REQUIREMENT ANALYSIS

CUSTOMER SERVICE MANAGEMENT

TEAM DETAILS

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PROBLEM STATEMENT

Need to develop an interactive dashboard system that aggregates and visualizes key metrics and insights related to customer service operations. In today's business landscape, maintaining high-quality customer service is crucial for retaining customers and fostering positive brand reputation. This project seeks to streamline the monitoring and management of customer service performance through data-driven insights presented in a user-friendly interface.

TRENDS & ANALYSIS

According to a report published by Rami El-Abidin on February 20, 2024

- **63%** of companies are increasingly **prioritizing the customer experience**, highlighting its critical role in business strategy.

- **69%** of customers prefer to resolve their issues independently using knowledge bases, such as **FAQs**, underscoring the importance of accessible self-service resources.

- **71%** of customers now expect brands to provide **customer support through messaging channels or bots,** reflecting a significant shift towards digital communication preferences.

PROJECT OVERVIEW

Interactive Dashboard System for Customer Service Operations

Objective:
Develop an interactive dashboard system to aggregate, visualize, and provide insights on key metrics related to customer service operations.

Goal:
Enhance the monitoring and management of customer service performance to improve customer retention and brand reputation through data-driven insights.

Key Features

Data Visualization:
Generate automated and on-demand reports summarizing customer service performance of Representative & Manager.

Graphs to showcase the Trends in Ticket and Customer Satisfaction Score.

Charts to showcase the Performance Metrics of Representative.

Map to display the Outage Locations.

Real-Time Updates:
Ensure the dashboard reflects real-time data to provide up-to-date insights.

User-Friendly Interface:
Develop an intuitive and easy-to-navigate interface for both technical and non-technical users.

Alerts and Notifications:
Implement a system to send alerts and notifications for critical events which are Outage and Changes in Ticket Status.

Key Metrics and Insight

- Ticket Volume and Trends
    - Location vs Number of Tickets
    - Customer Location vs Number of tickets
    - Domain vs Number of tickets
- Representative Performance Metrics
    - Average Response Time of Representative.
    - Average Resolution Time of Tickets of Representative.
    - Number of Tickets in Open State
    - Number of Tickets in In-Progress State
    - Number of Tickets in Closed State
- Customer Feedback Analysis
- Outage Simulation
    - Outage map

Modules

- Authentication Module
- Notification & Update Profile Module
- Customer Dashboard Module
- Employee Dashboard Module
- Admin Dashboard Module
- Admin Functionality Module
- Real-time Assistance Module
- Ticket Raising Module
- Service Request Management Module
- Outage Module

FUNCTIONAL REQUIREMENTS

Authentication Module

Authorization and Authentication:

- Implement Role-Based Access Control and Authentication.
- Enable sign-up functionality exclusively for customers.
- Restrict sign-up functionality for admin, representative, and manager roles.
- Prompt new employees to change their login credentials after logging in for the first-time using default credentials.

Session Management:

- Maintain the state of each tab using session storage after a successful login.

Notification & Update Profile Module

- Allows all user (Admin, Representative, Manager and Customer) to update/modify their personal information.
- Notify new employees of their default login credentials.
- Notify representatives of new service requests.
- Notify managers about outage information.
- Notify customers about changes in ticket status.

Customer Dashboard Module

- Allow customers to view the available plans.
- Provide an "About Us" section for customers to learn more about the company.
- Enable customers to update their profile information.
- Allow customers to view the domains in which services are offered.
- Enable customers to view the locations where services are available.

Employee Dashboard Module

Manager Dashboard

- Display the average response time of each representative under the manager.
- Display the average resolution time of each representative under the manager.
- Show the status of tickets (Open, In-progress, Closed) assigned to the representatives under the manager.
- Display the outage map.

Representative Dashboard

- Display the representative's average response time and resolution time.
- Show the status of tickets (Open, In-progress, Closed) assigned to the representative.
- Provide a weekly analysis of performance metrics (response time and resolution time).

Admin Dashboard Module

- Displaying the data insights using graphs for Location vs. Number of Tickets and Domain vs. Number of Tickets, as well as the outage map.
- When admin clicks on customer section, he will be navigated to a page which consists of a customer satisfaction graph and a Location vs. Number of Customers graph.

Admin Functionality Module

Add Employee

- Admin can add managers and representatives.
- Representatives can be assigned only to an existing manager.

List Employee

Admin can view the list of managers and representatives.

Update Employee

- Admin can update the details of managers and representatives.
- Admin can change the access level of a representative from representative to manager.

Delete Employee

- Admin can delete a manager only if there is no representative assigned under him/her.
- Admin can remove representatives directly.
- A confirmation prompt will appear before deleting an employee's record.

Real-time Assistance Module

Provide a bot to assist customers in resolving their domain-related concerns.

Ticket Raising Module

- Allow customers to raise queries for complex issues through the Support Section.
- Enable customers to view their ticket history and status.

Service Request Management Module

- Allow representatives to view the tickets assigned to them.
- Enable representatives to change the status of raised tickets.
- Automate the calculation of response time and resolution time for In-Progress and Closed tickets.
- Allow representatives to search for customers by name, phone number, or Customer ID.

Outage Module

Display information about service outage locations to the respective managers and customers.

NON-FUNCTIONAL REQUIREMENTS

- Changes to ticket status should be reflected in the database with minimal delay.
- Outage information should be updated and visible to affected customers as soon as the outage occurs (for logged-in customers).
- Only authorized representatives should be able to modify ticket statuses.
- Operations such as adding, updating, or removing employees should be processed within seconds.
- Only authorized administrator is granted the capability to add, update, or remove employee records.
- The dashboard should be intuitive and provide a clear overview of key performance metrics.
- Enable users to interact with business-specific bots to address and resolve their concerns effectively.
- Encryption and hashing of login credentials to ensure security.
- Only authenticated and authorized users can perform specific functionalities.
- Search operations should return results immediately.
- Error messages should be user-friendly and not reveal sensitive information.

ARCHITECTURAL CONSTRAINTS

Separation of Concerns: Each module (Authentication, Admin, Manager, Representative, Customer) will be implemented as a separate microservice to promote modularity and ease of maintenance. Service independence is achieved through the implementation of microservices.Each microservice should have its own database to ensure loose coupling and independent scaling.

Encryption: Encrypt sensitive data both at rest and in transit using industry-standard encryption algorithms.

Access Control: Implement role-based access control (RBAC) to restrict access to different parts of the system based on user roles.

Circuit Breaker Pattern: Implement the circuit breaker pattern to handle failures gracefully and prevent cascading failures.

Responsiveness: Ensure that the user interface is responsive and works well on various devices and screen sizes.

SCOPE

1. Authentication Module

- Credential-Based Navigation
- Role-Based Sign-Up constraints

2. Employee Module

- Obtain and present client information on the dashboard of the representative.
- Give agents the ability to look for customers by name, phone number or customer's Id.
- Provide representative with access to a list of tickets that have been assigned.
- Permit representative to update the status of tickets and inform corresponding clients of any changes.
- Display performance metrics (e.g., average response time, resolution time) relevant to the manager's domain.
- List representatives under the manager's supervision.
- Display service outage information, including outage areas and affected locations.
- Send login credentials to new employees.

3.Customer Module

- Implement features to offer real-time assistance to customers, possibly through chatbot.
- Allow customers to raise queries under specified domains.
- Provide functionality for customers to view the status of their raised tickets.
- Enable customers to access their ticket history.

4. Admin Module

- Allow admins to add new managers and representatives.
- Provide visibility to the list of current managers and representatives.
- Enable admins to update the access levels of employees as needed.
- Allow admins to remove records of managers and representatives from the system.

OUT OF SCOPE

- Screen sharing module for live assistance.
- Notifications through SMS.
- Integration with third-party authentication.