To Human Resource Management Team,

Greetings and hope all of you are doing great!

Respected Human Resource Manager, I have implemented different techniques of Data Cleaning, Data Analysis, Data Visualization, and Machine Learning algorithm on the data you provided for the analysis. Based on the above techniques I found the following outcomes.

Although the satisfaction level of the employees who retained in your company is higher than those who left. However, you have to focus on other perspectives like, promotions, salary, time spend in the company and total working hours per month, etc, to attract more employees to your company.

Firstly, I tried to find the relation between two features ‘salary’ and ‘left’ by crosstab, and got the below result.

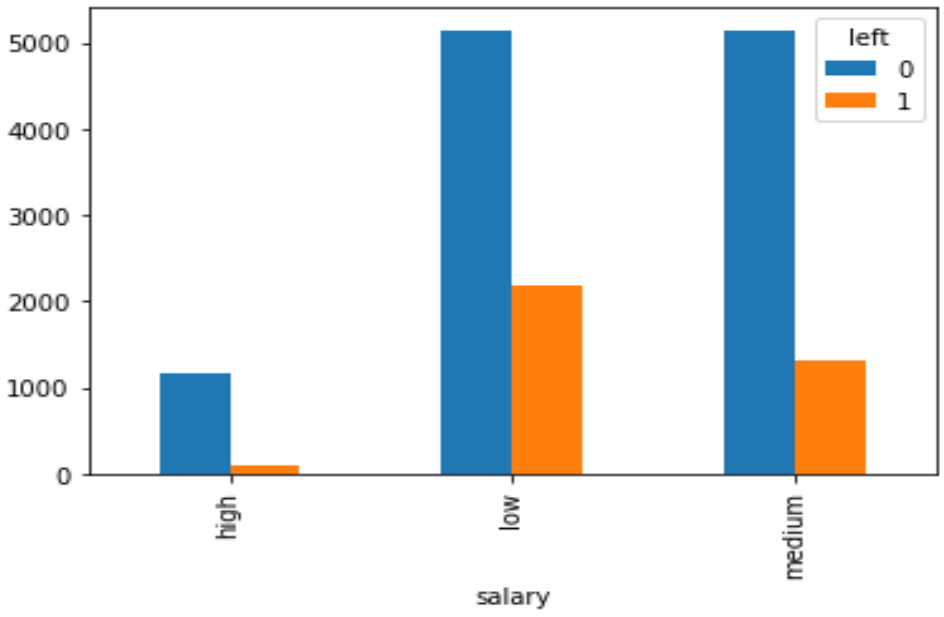

Figure 1. Graph between left and salary

The above chart represents the relation of salary and left features. Orange color is for those who left and blue for retained. As we can see that most of the employees who left are because of low and medium salaries. So, I suggest you focus on the salary of the employees.

Secondly, I have focused on the department and it is so unusual to see that most of the employees who left are from sales, technical, and support departments. To analyze this, I have counted total number of employees left from the company were 3571, out of which 2266 are from these three

departments which are 64% of the total. To know why employees from these three departments have a greater left ratio? I have a plot department with the left as shown below.

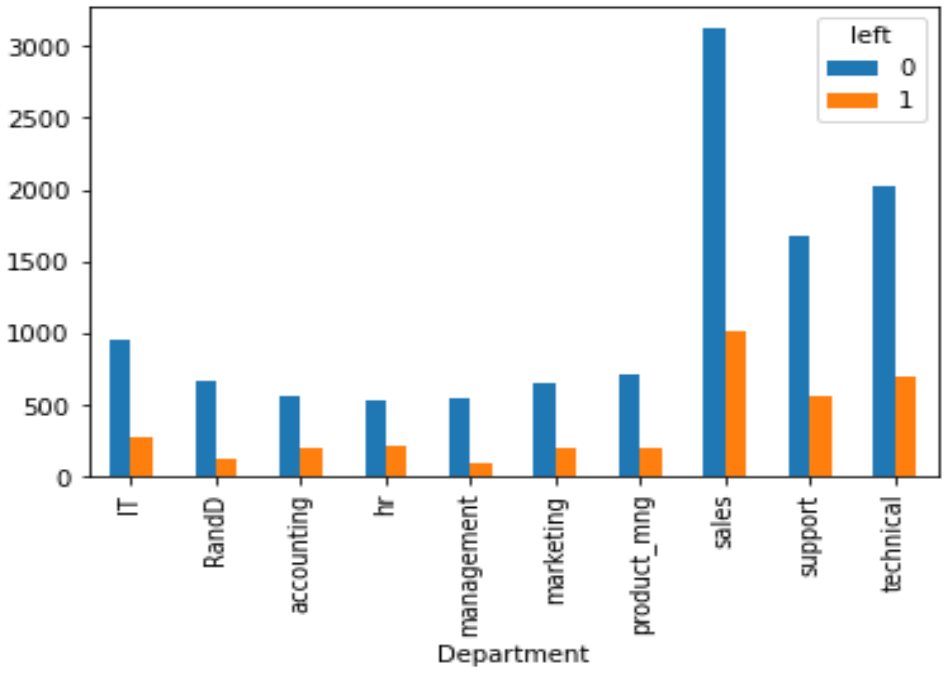

Figure 2. Graph between Department and left

From the above plot, we can see that, as discussed above almost 65% of the left ratio are from these three departments we can see that more than 1000 left from sales, almost 700 from technical and more than five hundred from support. To know more about this I have calculated the range of salary for these departments. As shown below.

SNo	Department	Total	Salary		
			High	Medium	Low
1	Sales	4140	269	1772	2099
2	Support	2770	201	1147	1372
3	Technical	2229	141	942	1129
4	Sum	9139	611	3861	4600

From the above table, we can see that almost 65% of the employees are from these three departments and more than 8000 are fall in the low and medium range of the salary. I suggest you focus on the salaries of these three departments.

The next feature I have focused on during the analysis is time_spend_company. To find the relation of this feature with the left I have plotted this also. As shown below.

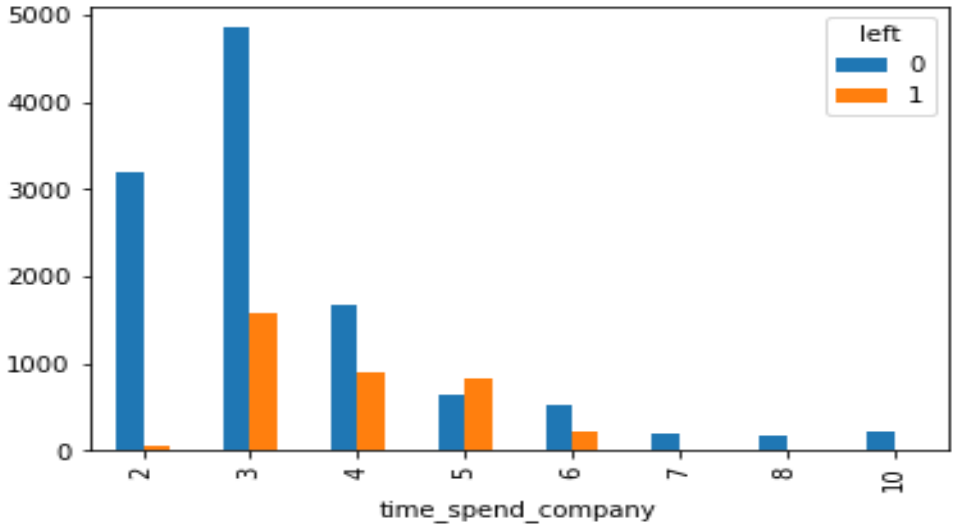

Figure 3. Graph between left and time spend in the company

From the above chart, we can see that most of the people who left the company spend three to six years in the company.

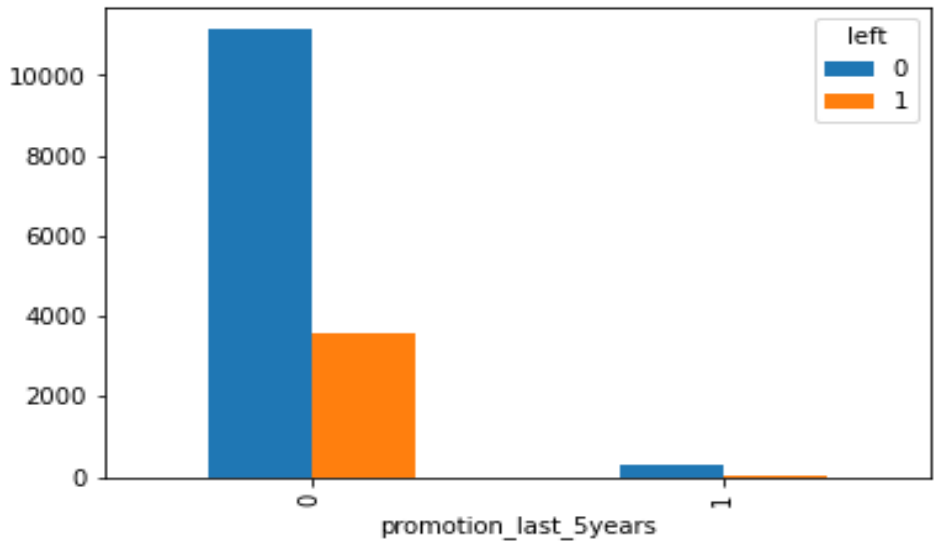

Figure 4. Graph between left and promotion in last five years

To know why people left the company in this range I have plotted two graphs. First, between 'low salary' and 'time_spend_company'. The second one is between the features 'promotion_last_5_year' and 'left'. From the above chart, we can see that most of the people who

left have no promotion in the last five years. Interestingly, if someone gets the promotion in the last five years very low ratio (almost 0%) of left.

Another reason for of leaving from the company is because of low salary from figure 5, we can see that almost 95% of the employees in this range are from low salary range.

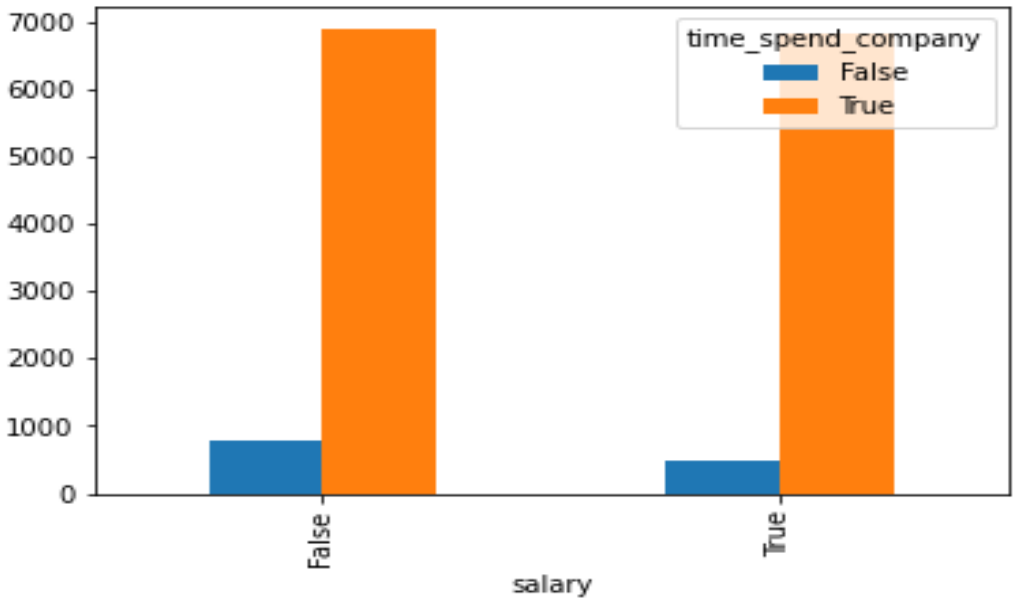

Figure 5. Graph between low_salary and ‘time spent less than 6’ years

Linear regression gives almost 80% accuracy for this data it can be improved by training more data and other algorithms can also apply to check the results.

Figure 6 shows the mean of each feature group by left. Overall, your company has two positive features which are satisfaction level and average monthly hours. Employees retaining in your company are more satisfied than those who left, and working hours in your company are less than others who left the company.

left	satisfaction_level	last_evaluation	number_project	average_montly_hours	time_spend_company	Work_accident	promotion_last_5years
0	0.666810	0.715473	3.786664	199.060203	3.380032	0.175009	0.026251
1	0.440098	0.718113	3.855503	207.419210	3.876505	0.047326	0.005321

Figure 6. Mean of features group by left