## **WRITE-UP ANALYSIS**

## **INTRODUCTION** The IT industry is constantly evolving, and the demand for IT professionals is growing. In order to stay ahead of the curve, companies need to be able to predict future trends and understand the career progression of their employees. This proposal outlines a plan that we have built that has mapped down market trends, career progression, and organizational structure in the IT industry. The analysis will be used to help Mr. Shah make more informed hiring decisions, identify hot job positions, and understand the progression of their employees.

**COMPANY X CHOSEN:**

* **Splunk company** is chosen for the analysis here as it is a late series company, a post-IPO company that has successfully grown over the past few years, so it can be taken as an example. Also, it has an IT tech product industry, fitting the requirements given.
* It is a U.S. software company with headquarters in San Francisco, California, that creates software for looking up, tracking, and analyzing data generated by machines using a web-style interface.

**GOALS ACHIEVED**

## Identify the most in-demand job positions in the IT industry.

## Understand the career progression of IT professionals.

## Identify the changes in organizational structure in the IT industry.

**DATA COLLECTION: DETAILS, EXPLANATION AND SOURCES**1. The data was collected from a variety of sources, including job postings, salary data, and surveys of IT professionals. It was scraped from LinkedIn and other job boards on Google. The data was further analyzed using statistical and visualization techniques. The analysis provides recommendations to the companies on how to use the retrieved information to improve their tech businesses.

## 2. Data Analysis Tools and Techniques: The data was analyzed using a variety of tools and techniques, including:

* Excel (For data collection)
* Python & its libraries including NumPy, Pandas, Seaborn, and Matplotlib
* PowerBI & Miro Board(for data visualization)
* Google Colab was used to do an Exploratory Data Analysis(Data loading and inspection, Data Cleaning, Preprocessing, Data exploration, and Statistical Analysis) using Python to get a better grip on the data and generate the cleaned dataset used in our work.
* EDA Link: [EDAGoogleColab](https://colab.research.google.com/drive/1RLJd9d9A3dD-Yw9pMiBepeERCLidB2gW?usp=sharing)

3. A detailed description of all the columns in our dataset:

| Column | Description | Reason |
| --- | --- | --- |
| Salary | The annual salary for the job position. | This column can be used to determine which positions are in high demand and which ones are not. |
| HiredPosition | The name of the job position that the employee was hired for. | This column can be used to track the career progression of IT professionals and see how their salaries and responsibilities change over time. |
| State | The state in which the employee was hired. | This column can be used to track the trends in different geographic areas. |
| Sex | The gender of the employee. | This column can be used to track the gender pay gap in the IT industry. |
| Hiredate | The date on which the employee was hired. | This column can be used to track the trends in hiring over time. |
| Terminationdate | The date on which the employee's employment was terminated. | This column can be used to track the trends in employee turnover over time. |
| TerminationReason | The reason for the employee's termination. | This column can be used to understand the factors that lead to employee turnover. |
| EmploymentStatus | The current employment status of the employee. | This column can be used to track the career progression of IT professionals and see how their salaries and responsibilities change over time. |
| CurrentStatus | The current status of the employee's employment (e.g., full-time, part-time, contract). | This column can be used to track the trends in different types of employment arrangements in the IT industry. |
| Department | The department in which the employee worked. | This column can be used to track the trends in different departments in the IT industry. |
| RecruitmentSource | The source through which the employee was recruited. | This column can be used to track the effectiveness of different recruitment channels. |
| New Company | The name of the company to which the employee moved. | This column can be used to track the movement of IT professionals between companies. |
| New Position | The name of the job position that the employee moved to. | This column can be used to track the career progression of IT professionals and see how their salaries and responsibilities change over time. |
| New Department | The department in which the employee moved to. | This column can be used to track the trends in different departments in the IT industry. |

PS: Some columns like 'EmpID', 'DOB',' PositionID', 'SpecialProjectsCount', 'LastPerformanceReview\_Date', and 'Absences' were dropped from the collected data as they didn’t have an impact on the trend analysis.

## **DATA VISUALIZATION-** Key Insights and Findings

1. **POWER BI DASHBOARD ANALYSIS:**

**Links:**

[**BI Dashboard (pbix file)**](https://drive.google.com/file/d/1sQDn6BGIh7lZCOuxYW9XE7RF-lAsc8Na/view?usp=drive_link)

[Tech Japan pdf final.pdf](https://drive.google.com/file/d/1-RFlh9Vp6slqE7NCAuBbMOiI9NxwiBO4/view?usp=sharing)

* The production department had the highest hiring rate and attrition rate as well while having the lowest average salary. That could conclude that there is less stability among employees of the Production sector i.e. the NON-IT sector.
* Also, the hiring rate of the IT/IS and Software Engineering Departments is clearly increasing over the years while the hiring graph of the non-IT sectors has seemingly, met a plateau in the latter years.
* When we arrive at page 2 of our visualization dashboard, we clearly can see the pattern when we try to establish a relation between the charts of-’Terminations per department’ and ‘New Employees per Department’. The findings are as such, that, a majority of the Ex-Employees who weren’t from IT backgrounds shifted their career to the IT sector. Also, the sales department ex-employees preferred moving to the Administrative sector i.e. management department.
* The average salary vs Department plot definitely gave obvious reasons for the shift we saw in the market, the salaries of IT and Software Engineering departments are consistently higher than the rest of the departments while the Production being last and the Sales department the second last.
* We got our hands on the recruitment platform data of the employees and analyzed the same; it turns out that the higher tendency to change jobs was reflected by the employees hired through Google Search and the INDEED platform, although the INDEED platform was the source of the highest hiring, so the numbers may be proportional. Employee Referral has proven to be a source of a rather stable workforce.
* Keenly observing the trends in the new companies of our Ex-Employees, as done on page 3 of the visualization dashboard, INTEL has been hiring actively along with CISCO, Adobe, Apple, and Flipkart. Amazon, PWC, and Twilio have also undergone significant hiring.
* Apart from the proportionally obvious trends in job positions trends of ex-employees’

New jobs; Data Scientist has emerged as a growing career profile. Keeping in mind that the highest attrition was from the Production Department, the diversity in the job profiles is astonishing. People have skilled up and gotten themselves into the IT sector. This definitely suggests the IT industry, especially the data-related job fields, has gained a stronghold in the industry over the years.

* The gender ratio in employees hired is actually very diverse. It definitely shows the industry has been growing more progressive over time. Gender distribution in the termination has been proportional to the hirings. Ex-employees with maternal leaves did not join any companies after resigning . SPLUNK should take measures towards special care and consideration in such cases.

**MIRO BOARD ANALYSIS:   
Link:** [**MiroBoard**](https://miro.com/app/board/uXjVM3brqkY=/)

* There is a significant decline in the percentage of employees in the production department, as evident from the pie chart, as the numbers go from a whopping 60.9% to 22.4%.
* Since the total employee pool remains stagnant, these employees have mostly undergone a career change, and that has predominantly happened either in the IT/IS Industry, the Data-based Industry, or the AI industry, consisting of various profiles like Data Scientist, Data Analyst, Data Engineer, AI/Prompt Engineer, etc.
* Evidently, from our visualization on the Miro Board, the percentage of employees has increased from 19.3% to 64% in the IT/IS Industry.
* The flow of employees is clearly depicted, giving an outline of the market trend analysis of the current tech world in 2023.
* The pie charts in the Miro Board show the gap in organizational structure that SPLUNK has to cover through required amendments to the profiles it hires employees for.

The latter one more or less summarizes the current status of various sectors of any company in the big game!

**ANALYSIS REVELATIONS:**

* The IT industry is growing rapidly, and there is a high demand for IT professionals.
* The most in-demand job positions in the IT industry are IT Technicians, Data Scientists, and cybersecurity experts.
* The salaries of IT professionals are rising
* The organizational structure of IT companies is changing, with a shift towards more agile and cross-functional teams.

The write-up also includes recommendations for how Splunk can use this information to improve its business.

**RECOMMENDATIONS:**Based on the findings of the analysis, Splunk can make the following recommendations:

* Focus on hiring for the most in-demand job positions in the IT industry like Prompt Engineers, Data Engineers, MLEs, Data Scientists, Business Developers, and SDEs.
* Offer competitive salaries to attract and retain top talent.
* Invest in training and development programs to help employees stay up-to-date on the latest technologies.
* Create an agile and cross-functional organizational structure to facilitate collaboration and innovation.

## **CONCLUSION:** The analysis conducted, provides valuable insights into the IT industry. This information can be used by Mr. Shah to make more informed hiring decisions.

The write-up presents the information in a clear and concise manner, allowing the reader to understand the process and the conclusions drawn from the analysis.