Answers Of subjective Question OfAnalysis of IT Support Tickets And Agents

Submitted By

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Subjective Question:

1. If there is an investment, should it be used to hire more IT agents, improve training programs, or upgrade ticket management software? Analysis: Perform a cost-benefit analysis using ticket resolution and satisfaction metrics.

Answer

Resolution time and satisfaction metrics analysis,

Row Labels	Average of Resolution Time (Days)	Count of ID Ticket	Average of Satisfaction Rate
3	5.381989114	2021	3.615042058
4	5.243963783	1988	4.187625755
5	4.259	2000	4.376
15	3.655951783	1991	4.4716223
19	4.999495968	1984	3.04233871
24	4.227159261	2003	4.441337993
31	3.66935078	1987	4.364368395
35	4.369207773	2007	4.399103139
39	5.554787759	2026	4.344521224
48	4.514553527	2027	4.407992107
Grand Total	**4.589697514**	**20034**	**4.165718279**

Table-1

Row Labels	Average of Satisfaction Rate	Average of Resolution Time (Days)
Hardware	4.100996609	7.62539813
Login Access	4.094508958	0.313808105
Software	4.106336229	5.238732754
System	4.102302446	6.615609456
Grand Total	**4.100648218**	**4.553149808**

Table-2

Insights

Above Table-1 contains the agent IDs data who have a greater number of tickets to solve but their average resolution time and average satisfaction rate is same as overall average resolution time that and overall satisfaction rate.

Table-2 contains the request category based average satisfaction rate and average resolution time analysis, which shows that tickets which has problems in hardware have more resolution time followed by System, Software and Login Access.

Recommendation

By understanding above data, it is clear that rather than hiring more agents, one can focus on improve training programs and can focus on upgrading the ticket management software so that the request category like hardware, software, system which are taking more time to resolve can be resolve earlier.

Q-2. Which agents need additional training based on their performance metrics? Analysis: Identify agents with the lowest satisfaction ratings and longest resolution times.

Answer

- **Mean Resolution Time**: The average resolution time across all agents is approximately 4.55 days.
- **Resolution Time Range**: The resolution times range from a minimum of 3.60days to a maximum of 5.55 days.

Row Labels	Average of Resolution Time (Days)	Average of Satisfaction Rate
3	5.381989114	3.615042058
6	5.32067727	3.592611596
7	5.524031008	3.97622739
9	4.523345305	3.690097486
11	4.778118609	3.63803681
14	4.901132853	4.085478888
16	4.317757009	3.665109034
18	4.731501057	3.991014799
19	4.999495968	3.04233871
22	5.511190234	3.628179044
25	5.204616999	3.601259182
26	4.754457463	3.990830362
28	5.409558068	3.612024666
30	4.867040245	3.847682119
33	4.804392237	3.631256384
37	4.595028483	3.660797514
40	4.286979167	3.667708333
41	4.554933876	3.783316378
43	3.846072746	3.913020559
45	3.700362882	3.821150855
Grand Total	**4.804030952**	**3.721329597**

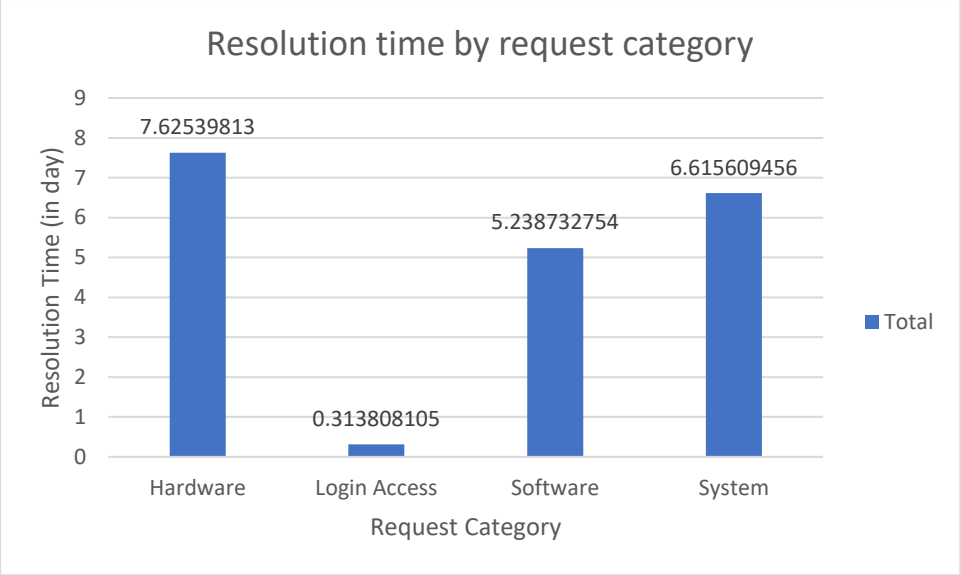
The agents having agent ID:
3, 6,7,9,11,14,16,18,19,22,25,26,28,30,33,37,40,41,43,45 needed additional training based on their average resolution time and satisfaction metrics analysis.

Q-3. Do certain categories of requests have longer resolution times?Analysis: Analyze the resolution times by request category.

Answer

Yes, there are few categories of request have longer resolution time.

Row Labels	Average of Resolution Time (Days)
Hardware	7.62539813
Login Access	0.313808105
Software	5.238732754
System	6.615609456
Grand Total	**4.553149808**



- **Hardware**: The average resolution time is **7.63 days**, which is the longestamong all categories.
- **Login Access**: This category has the shortest average resolution time of **0.31days**.
- **Software**: The average resolution time is **5.24 days**.
- **System**: The average resolution time is **6.62 days**.

Conclusion

- **Hardware requests** have the longest resolution times, indicating potential complexity or resource allocation issues.
- **Login Access requests** are resolved quickly, suggesting efficient processes orlower complexity.
- **Improvement opportunities** may exist in streamlining processes for Hardwareand System requests to reduce resolution times.

Q-4. How effective are the current software tools in managing IT tickets?

Analysis: Evaluate performance metrics before and after the implementationof new tools.

Answer:

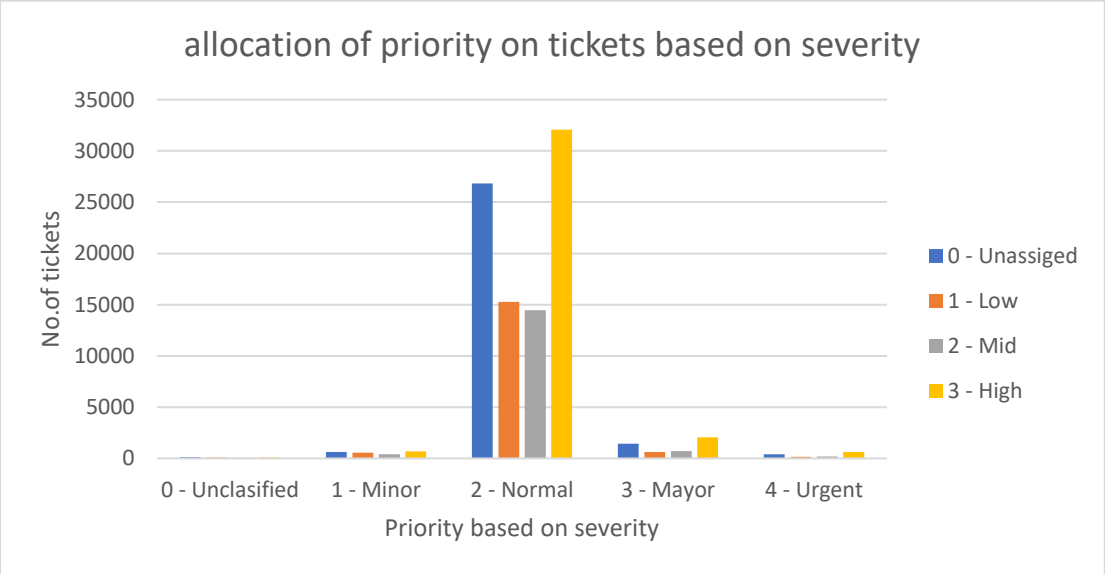
Evaluation of Software Tools in Managing IT Tickets

- **Average Resolution Time**: The average resolution time for software-related tickets is approximately **5.24 days**. This indicates the time taken to resolve issues, which can be a critical factor in assessing the efficiency of the softwaretools.
- **Average Satisfaction Rate**: The satisfaction rate is around **4.11**, suggesting a relatively high level of user satisfaction with the resolution process.
- **Severity and Priority Distribution**
- **Severity Distribution**:
- **Minor**: 2.26%

- **Normal**: 90.99%
- **Major**: 4.92%
- **Urgent**: 1.50%
- **Priority Distribution**:
- **Unassigned**: 30.33%
- **Low**: 16.71%
- **Mid**: 16.79%
- **High**: 36.17%

Row Labels	Count of ID Ticket
2 - Normal	
0 - Unassiged	26826
1 - Low	15282
2 - Mid	14468
3 - High	32080
Grand Total	88656

Row Labels	Count of ID Ticket
4 - Urgent	
0 - Unassiged	409
1 - Low	169
2 - Mid	202
3 - High	612
Grand Total	1392



- The bar chart illustrates the distribution of performance metrics, highlighting the dominance of normal severity and high priority levels. The visualization supports the numerical data, showing the effectiveness and areas for improvement in ticket management.

  Conclusion and Insights

- **Efficiency**: The average resolution time suggests room for improvement in speeding up the resolution process.
- **User Satisfaction**: A high satisfaction rate indicates that users are generallypleased with the service provided.
- **Severity and Priority Management**: The high percentage of normal severitytickets

and high priority assignments suggests a need for better classification and prioritization to optimize resource allocation.

Q-5. How has the performance of the IT support team changed over time (e.g., monthly or quarterly)?

Analysis: Trend analysis using time series charts.

Answer

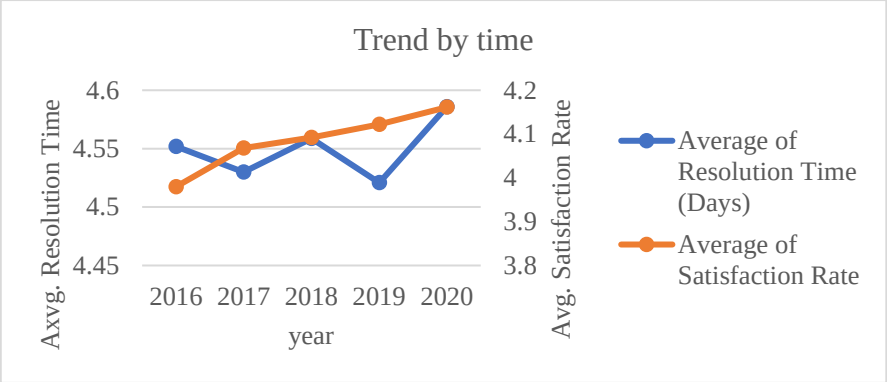
Employee Demographics and Ticket Outcomes

The provided dataset does not include specific demographic information about employees such as department or seniority. It primarily focuses on ticket detailsand agent information. Therefore, it is not possible to directly analyze how employee demographics affect satisfaction and ticket outcomes based on the available data.

Available Data Insights

- **Ticket Information**: The dataset includes details such as ticket ID, date, employee ID, agent ID, request category, issue type, severity, priority, resolution time, and satisfaction rate.
- **Agent Information**: The dataset provides agent details including agent ID, fullname, email, and birth details.

Trend Analysis by time



Overall Trend:

- **Resolution Time:** There is a general upward trend in average resolution time from 2016 to 2020. This suggests that it is taking longer to resolve issues over time.
- **Satisfaction Rate:** The average satisfaction rate has also increased over the years, reaching its peak in 2019. This indicates that customers are generally more satisfied with the resolution process, despite the longer resolution times.

Specific Observations:

- **2016-2018:** The resolution time decreased while the satisfaction rate increased. This suggests that improvements were made in the resolution process during this period, leading to faster resolutions and higher customer satisfaction.
- **2018-2019:** Both resolution time and satisfaction rate increased significantly. This could be due to a variety of factors, such as increased workload, changes in the resolution process, or other external factors.
- **2019-2020:** The resolution time continued to increase, while the satisfaction rate remained relatively stable. This suggests that the longer resolution times are not negatively impacting customer satisfaction.

Possible Explanations:

- **Increased workload:** The increase in resolution time could be due to a higher volume of tickets or more complex issues.
- **Changes in the resolution process:** Changes in the resolution process, such as new procedures or tools, could have impacted both resolution time and satisfaction rate.

Conclusion

- To analyze the impact of employee demographics on satisfaction and ticket outcomes, additional data on employee demographics would be required. The current dataset does not provide this information.

Q-6. If we invest more on tech (Hardware, software, etc), do you think it will improve the ticket resolution times and employee satisfaction?

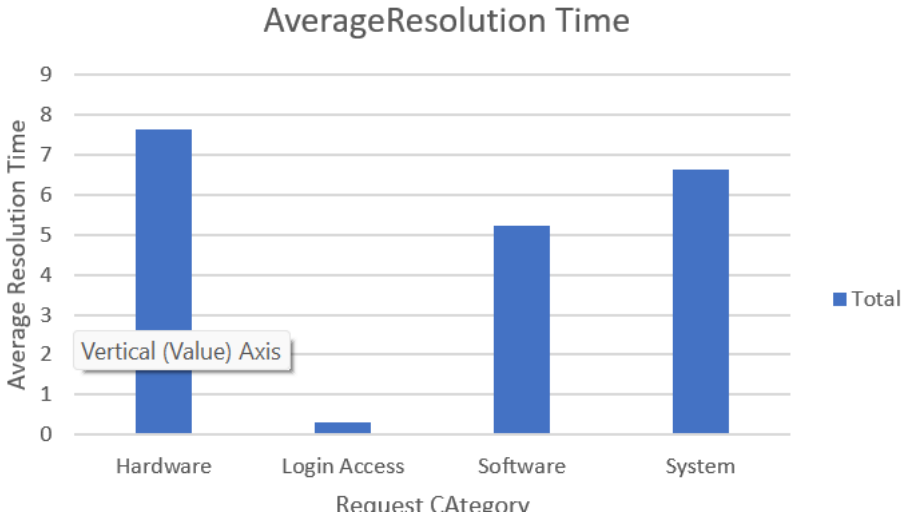
Analysis: Use historical data to project potential improvements.

Answer

Impact of Technology Investment on Ticket Resolution Times and Employee Satisfaction

Resolution Time Analysis

- **Hardware Requests**: Have the highest average resolution time at approximately 7.63 days.
- **Login Access Requests**: Have the lowest average resolution time at about 0.31days.
- **Software and System Requests**: Have moderate resolution times of 5.24 and 6.62 days, respectively.



Trend by Category over year

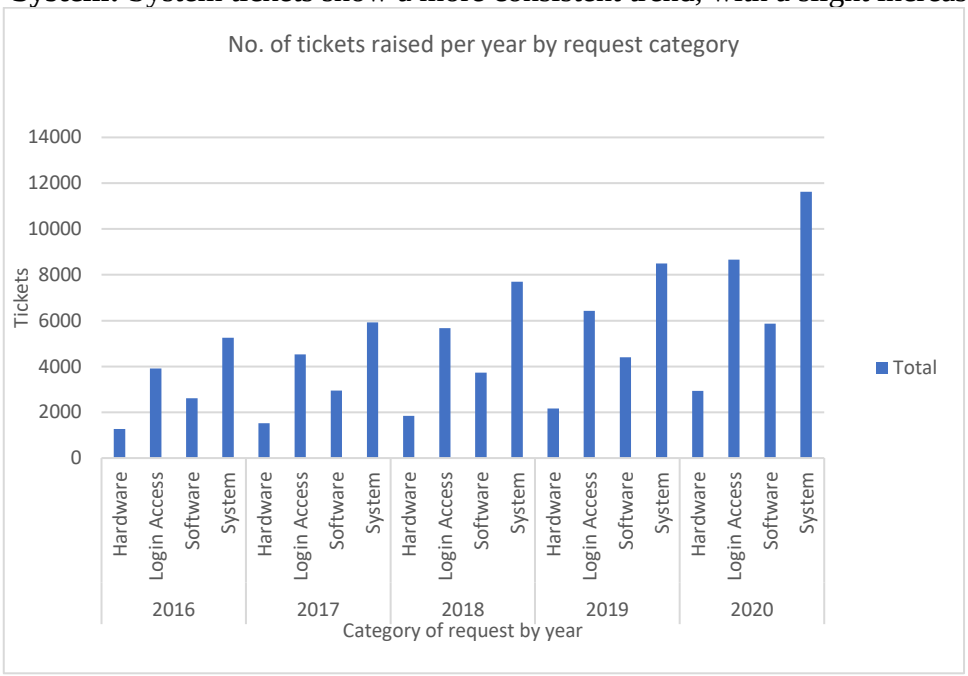
Hardware: The number of hardware-related tickets has steadily increased over the years.

Login Access: Login access tickets have shown a fluctuating trend, with peaks in 2017 and 2019.

Software: Software-related tickets have also increased over the years, with a significant

jump in 2020.

System: System tickets show a more consistent trend, with a slight increase each year.



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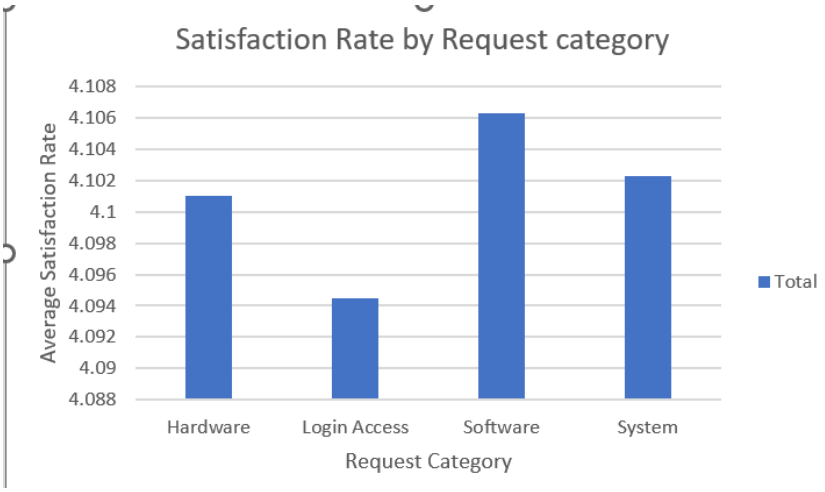
Satisfaction Rate Analysis

- **Satisfaction Consistency**: The average satisfaction rates are very close acrossall categories, ranging from 4.09 to 4.11.
- **Highest Satisfaction**: Software requests have the highest average satisfactionrate at 4.1



- **Visualization Insight**: The satisfaction rates are nearly uniform across all request categories, indicating consistent employee satisfaction regardless of therequest type.

Conclusion and Insights

- **Resolution Time Improvement**: Investment in technology, particularly in hardware, could potentially reduce resolution times, as hardware requests currently take the longest to resolve.
- **Satisfaction Stability**: Employee satisfaction appears stable across differentrequest categories, suggesting that factors other than resolution time might influence satisfaction levels. Further investment in technology may not significantly impact satisfaction rates unless targeted at specific pain points.

Q-7. What are the key performance metrics for IT agents, and how can they be improved, do we need to fire any agents?

Analysis: Define and analyze metrics such as average handling time,satisfaction scores, and number of tickets resolved.

Answer.

Total Number of Tickets Handled

- **Mean Total Tickets**: The average number of tickets handled by IT agents is approximately 1949.96, with a standard deviation of 37.48. The range of ticketshandled is between 1856 and 2027.
- **Average Resolution Time**
- **Mean Resolution Time**: The average resolution time is 4.55 hours, with a standard deviation of 0.64. The resolution times range from 3.60 to 5.55 hours.
- **Average Satisfaction Rate**
- **Mean Satisfaction Rate**: The average satisfaction rate is 4.10 out of 5, with a standard deviation of 0.35. Satisfaction rates range from 3.04 to 4.60.
- **Distribution of Ticket Severity**
- **Severity 2 - Normal**: The majority of tickets are classified as normal severity,with a mean of 0.91.
- **Severity 3 - Major**: Tickets with major severity have a mean of 0.05.
- **Severity 4 - Urgent**: Urgent tickets have a mean of 0.01.

Distribution of Ticket Priority

- **Priority 3 - High**: High priority tickets have the highest mean at 0.36.
- **Priority 0 - Unassigned**: Unassigned tickets have a mean of 0.30.
- **Improvement Suggestions**

Resolution Time and Satisfaction Rate

- **Reduce Resolution Time**: Focus on reducing the average resolution time, especially for agents with times closer to the maximum of 5.55 hours.
- **Increase Satisfaction Rate**: Aim to improve the satisfaction rate for agents withscores closer to the minimum of 3.04.
- **Ticket Severity and Priority Management**
- **Severity Management**: Ensure that tickets are accurately classified to avoid underestimating the severity of issues.
- **Priority Management**: Review the assignment of ticket priorities to ensure thathigh-priority tickets are addressed promptly.

Agent II	Average of Resolution Time (Days)
1	5.44591163
2	3.596544715
3	5.381989114
4	5.243963783
5	4.259
6	5.32067727
7	5.524031008
8	3.834183673
9	4.523345305
10	4.298378926
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14	4.085478888
15	4.4716223
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18	3.991014799
19	3.04233871
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47	4.170201759
48	4.407992107
49	4.355026455
50	4.204720369

Consideration for Termination

- **Performance Evaluation**
- **Identify Underperformers**: Agents consistently handling fewer tickets, withhigher resolution times and lower satisfaction rates, should be identified for further evaluation.
- **Improvement Plans**: Before considering termination, provide opportunities for improvement through training and support.

Conclusion and Insights

- **Focus on Training**: Emphasize training for agents to improve resolution timesand satisfaction rates.
- **Performance Monitoring**: Regularly monitor performance metrics to identifytrends and areas needing attention.
- **Balanced Approach**: Consider a balanced approach of support and accountability before making termination decisions.

Q-8. How do employee demographics (e.g., department, seniority) impact satisfaction and ticket outcomes?

Answer

Employee Demographics and Ticket Outcomes

The provided datasets do not include specific demographic information such as department or seniority of employees. The available data focuses on IT tickets andagent details, which include ticket IDs, request categories, issue types, severity, priority, resolution time, and satisfaction rates, as well as agent names and contactinformation.

Data Limitations

- **Missing Demographic Data**: The datasets do not contain information about employee departments or seniority levels, which are crucial for analyzing theimpact of these demographics on satisfaction and ticket outcomes.
- **Focus on IT Tickets**: The data primarily revolves around IT ticket management,including resolution times and satisfaction rates, without linking these to specific employee demographics.

Conclusion

Due to the absence of relevant demographic data in the provided datasets, it is notpossible to analyze how employee demographics such as department and seniorityaffect satisfaction and ticket outcomes. Additional data would be required to perform such an analysis.

Q-9. Identify the trends for IT support operations based on ticket volumes and satisfaction, and mention the peak and stable times?

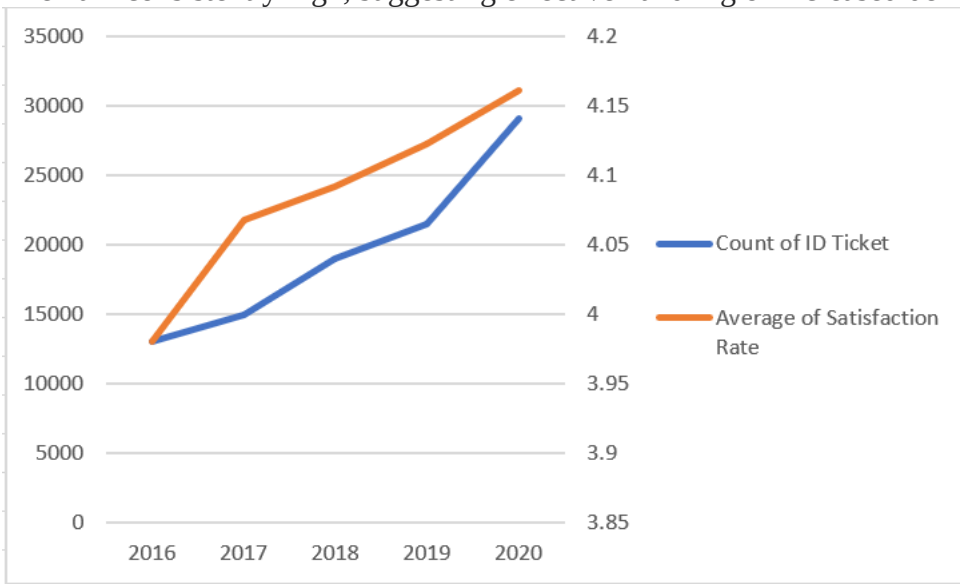
Analysis: Use pivot tables and charts to identify peak and off-peak hours

Answer

IT Support Operations Trends

Ticket Volume Trends

- **Yearly Increase**: Ticket volumes have increased steadily from 2016 to 2020,with a mean volume of 1624.97 tickets.
- **Monthly Variation**: The monthly ticket volume ranges from 1046 to 2609, indicating significant fluctuations throughout the year.
- **Satisfaction Rate Trends**
- **Consistent Satisfaction**: The average satisfaction rate is relatively stable, with amean of 4.09 and a slight variation between 3.93 and 4.27.
- **Correlation with Volume**: Despite fluctuations in ticket volume, satisfactionrates remain consistently high, suggesting effective handling of increased demand.



Trends in Tickets Volume and Satisfaction Rate with time

- **Peak Times**: Ticket volumes peak towards the end of the year, particularly in2020, while satisfaction rates also show slight increases during these times.
- **Stable Periods**: Both ticket volumes and satisfaction rates show stability duringmid-year months, indicating a balanced workload and consistent service quality.
- **Conclusion and Insights**
- **Growth in Demand**: There is a clear upward trend in ticket volumes, indicatinggrowing demand for IT support services.
- **Effective Management**: High satisfaction rates despite increased ticket volumes suggest efficient management and resource allocation during peaktimes.

Q-10. What metrics should be included in the final dashboard to provide a comprehensive view of call center performance and guide investment decisions?

To effectively assess call center performance and guide investment decisions, thefinal dashboard should include the following specific metrics:

Answer

1. Ticket Volume and Trends:

- **Total Number of Tickets:** Track the total number of tickets over time toidentify trends and peak periods.
- **Tickets by Category and Issue Type:** Analyze the distribution of tickets acrossdifferent request categories (e.g., Hardware, Software) and issue types (e.g., IT Error, IT Request).
- **2. Resolution Metrics:**
- **Average Resolution Time:** Measure the average time taken to resolve tickets, segmented by severity and priority levels.
- **Resolution Time Distribution:** Visualize the distribution of resolution times toidentify outliers and areas for improvement.
- **3.Agent Performance:**
- **Tickets Handled per Agent:** Monitor the number of tickets each agent handlesto assess workload distribution.
- **Agent Satisfaction Rate:** Evaluate agent performance based on customer satisfaction ratings.
- **Severity and Priority Analysis:**
- **Tickets by Severity and Priority:** Examine the number of tickets categorizedby severity and priority to prioritize resource allocation.
- **5. Customer Satisfaction:**
- **Overall Satisfaction Rate:** Track the average satisfaction rate to gauge customer satisfaction with the service provided.
- **Satisfaction Rate by Category:** Analyze satisfaction rates across differentrequest categories to identify areas needing improvement.
- **6. Demographic Insights:**
- **Agent Demographics:** Include insights on agent demographics (e.g., age distribution) to understand workforce composition.
- These metrics will provide a comprehensive view of call center operations, helpingto identify strengths, weaknesses, and opportunities for investment to enhance performance.