

Data Structures and Algorithms
SEMI-FINAL EXAM
DOCUMENTATION FOR GROUP 6

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Chosen Application Theme

Call Center System

Rationale for your Choice

The rationale for our group to pick the Call Center System as the theme for our program mainly boils down to how we want to maximize efficiency in the workforce in that field of work. Call Center agent jobs are not easy and can be hard when it comes to tracking the phone calls. With this app we developed we aim to take advantage of technology and aid the agents in their work.

Explanation of the Implemented Application and its features

Our app incorporates three main features: answering calls, forwarding calls, and managing calls by marking them as either done or canceled.

Answering Calls: The app simulates a realistic call center environment by generating random incoming calls every 10 seconds. Users can interact with these calls by clicking the "Answer" button, which will answer the call and update its status to "Currently on call." This feature allows users to experience handling dynamic and time-sensitive interactions.

Forwarding Calls: In a real-world scenario, the forward function would transfer the call to another agent with the relevant expertise. To simulate this process, we designed the forward button in our app to act as a push function. This feature demonstrates the functionality of reallocating tasks within a call center environment, contributing to efficient workflow management.

Mood-Enhancing Quotes: To improve the overall experience for agents using the app, we included a feature that displays random motivational or uplifting quotes. This addition aims to enhance the mood and morale of agents, fostering a positive working atmosphere during their shifts.

These features together aim to create a user-friendly and functional call center simulation that provides both technical and emotional support to agents.

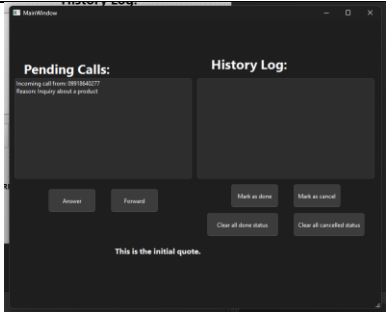
Chosen Application Theme

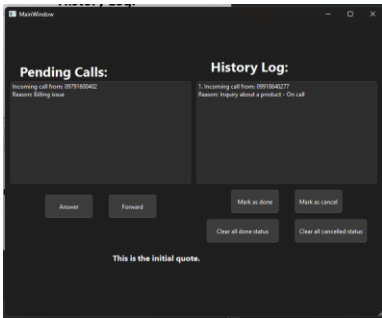
We selected the Call Center System as our application theme because of its dynamic and multifaceted nature, making it both intriguing and highly relevant in today's world. Call Center Systems serve as the backbone of customer service operations, bridging the gap between businesses and their clients. In our application, we simulated phone calls being routed to the system. Users can interact with the system through features like an **answer button** to pick up calls and a **forward button** to redirect the current call to another agent. Additionally, the system includes **history logs** for monitoring previous calls, along with options to **mark calls as done or canceled**. For better management, users can also clear all completed and canceled calls from the system.

This theme aligns with our objective to explore systems that exemplify real-world applications of technology in enhancing efficiency, improving customer satisfaction, and boosting organizational productivity. By focusing on a Call Center System, we aim to address common challenges, such as streamlining call workflows, managing call records, and optimizing agent productivity. Our system's design allows us to investigate practical solutions, including call routing, logging, and status management, which are critical components of modern call center operations.

Furthermore, the Call Center System theme offers a perfect blend of technical development, user experience design, and systems analysis. It provides an opportunity to apply and refine our technical skills while addressing practical challenges, making it a compelling and enriching choice for this project.

Three Test Cases for the chosen

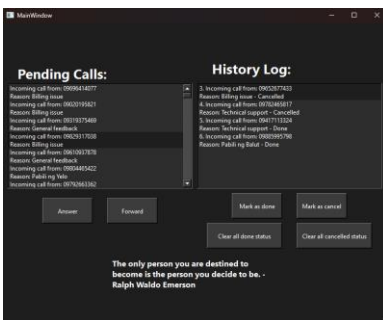
TEST CASES		
	TEST CASE 1 Answering Calls	For our test case 1, we present our function for answering calls. In the attached image we have a button wherein we can answer the calls that come into our pending calls tab.



TEST CASE 2

Forwarding Calls

For our test case 2, we present our function for forwarding calls, what is the forward function for? In a realistic scenario, it would forward the call to another call center agent, but in our program, it would function as a delete function, but it uses a push parameter. We used this simulate a real working call center app that can forward calls.



TEST CASE 3

Mark as Done and Mark
as Cancelled

For our test case 3, we present our function for marking calls as done or canceled. What are these functions for? In a realistic scenario, marking a call as done signifies the completion of a customer interaction, while marking it as canceled indicates a terminated or unresolved call. In our program, these functions simulate a real working call center app by allowing users to manage call statuses effectively. The "Mark as Done" and "Mark as Cancelled" buttons update the call history logs accordingly, helping agents organize and track their progress in handling customer calls.

Challenges Face during development

We faced many challenges but the one thing that makes this hard for us is, we don't have an idea how to navigate and use QT creator. So, the very first step is such a challenge for us. To solve this problem, we watched many tutorials on how to use QT creator then watched a few more tutorials for implementing stacks and queue.

Roles of Each Member and their Contributions

Designer: Wayne Yzon D. Nagares

Developer: Christian Louis Bolea

Tester: Daryll Cris Celestial