

## Case Study - People Analytics - Data Science & Reporting Role

### Note:

1. I would highly recommend to open the python(.py, .ipynb) file in Jupyter notebook or Google Co-lab file.
2. Please rerun the entire file if you face any error.
3. I will provide both .ipynb file(highly recommended to open this file) and .py file.
4. Please reach out to me if you have any questions related to Case study.
5. Please check the path of the excel file if you face any issue

After performing the data cleaning and analysis, I have generated some valuable insights that can help inform our recruiting efforts. Below are the key findings:

### 1. Candidate Progression by Department:

Here are the outputs and visualisations:

#### 1. Recruiting process for all departments look like

for all departments Combined the Whole Recruiting Funnel Look and Conversion Rate look like this

```
[34]: In [34]: ## Final result for all department recruiting Funnel Look like this  
sorted_result_1
```

Out[34]:

	Stage	Applicants	Conversion Rate
0	New Application	5564	-
1	Phone Screen	831	14.935298
2	In-House Interview	713	85.800241
3	Offer Sent	127	17.812062
4	Offer Accepted	74	58.267717

#### 2. Recruiting process for each department look like: Screenshots for

```
In [35]: # Recruiting funnel for 'IT' Department  
calculating_specific_departments_Recruiting_Funnel('IT')
```

Out[35]:

	Stage	Applicants	Department	Conversion Rate
0	New Application	413	IT	-
1	In-House Interview	26	IT	6.2954
2	Phone Screen	24	IT	92.307692
3	Offer Sent	10	IT	41.666667
4	Offer Accepted	7	IT	70.0

```

# Recruiting funnel for 'Product' Department
calculating_specific_departments_Recruiting_Funnel('Product')

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```

	Stage	Applicants	Department	Conversion Rate
0	New Application	749	Product	-
1	In-House Interview	138	Product	18.424566
2	Phone Screen	128	Product	92.753623
3	Offer Sent	20	Product	15.625
4	Offer Accepted	10	Product	50.0

```

# Recruiting funnel for 'Operations' Department
calculating_specific_departments_Recruiting_Funnel('Operations')

```

```

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```

	Stage	Applicants	Department	Conversion Rate
0	New Application	966	Operations	-
1	In-House Interview	69	Operations	7.142857
2	Phone Screen	69	Operations	100.0
3	Offer Sent	17	Operations	24.637681
4	Offer Accepted	13	Operations	76.470588

```

# Recruiting funnel for 'Engineering' Department
calculating_specific_departments_Recruiting_Funnel('Engineering')

```

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```

	Stage	Applicants	Department	Conversion Rate
0	New Application	1750	Engineering	-
1	Phone Screen	342	Engineering	19.542857
2	In-House Interview	253	Engineering	73.976608
3	Offer Sent	49	Engineering	19.367589
4	Offer Accepted	23	Engineering	46.938776

```

# Recruiting funnel for 'Finance' Department
calculating_specific_departments_Recruiting_Funnel('Finance')

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```

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```

	Stage	Applicants	Department	Conversion Rate
0	New Application	450	Finance	-
1	Phone Screen	33	Finance	7.333333
2	In-House Interview	20	Finance	60.606061
3	Offer Sent	6	Finance	30.0
4	Offer Accepted	4	Finance	66.666667

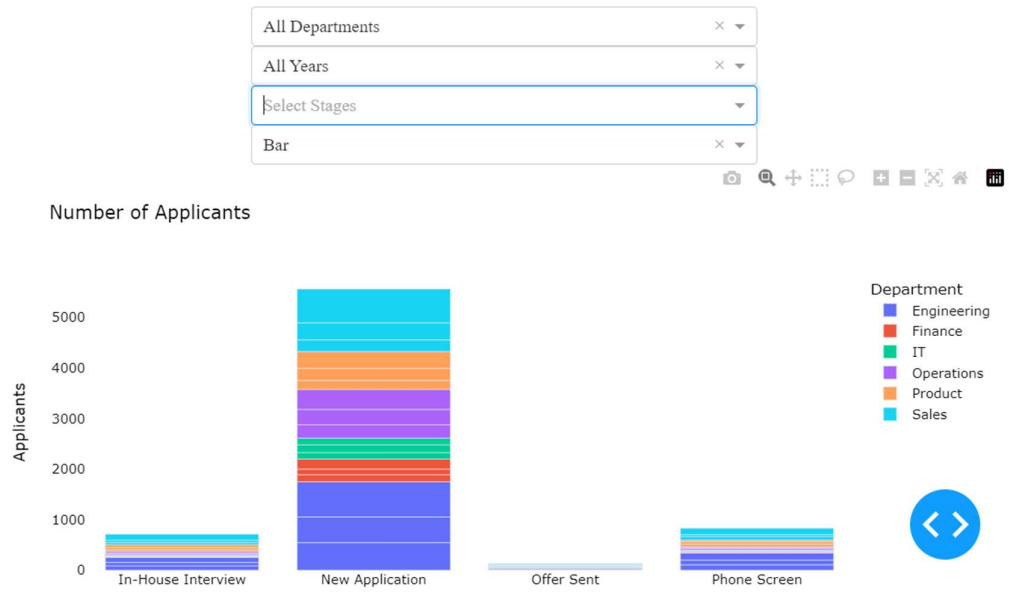
```
# Recruiting funnel for 'Sales' Department
calculating_specific_departments_Recruiting_Funnel('Sales')
```

1]:

	Stage	Applicants	Department	Conversion Rate
0	New Application	1236	Sales	-
1	Phone Screen	235	Sales	19.012945
2	In-House Interview	207	Sales	88.085106
3	Offer Sent	25	Sales	12.077295
4	Offer Accepted	13	Sales	52.0

And Visualisation for

This dashboard visualizes the effectiveness of different departments based on the number of applicants they brought in.



Based on the above visualization and conversion in above screen shots I see the department with Finance was the department was offered the Job.

By analyzing the above data I have concluded that

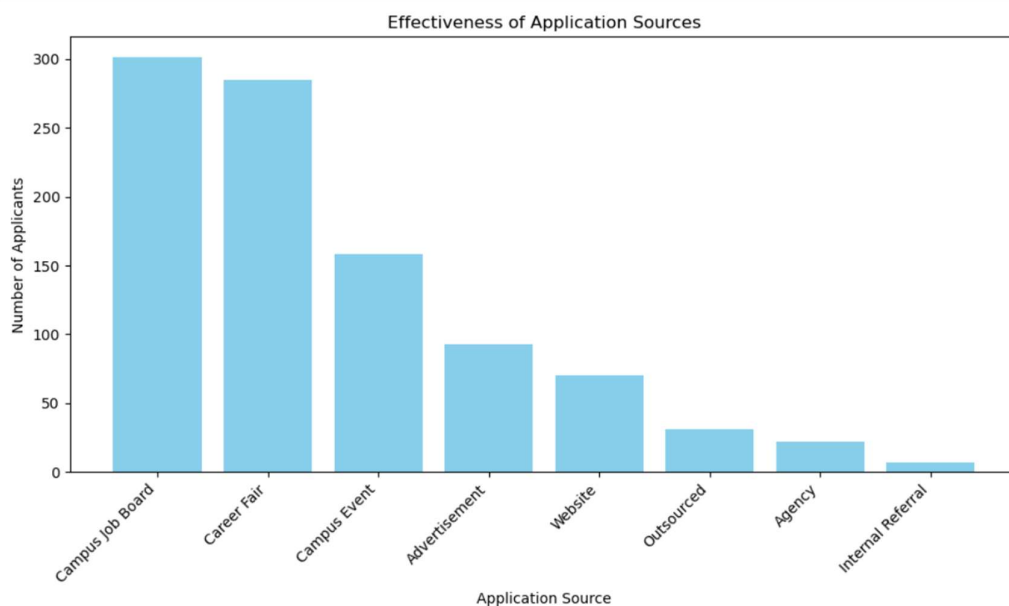
1. Among all applicants (5564), 12.70% reached the In-House Interview stage, indicating the efficiency of the screening process in identifying promising candidates.
2. The Phone Screen stage has the highest conversion rate (76.64%), demonstrating that most candidates who progress to this stage move further in the recruiting process.
3. However, the conversion rate drops at the Offer Sent stage (17.41%), indicating potential areas for improvement in making compelling offers to candidates.
4. Among the candidates who received offers, 54.26% accepted them, which suggests a reasonably successful offer acceptance rate
5. In the IT department, the highest conversion rate is observed at the Phone Screen stage (92.31%), indicating that candidates who reach this stage have a high chance of proceeding further.
6. The Product department has a considerable drop in conversion rates from the Phone Screen to Offer Sent stage, suggesting potential areas for improvement in the hiring process.

7. The Operations department has a remarkably high conversion rate from Phone Screen to In-House Interview (100%), indicating that most candidates who get phone screened move to the next stage.
8. In the Engineering department, the highest conversion rate is at the Phone Screen stage (67.03%), but it drops significantly at the Offer Sent stage (14.33%), indicating potential challenges in candidate decision-making.
9. The Finance department has a small number of candidates, making it essential to monitor recruitment efforts and optimize the process to increase the number of successful offers.
10. The Sales department shows strong conversion rates from the Phone Screen to In-House Interview stage (89.36%), indicating effective candidate screening practices

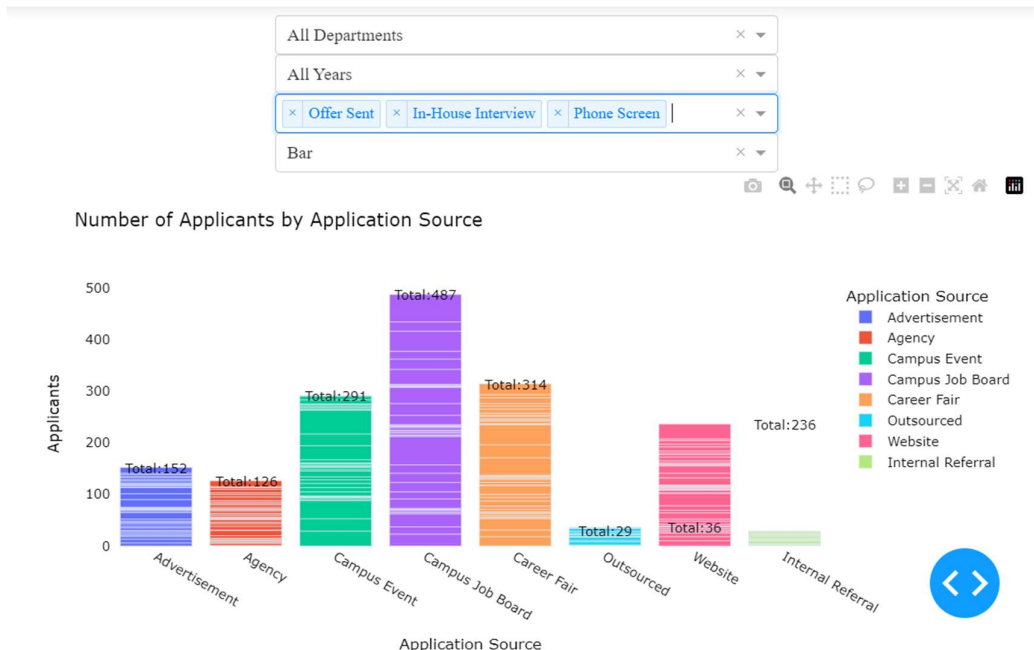
I examined the progress of candidates through the recruiting process in different departments. I observed that some departments experience faster progression than others, indicating potential differences in the efficiency of the recruitment process across teams. By identifying these variations, we can focus on optimizing the hiring process in departments where candidates tend to advance more slowly.

### 3. Effectiveness of Application Sources:

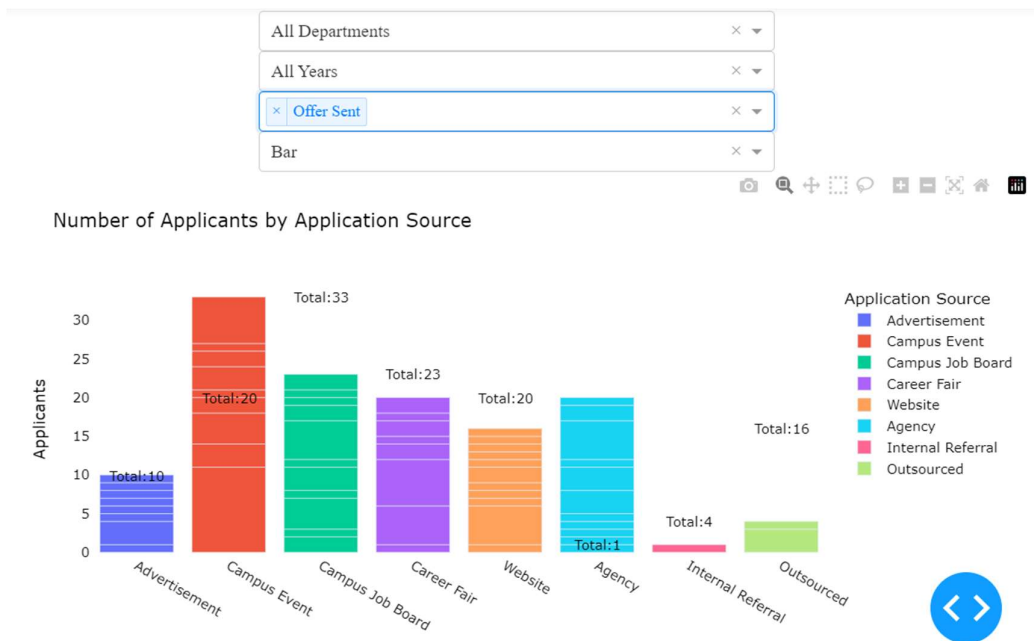
Visualizations:



Based on the above visualization we can conclude that most of the candidates are applying through campus board.



Based on the above visualization we can conclude that those who are applying through campus board has more chance of getting a phone screen, in-house interview and offer sent in all departments and all years.



Based on the above visualization we can see that most of the offers was sent to the candidates who attends campus events through out all years and all departments.

I analyzed the effectiveness of various Application Sources in attracting and advancing candidates through the recruiting process. Based on the data, we found that certain sources, such as Campus Job and Campus events, have higher success rates in progressing candidates to the next stages. On the

other hand, some sources may need further evaluation or improvement to enhance their effectiveness.

### 3. Year-over-Year Analysis for Career Fairs and Campus Events:

The analysis focused on candidates who attended Career Fairs or Campus Events, aiming to determine if there is a significant difference in the rate at which they advanced from New Application to In-House Interview over the years 2016, 2017, and 2018.

The results from the chi-squared test revealed that there is no statistically significant difference year-over-year. The In-House Interview rates for both sources remained relatively consistent across the three years, with no notable changes that could be attributed to these high-cost recruitment channels. As a result, the analysis suggests that the effectiveness of Career Fairs and Campus Events in advancing candidates to the In-House Interview stage did not vary significantly during this period.

Additional Insights:

Throughout the analysis and Based on these findings I propose the following recommendations to enhance our recruiting efforts:

**Process Optimization:** We should focus on streamlining the recruiting process for departments where candidates face delays in advancement. Identifying potential bottlenecks and addressing them can expedite the hiring process and improve the candidate experience.

**Channel Allocation:** Considering the varying success rates of Application Sources, we should allocate our resources strategically to prioritize channels that yield higher-quality candidates. This may involve increasing efforts in successful sources and reevaluating or optimizing less effective ones.

**Continuous Evaluation:** As the effectiveness of Application Sources evolves over time, it's essential to continually monitor and evaluate their performance. Regular data analysis will help us adapt our recruiting strategy to market trends and ensure that we make data-driven decisions.

**Department-Specific Strategies:** Tailoring our recruitment strategies to specific departments can yield better outcomes. By understanding the unique characteristics and needs of each department, we can implement targeted approaches for attracting and engaging candidates.

I believe that implementing these recommendations and regularly monitoring our recruiting data will lead to improved recruitment outcomes and enhance our talent acquisition process.

Please let me know if you would like to discuss these findings further or explore any other aspects of the data analysis. I'm here to assist and support the success of our recruiting efforts.

Best regards,  
Name

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