Objective Questions:

1. **What is the total no. of attributes present in the data?**

❖ *16*
Formula used:

> *=COUNTA(Tickets!A1:J1)+ COUNTA('IT Agents'!A1:F1)*

2. **Which columns have inconsistent or missing values, and what is the count of such values?**

❖ *We did not found any missing and duplicate values in the entire dataset, however there is one spelling mistake "Mayor" it should be "Major".*
Total Count = 4836

3. **What is the average daily ticket volume over time?**

❖ *53.37*
Approach:
- *Select the Dataset and insert a pivot table.*
- *Put "Fecha Year" in row of pivot, it will have the different dates when ticket was created.*
- *Put count of ID ticket into values.*

- *4Use the formula =SUM(C11:C1837)/COUNTA(B11:B1837)*

Formula used:

> *=SUM(C15:C1841)/COUNTA(C15:C1841)*

4. **What is the distribution of ticket categories (e.g., Login Access, System, Software)?**

❖

Category	Distribution
Hardware	10.0%
Login Access	29.9%
Software	20.1%
System	40.0%

5. **How many tickets has each agent handled?**

❖

Agent ID	Count of ID Ticket
1	1969
2	1968
3	2021
4	1988
5	2000
6	1949
7	1935
8	1960
9	1949
10	1974
11	1956
12	1897
13	1856
14	1942
15	1991
16	1926
17	1961
18	1892
19	1984
20	1920
21	1889
22	1966
23	1915
24	2003
25	1906
26	1963
27	1968
28	1946
29	1931
30	1963
31	1987
32	1974
33	1958
34	1927
35	2007
36	1913
37	1931
38	1938
39	2026
40	1920

41	1966
42	1945
43	1897
44	1943
45	1929
46	1950
47	1933
48	2027
49	1890
50	1949

6. **How can you extract the domain from the email addresses in the IT Agents sheet?**

❖ *Step 1: With the reference of Agent Id, we will use VLOOKUP function to fetch the email addresses of each agent.*

Step 2: After this, we will use STRING function and below formula to extract the domain name (without including ".com")

Use Below String manipulation function.

= LEFT(RIGHT(C1911,LEN(C1911)-FIND("@",C1911)), FIND(".com", RIGHT(C1911,LEN(C1911)-FIND("@",C1911)))-1)

---

7. **How can you find the full name of an agent given their Agent ID?**

❖ *With the reference of Agent Id, we will use VLOOKUP function to fetch the full name of each agent. Using Vlookup() Function.*

=VLOOKUP('Objective Answersheet'!B1911,IT_Agents,2,0)

---

8. **What is the count of each issue type (e.g., IT Error, IT Request)?**

❖

Issue Type	Count of Issue Type
IT Error	24278
IT Request	73220

9. **What is the daily average resolution time for tickets?**

4.55

Formula Used-

=SUM(C11:C1837)/COUNTA(B11:B1837)

10. How has the volume of tickets changed over time?

❖

Row Labels	Count of ID Ticket
2016	13051
2017	14915
2018	18954
2019	21490
2020	29088

11. What is the average age of the IT agents?

❖ *39 Years*
Formula Used-

=ROUND(AVERAGE(IT_Agents[Age]),0) & " Years"

12. Is there a correlation between the severity of issues and the resolution time?

❖ *Correlation Value: -0.0405363491 (Very Poor negative correlation)*
Formula used-

=CORREL(Tickets[Severity Level],Tickets[Resolution Time (Days)])

13. How many categorical columns are there in the data? [Search about categorical and continuous data, and try to answer this question]

❖ *Categorical vs. Continuous Columns in the Data*
   ✓ *Categorical Data: Represents distinct groups or categories (e.g., Request Category, Severity).*
   ✓ *Continuous Data: Represents measurable values with a range (e.g., Resolution Time, Year of Birth).*

❖ *Tickets Sheet:*
   ✓ *Categorical: 8 (ID Ticket, Employee ID, Agent ID, Request Category, Issue Type, Severity, Priority, Satisfaction Rate)*

✓ *Continuous: 2 (Fecha, Resolution Time)*

❖ *IT Agents Sheet:*
  ✓ *Categorical: 4 (Agent ID, Full Name, Email, Month of Birth)*
  ✓ *Continuous: 2 (Year of Birth, Day of Birth)*

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.**

❖ Approach:-

A. *Calculate performance metrics of each individual over a period of 5(2016-2020) years.*

B. *Calculate the year on year growth of the tickets and also check the average Resolution and average satisfaction Rate.*

C. *To decide whether to upgrade the software and system calculate the performance metric of each request category against their avg. Resolution time and avg. satisfaction Rate.*

Average Resolution time and Average Satisfaction rate over 5 years(metric-1).

Year	Count of ID Ticket	Average of Resolution Time (Days)	Average of Satisfaction Rate
2016	13051	4.6	4.0
2017	14915	4.5	4.1
2018	18954	4.6	4.1
2019	21490	4.5	4.1
2020	29088	4.6	4.2
Grand Total	97498	4.6	4.1

Metric-2 & 3 (performance of each Agent in 5 years. [Refer Subjective Answer sheet 1 in excel]

Recommendations Based on Performance Metrics: -

Agents Needing Additional Training

A. Agents with high average resolution times and low satisfaction rates need attention. Based on the data:

B. **Key Agents for Training:**
Agents like **3, 6, 11, 19, 22, 25, 28, 33, and 43** show a combination of higher resolution times (≥5 days) and lower satisfaction rates (≤3.6). These agents should be prioritized for training to improve performance.

C. **Investment Recommendations**

D. **Upgrade Ticket Management Software:**
   a. Categories like **Hardware (7.6 days)** and **System (6.6 days)** have high *resolution times compared to others like **Login Access (0.3 days)**. An improved software system could streamline processes and reduce resolution times for complex categories.*
   b. *As ticket volumes increase year over year (e.g., Hardware: 1272 in 2016 to 2933 in 2020, System: 5252 in 2016 to 11631 in 2020), better software would help handle this growing demand more efficiently.*

E. *Improve Training Programs:*
   a. *While many agents perform well, the variance in resolution times (e.g., Agent 3 with 5.4 days and Agent 2 with 3.6 days) suggests that targeted training could further optimize performance.*
   b. *Training should focus on agents handling **Hardware and System tickets** as these categories face higher resolution times.*

F. *Hiring More IT Agents:*
   a. *If budget permits, hiring could alleviate the load, especially in high-ticket-volume areas like **System (39,002 tickets)** and **Login Access (29,193 tickets)**. However, the effectiveness of this investment depends on how current agents and software systems are optimized.*

G. **Performance Metrics Before and After Tool Implementation**

H. If resolution times and satisfaction rates haven't improved significantly since the tool's implementation (e.g., **Hardware resolution times remain steady around 7.5-7.7 days**), the tools may not be fully effective. Improvements could be:
   a. Adding AI-based automation for repetitive tasks.
   b. Enhanced analytics for better workload distribution.

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

❖ *Answer- Approach- calculated performance metric of each Agents and compared the satisfaction rate and resolution time of each agent from the overall calculated averages of Satisfaction rate and Avg. Resolution time(2016-2020).*

Thresholds for Training Recommendations *(Refer Ans-2 in Excel file)*

3	5.4	3.6
6	5.3	3.6
7	5.5	4.0
22	5.5	3.6
25	5.2	3.6
28	5.4	3.6

A. **Average Resolution Time**:
Agents with resolution times significantly **above the average (4.6 days)** need training to improve efficiency.
A threshold of **>5.0 days** can be used to flag underperformers.

B. **Average Satisfaction Rate**:
Agents with satisfaction rates significantly **below the average (4.1)** need training to enhance customer satisfaction.
A threshold of **<4.0** can be used to flag underperformers.

Agents Requiring Priority Training

Agents who appear in **both categories** (high resolution time and low satisfaction rate) require **priority training**:

- **Agent 3**
- **Agent 6**
- **Agent 19**
- **Agent 22**
- **Agent 25**
- **Agent 28**

Recommendation

1. **Focus on Priority Agents**: Start with agents who fail both metrics, as they have significant room for improvement.
2. **Provide Targeted Training**: Offer specialized training on reducing resolution time and improving customer satisfaction through soft skills and technical expertise.
3. **Monitor Improvements**: After training, measure these agents' performance to ensure progress.

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

❖ **Answer**- The avg. resolution time is 4.6 but the data shows that "Hardware" & "System" related issues related issues do have comparatively higher turn around time hence needs detailed monitoring.

Row Labels	Count of Resolution Time (Days)	Average of Resolution Time (Days)
Hardware	9733	7.6
Login Access	29193	0.3
Software	19570	5.2
System	39002	6.6
Grand Total	**97498**	**4.6**

✓ *Refer Ans-3 in Excel File*
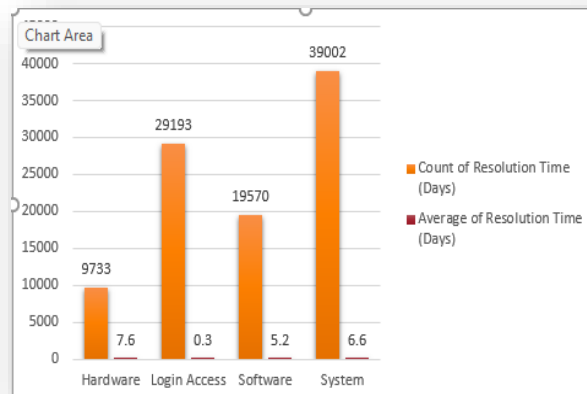
Recommendations:

- *Allocate resources and prioritize improvements for Hardware and System as they appear to have the highest impact.*
- *For Login Access, monitor to ensure no hidden issues arise, but keep resource allocation proportional to its lower priority.*

4. **How effective are the current software tools in managing IT tickets? Analysis: Evaluate performance metrics before and after the implementation of new tools.**

❖ *Answer:- [Refer Ans-4 in Excel file]*

1. Key Observations Across Metrics:
a. Ticket Volumes
   Hardware: Gradual increase in ticket volumes from 2016 to 2020, with a sharp rise in 2020.

   Login Access: Significant and consistent growth in ticket volume, particularly in 2020, showing a   rise in demand.
   Software: Steady increase year on year, with the largest rise observed in 2020.
   System: Consistent growth over the years, with a substantial increase in 2020.

b. Average Resolution Time

Hardware: Resolution times remain relatively consistent (~7.5-7.7 days) over the years, with no significant improvement despite the increased ticket volume in 2020.

Login Access: Extremely low resolution time (0.3 days) maintained across all years, indicating highly efficient handling.

Software: Resolution time remains steady (~5.2–5.3 days), suggesting no noticeable improvement or decline.

System: Resolution time is stable (~6.6–6.7 days) over the years, showing no improvement despite rising ticket volumes.
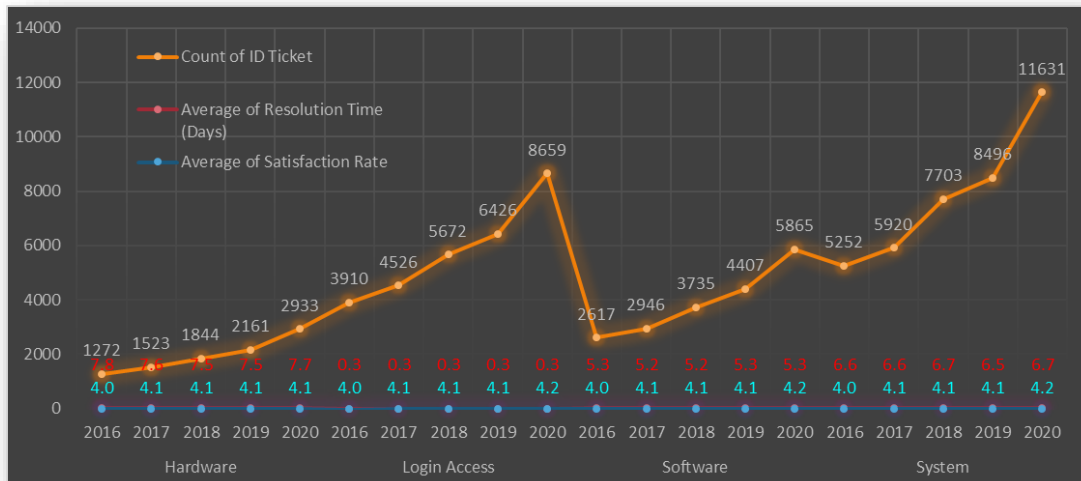
c. Average Satisfaction Rate

Satisfaction rates have remained steady across all categories (~4.1) over the years.
A slight improvement is observed in 2020 for **Login Access**, **Software**, and **System** categories, increasing from 4.1 to 4.2.

Req Category	Count of ID Ticket	Average of Resolution Time (Days)	Average of Satisfaction Rate
⊟ Hardware	9733	7.6	4.1
2016	1272	7.8	4.0
2017	1523	7.6	4.1
2018	1844	7.5	4.1
2019	2161	7.5	4.1
2020	2933	7.7	4.1
⊟ Login Access	29193	0.3	4.1
2016	3910	0.3	4.0
2017	4526	0.3	4.1
2018	5672	0.3	4.1
2019	6426	0.3	4.1
2020	8659	0.3	4.2
⊟ Software	19570	5.2	4.1
2016	2617	5.3	4.0
2017	2946	5.2	4.1
2018	3735	5.2	4.1
2019	4407	5.3	4.1
2020	5865	5.3	4.2
⊟ System	39002	6.6	4.1
2016	5252	6.6	4.0
2017	5920	6.6	4.1
2018	7703	6.7	4.1
2019	8496	6.5	4.1
2020	11631	6.7	4.2
Grand Total	97498	4.6	4.1

Before and After Tool Implementation

- Before Implementation (2016–2019):
- Ticket volumes were steadily rising, with resolution times and satisfaction rates remaining stable.
- There was no notable change in performance metrics, suggesting the tools were effective in maintaining performance.
- After Implementation (2020):
- Significant ticket volume increases were observed across all categories.
- Resolution times remained stable, with no efficiency gains despite the higher workload.
- Satisfaction rates improved slightly in some categories, suggesting better customer experience*.*

Conclusion

The current software tools appear **partially effective**:

- They **maintain stability** in resolution time and satisfaction despite increasing ticket volumes, showing that the tools are scaling well with demand.
- However, they do **not demonstrate significant efficiency improvements** (e.g., reduced resolution time), which suggests that the tools are not driving substantial process optimization.

Recommendation

1. **Evaluate bottlenecks** in categories like Hardware and System, where resolution times remain high.
2. **Invest in advanced automation** tools or workflows for categories with repetitive tasks (e.g., Login Access, Software) to further reduce resolution time.
3. Continuously monitor **ticket trends** and conduct **cost-benefit analyses** of the tools to ensure scalability and efficiency.

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:-** **Approach:** Examine the data by analyzing ticket volumes and resolution times across quarters from 2016 to 2020 to identify trends and improvement opportunities. Emphasize yearly and quarterly variations to evaluate workload distribution and operational efficiency.

Performance Analysis of IT Support Team Over Time [Refer Ans-5 in Excel].

Row Labels	Count of ID Ticket	Average of Resolution Time (Days)
2016	**13051**	**4.6**
Qtr1	3276	4.5
Qtr2	3265	4.6
Qtr3	3252	4.5
Qtr4	3258	4.5
2017	**14915**	**4.5**
Qtr1	3559	4.6
Qtr2	3834	4.5
Qtr3	3717	4.5
Qtr4	3805	4.5
2018	**18954**	**4.6**
Qtr1	4266	4.6
Qtr2	4936	4.7
Qtr3	4927	4.5
Qtr4	4825	4.5
2019	**21490**	**4.5**
Qtr1	5114	4.6
Qtr2	5152	4.5
Qtr3	5646	4.5
Qtr4	5578	4.5
2020	**29088**	**4.6**
Qtr1	7156	4.6
Qtr2	7012	4.6
Qtr3	7236	4.5
Qtr4	7684	4.6
Grand Total	**97498**	**4.6**
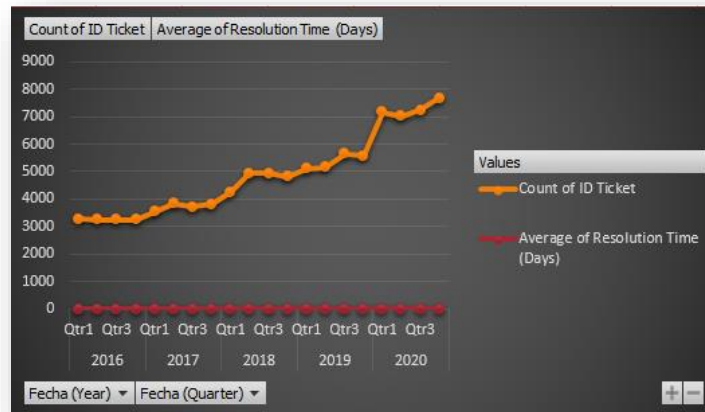
Overview of Key Metrics:

- **Total Tickets Handled (2016-2020):**

  ✓ The number of tickets increased significantly, from **13,051 in 2016** to **29,088 in 2020** (a 123% increase).

  ✓ This reflects the growing workload for the IT support team.

- **Average Resolution Time:**

  ✓ The resolution time has remained relatively stable over the five years, with a minor increase from **4.5 days (2017)** to **4.6 days (2020)**.

  ✓ Despite the increased ticket volume, the team has maintained a consistent average resolution time, which indicates reasonable performance efficiency.

A. **Yearly Trend:**

B. **2016:**
   a. **Ticket Count:** 13,051
   b. **Average Resolution Time:** 4.6 days
   c. Stable performance across all quarters, with a slight dip in resolution times in **Q3/Q4 (4.5 days).**

C. **2017:**
   a. **Ticket Count:** 14,915 (+14%)
   b. **Average Resolution Time:** 4.5 days
   c. Performance remained consistent across all quarters.
   d. The team managed to handle a higher volume without increasing resolution time, showing improved efficiency.

D. **2018:**
   a. **Ticket Count:** 18,954 (+27%)
   b. **Average Resolution Time:** 4.6 days
   c. **Q2 (4.7 days)** saw the highest resolution time for the year, possibly due to an influx of complex tickets.
   d. Despite this, the team maintained strong overall consistency.

E. **2019:**

a. **Ticket Count:** 21,490 (+13%)
b. **Average Resolution Time:** 4.5 days
c. Performance was steady, with all quarters maintaining an average of **4.5-4.6 days.**

F. **2020:**
   a. **Ticket Count:** 29,088 (+35%)
   b. **Average Resolution Time:** 4.6 days
   c. The team faced the highest workload of the period, especially in **Q4 (7,684 tickets).**
   d. Despite the increase, the resolution time remained stable at **4.6 days**, showcasing resilience and adaptability.

G. Quarterly Trend:

H. **Q1:**
Ticket volumes and resolution times are generally steady across Q1 each year, but **2020 Q1 (7,156 tickets)** stands out with a 100% increase compared to **2016 Q1 (3,276 tickets).**

I. **Q2:**
Q2 often experiences minor increases in resolution times (e.g., **4.7 days in 2018 Q2**). This could indicate seasonal workload or complexity spikes.

J. **Q3 and Q4:**
These quarters typically maintain consistent resolution times. Notably, **2020 Q4 (7,684 tickets)** had the highest volume across all quarters in five years.

K. Key Insights:

L. **Volume   Management:**
The IT team has adapted well to a steadily increasing workload, maintaining stable resolution times despite a 123% ticket volume increase.

M. **Minor Efficiency Dip:**
Resolution times slightly increased during **Q2 of 2018 (4.7 days)** and **2020 (4.6 days)**, possibly due to complex issues or resource strain.

N. **Focus Areas for Improvement:**
   a. **Peak Periods (e.g., Q4 2020):** High ticket volumes in specific quarters might require additional resource allocation or better workload balancing.
   b. **Complexity Analysis:** Evaluate ticket types in high-resolution time quarters to identify areas for process optimization.

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

❖ Answer:- *Use historical data to evaluate if investments in request categories (Hardware, Login Access, Software, and System) can reduce resolution times and enhance satisfaction rates.*

Row Labels	Count of ID Ticket	Average of Resolution Time (Days	Average of Satisfaction Rate
2016	**13051**	**4.6**	**4.0**
Hardware	1272	7.8	4.0
Login Access	3910	0.3	4.0
Software	2617	5.3	4.0
System	5252	6.6	4.0
2017	**14915**	**4.5**	**4.1**
Hardware	1523	7.6	4.1
Login Access	4526	0.3	4.1
Software	2946	5.2	4.1
System	5920	6.6	4.1
2018	**18954**	**4.6**	**4.1**
Hardware	1844	7.5	4.1
Login Access	5672	0.3	4.1
Software	3735	5.2	4.1
System	7703	6.7	4.1
2019	**21490**	**4.5**	**4.1**
Hardware	2161	7.5	4.1
Login Access	6426	0.3	4.1
Software	4407	5.3	4.1
System	8496	6.5	4.1
2020	**29088**	**4.6**	**4.2**
Hardware	2933	7.7	4.1
Login Access	8659	0.3	4.2
Software	5865	5.3	4.2
System	11631	6.7	4.2
Grand Total	**97498**	**4.6**	**4.10**

[Refer Ans-6 in Excel File]

Insights from Data:

A. **Hardware-Related Tickets:**
   a. Hardware issues have the highest **average resolution time (~7.5-7.8 days)** across all years.
   b. Hardware ticket volume has steadily increased (1,272 in 2016 to 2,933 in 2020, a 130% rise).
   c. Employee satisfaction rates for hardware tickets remain at **4.0-4.1**, below the overall average.

B. **Software-Related Tickets:**
   a. Software tickets have a resolution time of **~5.2-5.3 days**, which is higher than the overall average of 4.6 days.
   b. Ticket volumes for software are significant (e.g., 5,865 in 2020), highlighting its critical impact on operations.
   c. Satisfaction rates have slightly improved to **4.2 in 2020**, but there is room for enhancement.

C. **Login Access:**
   a. Login access tickets consistently have the fastest resolution time (**0.3 days**) and high satisfaction rates (4.1–4.2).
   b. These metrics indicate that existing processes and investments in this area are effective.

D. **System-Related Tickets:**
   a. System tickets take **~6.5-6.7 days** on average to resolve and account for a substantial ticket volume (e.g., 11,631 in 2020).
   b. Satisfaction rates are improving but remain lower than desired, given the critical nature of system issues.

E. Recommendations:

F. **Focus on Hardware and Systems:**
   a. Hardware and system-related tickets take the longest to resolve and impact satisfaction significantly. Prioritize investment in modernizing these areas.

G. **Leverage Automation:**
   a. Introduce AI-driven tools for ticket classification, triage, and resolution suggestions to reduce manual workload and speed up response times.

H. **Employee Training:**
   a. Train employees to handle software and system tools more effectively to reduce errors that lead to tickets.

I. **Proactive Monitoring and Maintenance:**
   a. Invest in monitoring tools that pre-emptively detect and resolve hardware/system issues before employees report them.

J. **Feedback Mechanism:**
   a. Actively collect feedback from employees on new technology implementations to fine-tune investments and ensure alignment with their needs.

Potential Benefits of Investing in Technology:

A. **Reducing Resolution Times:**
   a. **Hardware Investments:**
      i. Upgrading or replacing outdated hardware can significantly reduce resolution times.
      ii. Proactive maintenance tools (e.g., diagnostics software) can pre-emptively identify issues, reducing the need for reactive support.
   b. **Software Investments:**
      i. Advanced software troubleshooting tools and automated patch management can streamline resolution processes.
      ii. Training employees on new software upgrades can minimize user errors that lead to tickets.
   c. **System Investments:**
      i. Enhanced monitoring tools for systems (e.g., network monitoring, server diagnostics) can improve incident detection and resolution speed.

B. **Improving Employee Satisfaction:**
   a. **Better Tools for Agents:** Providing support teams with modern tools (e.g., AI chatbots, ticket triage automation) can reduce resolution times and stress, leading to improved service quality.
   b. **Self-Service Portals:** Implementing self-service solutions for common issues (e.g., login access, minor software errors) can empower employees and enhance satisfaction.
   c. **Faster Response Times:** Reducing the resolution time for hardware and system issues (which employees rely on heavily) is likely to boost satisfaction rates, particularly for critical systems.

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.

IT Ticket Project Analysis Report

❖ **Answers:-** *[Refer Ans-7 in Excel file]*

Decisive Factors

	Count	Resol.time	Satisfaction Rate
Max	2027	5.6	4.6
Min	1856	3.6	3.0
Average	1949.96	4.6	4.1
Median	1949	4.6	4.2

Row Labels	Count of ID Ticket	Average of Resolution Time (Days)	Average of Satisfaction Rate
7	1935	5.5	4.0
14	1942	4.9	4.1
18	1892	4.7	4.0
25	1906	5.2	3.6
28	1946	5.4	3.6

Key Metrics

A. **Count**:
   a. Total number of tickets handled by the agent.
   b. Higher ticket counts could indicate high productivity. Consider whether the agent is meeting the workload expectation.
B. **Resolution Time**:
   a. Average and median resolution times should ideally align with organizational benchmarks.
   b. A high maximum resolution time could indicate inefficiency in handling certain cases.
C. **Satisfaction Rate**:
   a. Customer satisfaction rate is a critical metric.
   b. A satisfaction rate below a defined threshold (e.g., 3.5 out of 5) may be unacceptable.

D. Decision Considerations

E. **Focus on Trends**:
   a. If the agent's performance consistently skews towards the **min or below average** values for all metrics (e.g., low satisfaction, high resolution time), this may indicate a need for improvement or dismissal.
F. **Satisfaction as a Priority**:
   a. Since **customer satisfaction (median 4.2, min 3.0)** is vital, consider firing the agent if their consistent satisfaction rate is closer to the **minimum (3.0)**.
G. **Low Ticket Volume with Poor Metrics**:
   a. If the agent has a **low count of tickets** and still shows **poor resolution time or satisfaction rates**, this might justify dismissal.
   b. Compare with team averages to confirm underperformance.
H. **Balanced Approach**:

    a. Provide **training or coaching** opportunities for agents who are borderline performers, especially if metrics like **median resolution time (4.6)** and **average satisfaction rate (4.1)** aren't far off from expectations.

8. How do employee demographics (e.g., department, seniority) impact satisfaction and ticket outcomes?
Analysis: Segment analysis using filters and pivot tables.

❖ *Approach: Analyse employee age groups' impact on ticket resolution and satisfaction using the provided data on resolution times and satisfaction rates. Patterns were identified using averages and counts.*

Insights: Younger age groups (28-31) resolve tickets faster with higher satisfaction rates (4.2). However, mid-aged groups (44-47) have longer resolution times and slightly lower satisfaction (3.9).

Recommendations *[Refer Ans-8in Excel File]*

33–36 Age Group:

- This group faces the longest resolution times and lowest satisfaction. Investigate the types of issues raised by this group and prioritize improvements in these areas.
- Targeted outreach, better communication, or dedicated support for these employees may help address their needs effectively.

41–44 Age Group:

- With the largest ticket volume, this group might experience delays due to overloaded support resources. Optimizing the allocation of resources or prioritizing high-volume issue types for resolution could improve satisfaction.

A. **Leverage Efficiency for Smaller Age Groups:**
    a. The **47–48** and **53–55** age groups exhibit good satisfaction rates and quick resolution times. Analyze what works well for these groups (e.g., types of tickets, communication strategies) and replicate these practices for other demographics.
B. **Cross-Analysis by Department and Seniority:**
    a. Introduce filters in the analysis to further investigate how department and seniority influence these trends. For example:
        i. **Senior Employees:** May require tailored support for legacy systems or processes.
        ii. **Junior Employees:** May need more training on tools, reducing unnecessary tickets.
C. **Training and Documentation:**

a. Employees in the 33–44 age group may benefit from enhanced self-service resources or better documentation for resolving common issues, potentially reducing ticket resolution times.

D. **Resource Allocation Based on Ticket Volume:**

a. Assign more support resources to the 41–44 age group or redistribute workloads to ensure quicker response and resolution times for high-ticket-volume age groups.

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: *Approach****: Analyse ticket volumes and satisfaction trends using monthly data from pivot charts. Identify peak and stable periods for IT support operations.*

Insights*: [Refer Ans-9 in Excel File]*

A. *Ticket Volumes*:
   a. ***Trend***: *Ticket volumes show a steady increase over time, particularly from 2017 onward, with notable growth through 2019 and 2020.*
   b. ***Peak Time****: The peak ticket volumes occur toward the end of the observed timeline (2020), with values approaching or exceeding 3000.*
   c. ***Stable Time****: Ticket volumes were relatively stable between mid-2017 and early 2018, showing only gradual growth during this period.*

B. *Customer Satisfaction*:
   a. ***Trend***: *The average satisfaction rate remains consistent over time, with no significant drops or spikes, indicating stable service quality.*
   b. ***Peak Satisfaction****: Satisfaction appears to maintain a steady, high level throughout the period, with no dramatic fluctuations.*
   c. ***Stable Time****: The entire timeline demonstrates stable satisfaction rates, suggesting a consistent customer experience.*

C. *Key Observations*

D. *Ticket volumes are increasing, which could indicate higher demand for IT support services.*

E. *Despite the growth in ticket volumes, customer satisfaction remains stable, which reflects well on the IT support team's ability to handle increased workload without compromising service quality.*

Year-on-Year Trends (2016–2020):

- *2016 - 2017: Slow growth; ticket volume increased from ~1,100 to ~1,300. Satisfaction remained at ~4.0.*

- *2017 - 2018: Moderate increase; tickets rose to ~1,600+, satisfaction stabilized at 4.1.*

- *2018 - 2019: Noticeable growth; tickets jumped to ~1,900+, slight satisfaction improvement (4.1–4.2).*

- *2019 - 2020: Sharp increase; ticket volume surged beyond 2,500+, satisfaction slightly improved (4.2–4.3).*
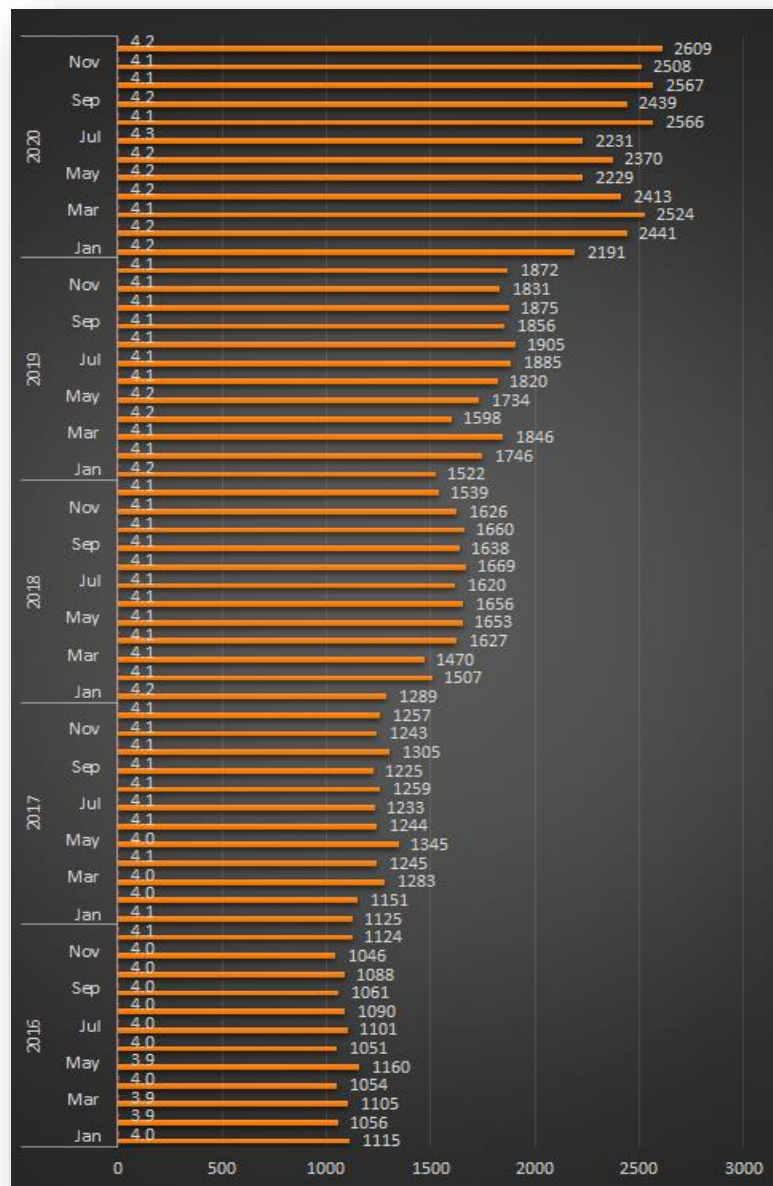
10. What metrics should be included in the final dashboard to provide a comprehensive view of call center performance and guide investment decisions?

❖ **Answer:-**
Here are the metrics I have included in the dashboard ("Dashboard" sheet) to represent the KPIs.

A. *Ticket count by time (year):*
   a. *This tracks the total number of tickets created each year.*
   b. *It helps in understanding year-over-year trends and analysing ticket volumes over long periods.*

B. *Tickets by request category:*
   a. *Tickets are grouped into predefined categories such as Hardware, Login Access, Software, and System, and the count is determined for each.*
   b. *This shows which category generates the highest or lowest number of requests, allowing for better resource allocation.*

C. *Ticket count by severity rate:*
   a. *This groups tickets based on their severity (e.g., 0, 1, 2, 3, 4) and provides the total count for each category.*
   b. *It highlights the proportion of tickets with varying levels of urgency.*

D. *Ticket count by priority:*
   a. *This categorizes tickets based on their assigned priority levels (e.g., 0, 1, 2, 3) and tracks the total count in each category.*
   b. *It identifies the tickets requiring immediate attention.*

E. *Distribution of tickets based on satisfaction rate:*
   a. *This metric looks at how tickets are distributed across different customer satisfaction rates.*
   b. *For example, tickets may be grouped by satisfaction scores (e.g., 1–5), showing the proportion of satisfied vs. dissatisfied customers.*

F. *Average resolution time by request category quarterly:*
   a. *This calculates the average time it takes to resolve tickets for each request category and breaks it down by quarter.*
   b. *It provides a periodic view of resolution efficiency.*

G. *Satisfaction rate by time (year):*
   a. *This measures customer satisfaction rates (e.g., 1-5) and tracks how they change over the years.*
   b. *It's useful for identifying long-term trends in customer experience.*

H. *Satisfaction rate by age-groups:*
   a. *This analyses satisfaction rates across different agent age groups (e.g., 28–31, 32–35, etc.).*

IT Ticket Project Analysis Report

IT TICKET ANALYSIS REPORT (2016-2020)