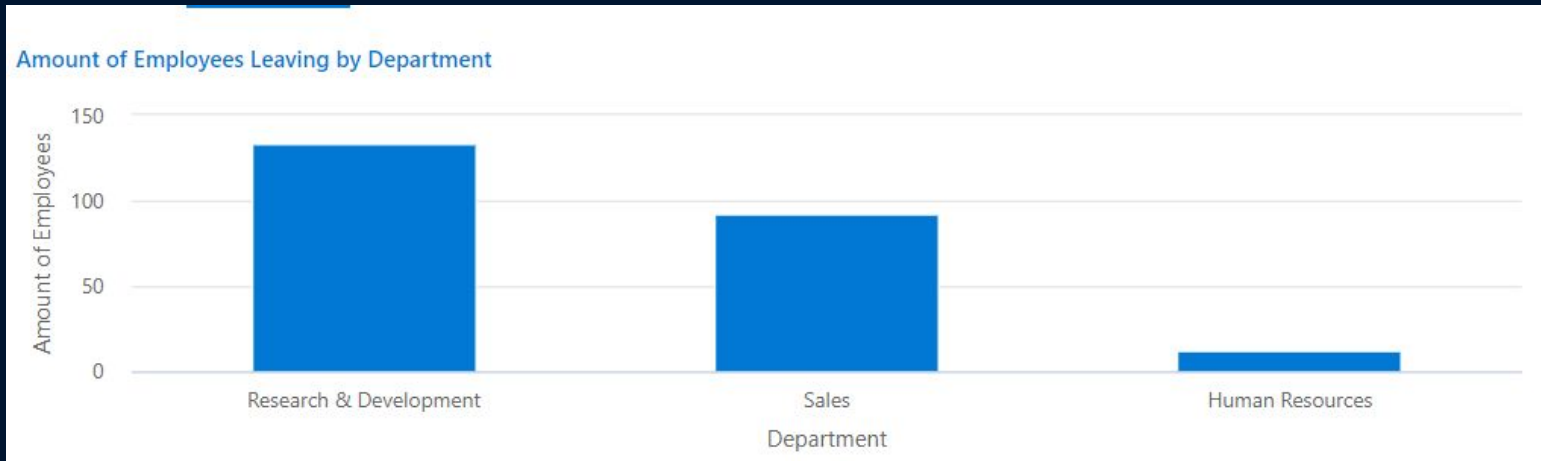
Does the Attrition Numbers Match?

```
1 job_performance_table  
2 | summarize count(JobRole) by Attrition, JobRole | where Attrition == "Yes" | sort by count_JobRole desc
```



Attrition Numbers by Department

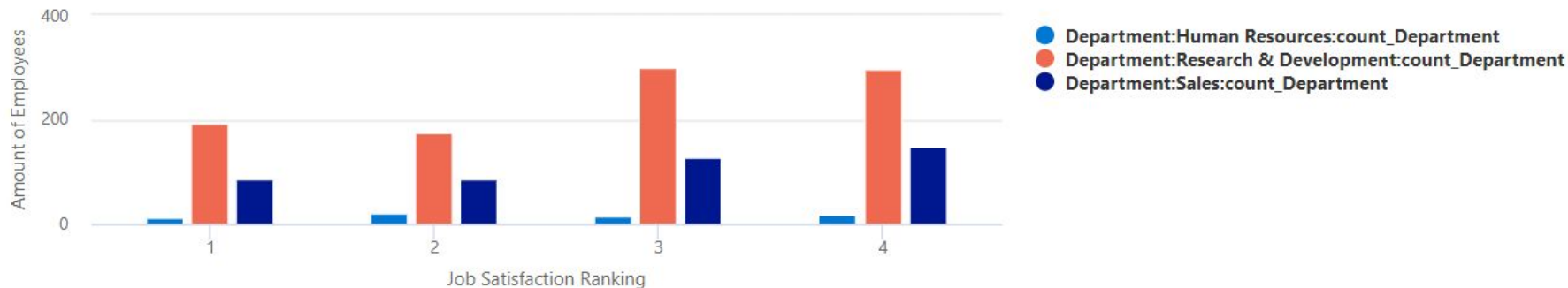
```
1 job_performance_table  
2 | summarize count(Department) by Attrition, Department | where Attrition == "Yes" | sort by count_Department desc
```



Job Satisfaction Rankings by Department

```
1 ∨ job_performance_table  
2 | summarize count(Department) by JobSatisfaction, Department | sort by count_Department desc
```

Job Satisfaction Rankings by Department



What did we learn?

- Research Scientist was in the top 3 for amount leaving the company
- The Research and Development have the largest amount of people leaving the company
- Job Satisfaction is still pretty equal through each department
- There is no direct correlation but the company needs to look closer into the roles that are in Research and Development

What other factors might contribute to job satisfaction and performance?

Income

Promotions

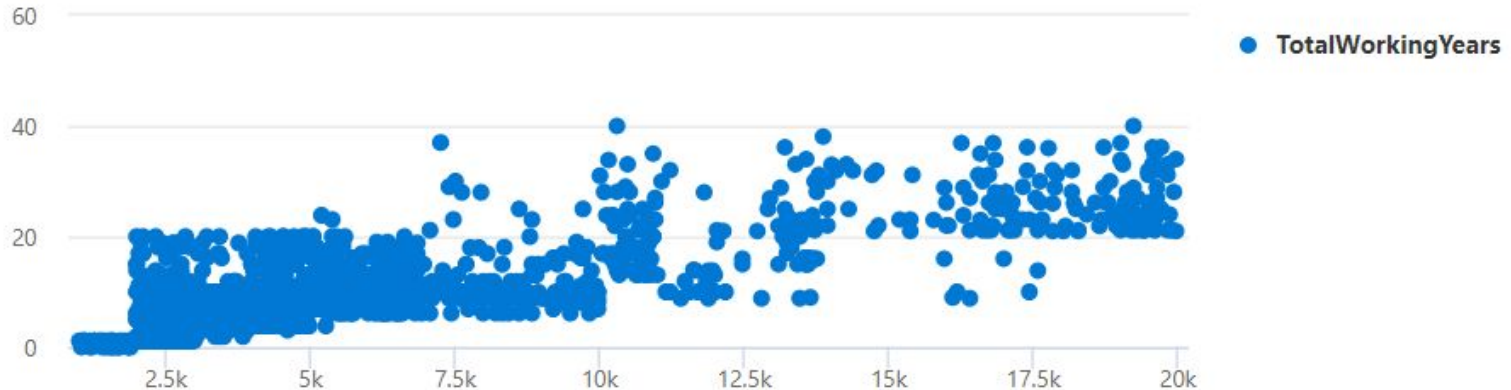
Years at the Company

Salary Increases

Does your past work experience impact your Monthly Income?

```
1 job_performance_table  
2 | project MonthlyIncome, TotalWorkingYears
```

Monthly Income vs Total Working Years



Insights

There seems to be a slight positive correlation between monthly income total working years

This means the company is properly paying people by their experience level

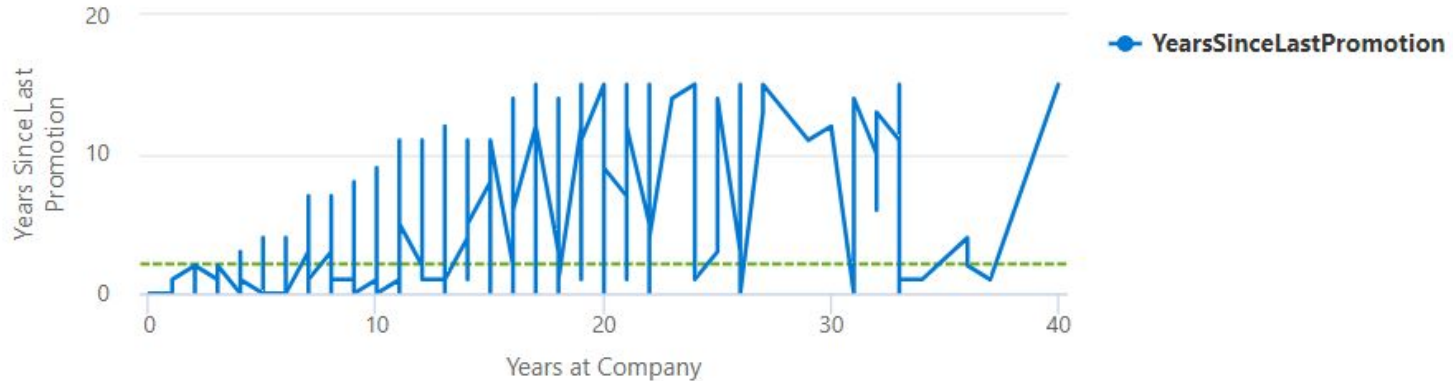
This is positive for retention



Does the amount of time with the company impact the time you get a promotion?

```
1 job_performance_table  
2 | project YearsAtCompany, YearsSinceLastPromotion
```

Years at Company vs Years since their last promotion



Insights

By looking at the graph, there is little to no correlation between the amount of years at the company and years since last promotion

Trends seem to be very irregular and not consistent

In companies, most corporations try to reward loyalty with a promotion

Looking at the graph, there are people that have worked with the company for decades but haven't received a promotion in decades

The line represents the average amount of years it takes to receive a promotion

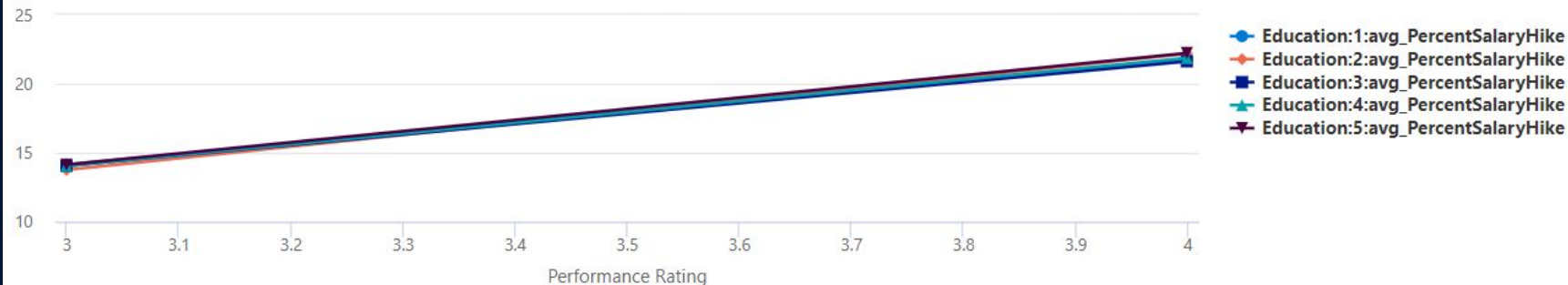
This shows the company might not prioritize or appreciate loyalty



Does your education level impact your salary hike and do you get a salary hike when your performance rating is high?

```
1 job_performance_table  
2 | summarize avg(PercentSalaryHike) by Education, PerformanceRating | sort by Education asc
```

Performance Ratings vs Percentage of Salary Hike by Education Level





Insights

- All Education Levels have almost the same positive correlation
- The highest education level 5 being the highest by not that much
- The visual shows that with higher performance ratings is a bigger salary hike which is positive for employees
- But with different education levels, the difference between them is not different
- Employees might believe that their education efforts might not matter or are not in consideration for their job

Overall Insights and Conclusions on Analysis

- The company is doing well with retention overall
- Job Satisfaction is good and work life balance is average
- Maintain equity and inclusive culture
- To help with attrition and job performance, sit down with the employees in the Research and Development department to see what they need and if they need any support with their work and workload
- Start to reward loyalty with promotions and salary hikes
- Also start rewarding higher education



My thoughts and journey with MS Azure

- This was fun!
- I enjoyed learning about MS Azure and new data analytics tools
- My dataset was interesting and fun to work with
- At first, MS Azure was difficult to learn and use with all the different tools and platforms
- Once I stuck with a platform (Data Explorer), it wasn't so bad
- Going from SQL to KQL was a bit challenging but I am glad to know some basics now
- I wish I was able to get the actual correlation coefficient for some of my analysis but I was unable to
- I was also not completely able to finish my whole analysis because my subscription randomly ended on me and I was unable to use another account

THANK YOU !

