ANALYSING THE SERVICE DESK TICKETS FOR THE IMPROVEMENT IN IT SERVICES

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ABSTRACT:

A help work area is a correspondences place that gives a solitary resource (SPOC) between an organization and its representatives. The reason for a help works area is to guarantee that clients get suitable assistance as quickly as possible. Because of the ascent and use of virtual frameworks, support ticket frameworks have become a force to be reckoned with. Resolving the issue passes to fitting individual or unit in the help group has basic significance to give further developed end client fulfilment while guaranteeing better allocation of help recourses. The task of assist ticket with appropriating bunch is still physically performed. Particularly on the loose associations, the manual task isn't material. It is tedious and requires human endeavours. The suggested technique gives top notch client backing and lifts end-client fulfilment. It diminishes manual endeavours and human mistakes while guaranteeing high assistance levels and it will further develop end-client fulfilment.

PROBLEM STATEMENT

As per the accumulated information and by the insight, issue is communicated as seeks after:

1) At present the clients are defying the sort of issues (administration type/episode type) in an ordinary premise. Despite the fact that the specialist co-op giving the ideal answer for resolve these issues. To a great extent a comparable class of issues are leaping out at a few explicit clients and beside to other users.2) To finish the normal movement of administration work area framework, the specialist organizations requirements to raise a call log prior to doing the everyday schedule action. As though presently, rather than logging a solitary call the specialist organizations logging almost 10 brings in a day. Time usage is progressively a result of the repetitive call log.3) To decide the ticket volume patterns, with the goal that we can grasp the everyday/week by week/month to month wise ticket stream in the help work area. With the assistance of the ticket volume patterns, we can comprehend whether the dispensed assets are plausible are not.

NEED FOR THE STUDY

Resolving the issue passes to fitting individual or unit in the help group has basic significance to give further developed end client fulfilment while guaranteeing better apportioning of help recourses. The exhibition and productivity will constantly be a significant element, with regards to the enormous firm. Also, client fulfilment is more significant. The event of rehash issue will make clients inconvenience while

finishing their standard errand. For the everyday action, the help work area engineers logging ten calls that prompts time utilization. It's more essential to refreshing the ticket volume patterns, to be aware of the presentation of the assistance work area framework. The need of the review is to dissect the break information then to give not many ideas to the improvement in future regarding client fulfilment, as well as better framework execution and effectiveness.

INTODUCTION:

A service desk is a communications centre that provides a single point of contact (SPOC) between a company and its employees. The purpose of a service desk is to ensure that users receive appropriate help in a timely manner. Due to the rise and usage of virtual systems, support ticket systems have come into prominence. Addressing the issue tickets to appropriate person or unit in the support team has critical importance in order to provide improved end user satisfaction while ensuring better allotment of support recourses. The assignment of help ticket to appropriate group is still manually performed. Especially at large organizations, the manual assignment is not applicable. It is time consuming and requires human efforts. The recommended method provides high quality user support and boosts end-user satisfaction. It reduces manual efforts and human errors while ensuring high service levels and it will improve end-user satisfaction.

The main objective of the study is to analyse and provide suggestion for the better performance in future. Tinkering and Tailoring process has been done to convert the data into appropriate data for analysing. The exploratory data were coded and entered in R and Tableau software. Data analysis in quantitative research is essential as the interpretation and coding of responses can be very critical. Therefore, required analysis have done with the help of Descriptive analysis, Predictive Analysis, in-addition to R and tableau software are used to get the output for the business requirement.

MULTIPLE REGRESSION MODEL

Multiple regression model helps to identify the difference between the actual value and observed values. Here we have taken based on the category of issues, location where the issues occurred and current status of the issues. In addition to proceeding with the multiple regression model we can evaluate the fitness of the particular data model using R.

As per the hypothesis statement and model summary, the significance values ($P<0.05$) is less than 0.05 so, statistical model rejects the Null hypothesis by stating that there is no difference between the mean and conclude by there is a significant difference exists which means Skewness and distribution of data.

DECISION TREE

It is one of the supervised machine learning algorithms and one of the fastest ways to identify the significant variable and relationship between two or more variables. It provides the effective method to analyse the possible consequences of decisions. Mainly it works for both regression and classification for the categorical as well as the continuous variables. The main advantage of using decision tree is to reduce the ambiguity of the decision making.

DECISION TREE

The Decision tree is used for the regression and classification of datasets, which works for both categorical and continuous variable. A common difficulty one encounters while building model for predictive analytics is selecting the parameters. As our data sets contains both categorical and continuous data, we are using the decision tree for the model accuracy, with precision and recall values.

Here, approaching the data model in rapid miner will provide the benefits of splitting the data in the ratio of 70:30 for training and testing the data. The Decision tree operator will provide the complete tree based on the predictor variable. The edges and nodes help us to identify the in-depth model of this particular data. Apply model operator helps to apply the trained model on to the remaining 30 % of test data. The performance operator is used to identify the entire model accuracy of the data. As per the given data, Category is the predictor variable which are of six types. By using this model operator, we can get the hierarchical structure of the predictor variable based on the count of issues as well as the location wise Sla status and current status of issues as per the default target of this decision tree model. Finally, after these processes of splitting, pruning the decision tree will display one root node as category with the types of category as their parent nodes, Sla time and location will be taken by the decision node with that decision tree model will appear as the output.

The interim data classification is based on the categories, the analyses have taken with the help of interim data to check the decision tree model accuracy. We can able to improve the model accuracy by using the grid optimisation operator. Optimization simply involves in building the machine learning models iteratively by semantically cyclic through various combination of parameters and its measuring performances. It requires modest data training. Earlier techniques demand data normalization, creation of dummy variables and removal of blank values. Validation of representation with statistical tests is also possible. It makes the explanation for the reliability of the model possible. Time efficient even with large data. Standard computing resources help in analysing large data. By using the performance operator, we can get the below confusion matrix, here the operator used for the performance is the binomial classification criteria. So, as the result we

will get the precision and recall values with the entire model accuracy. Here, this operator will work according to the classification of train and test data. First it will check with the train data as per the model performance of train data it will automatically perform for the test data.

INTERPRETATION (Confusion Matrix - Model Accuracy)

The confusion matrix is used to describe the performance of classification model of test data. As the model accuracy is based on the category of issues, which is raised by the end users. Hereby, the model accuracy is 98.83%, therefore with the help of confusion matrix we could conclude that the given data model is over fit. As both shop floor automation category and SAP category contains very less issues while data splitting, entire input of these two categories will be taken for consideration by training data. So, when the performance operator tries to test the data, it will reflect the performance output. Comparing to the other categories and the SLA Status is also resolved so those two categories have high accuracy. Currently the service desk can able to generate the monthly report in excel to check the monthly wise performance. Excel can identify the business requirement to some extent but at the time analytics technology have been developed rapidly. So, here we Tableau software to identify exact business requirements with the time series forecasting as a merit for findings. The prior finding is to identify which category of issues occurs frequently and its reasons. The secondary finding is to identify which category of issue occurring frequently to some specific users and its reason. The tertiary finding is to identify and forecasting the ticket volume trends with the given interim data. As per the business requirement and main objective of the study is to determine which category of issues occurring repeatedly. Here, we chosen the slicing and dicing concept to evaluate the requirement. The below representation is for the overall location.

Forecasting the Ticket Volume Trends

Ticket volume trends show which hour/day/week/month/year receives the greatest number of tickets and when they are resolved whether it is resolved within the SLA time and how also the status of pending and unresolved tickets. Each color indicates one location in the given data.) The tertiary finding is to identify and forecasting the ticket volume trends.

SUGGESTIONS

The purpose of a service desk is to ensure that end - users receive appropriate help in a timely manner. Due to the rise and usage of virtual systems, support ticket systems have come into prominence. There are mainly three things which have to concentrate for the better performance and efficiency and also the end user satisfaction.

The primary section is the application section. As if now both employee name and employee no are mandatory while logging a call. Instead of employee name many users are using their employee no and vice versa that is not advice able. To improve this section, we have to maintain proper master data for location wise. As there are different type of employee no for permanent-employees, temporary-employees, and factory-based employees. So, if we keep drop down box (location) to pick up the user's location and then once the user enters their employee id it should automatically map with the employee's name that cannot be editable by the users further. This will be helpful for better performance and efficiency, ease of report generating and also future analyses. In addition to this we can provide proper awareness to the users regarding the usage of service desk application.

The Secondary section is Service provider section. Currently the service providers are working individually. So, once the service request comes to the desk, the help desk manager will check the availability of the service providing engineer and then assigned the work to the particular service providing engineer to proceed further. Here sometimes there is a chance for the response time violation. To avoid this violation, we can form the group/ team for service providing engineer minimum three service providing engineer should be there in a team and among the three one should be the network engineer per team. This will help to response and resolve the issues at the earliest that leads to the better performance for service desk and customer satisfaction from the user end.

REVIEW OF LITERATURE

This section gives a diagram of past research on analysing the service desk tickets for IT Application Management Service. It presents the system for the contextual investigation that involves the main focus of the research described in this thesis.

1.Incident Ticket Analytics for IT Application Management Services *(Michael Sandin, IBM T.J. Watson Research Center, Yorktown Heights, NY 10598-0218, USA.)*

2. **Statistical Analysis of IT Service Desk Incidents with objective level of optimisation of service level agreement (SLA)** (*Jörg Kundler, Transport and Telecommunication Institute Head of IT-Services, DFS, Deutsche Flugsicherung GmbH, Langen*).

3.The Application of Data Mining for the Trouble Ticket Prediction. (*Ahmed H. Yousef, Computers & Systems Department, Faculty of Engineering, Ain Shams University Cairo, Egypt*).

4.Service Analytics Method for Performance Prediction (*IBM Research Center, Zurich*) **5.Metrics of the Monthly Service Tickets** (*Jeff Rumberg, Co-Founder of Metris Net, LLC*) **6.Predictive Models for support of Incident Management Process in IT Service   Management (***Martin Sarnovsky, Department of Cybernetics and Artificial Intelligence, Technical University of Košice, Letná*)

*7.***Proactive IT Incident Prevention: Using Data Analytics to Reduce Service Interruptions** (*Mark G. Malley Walden University*)