

Queue Master A Smart Web-Based Queue Management System for Enhancing Customer Experience in Banking Services

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Abstract- This exploration presents the development of Queue Master, a web-based line operation designed to address long staying times in banks. The system is erected using ASP.NET for the backend, HTML, CSS, and JavaScript for the frontend, and SQL for the data storehouse. Druggies are needed to subscribe up or log in to pierce colorful banking service sections such as cash deposit, cash pullout, check deposit, and meeting with the director. The operation allows druggies to bespeak lines grounded in their service conditions. After reserving, a real-time staying screen is displayed, and druggies admit alert announcements when their turn arrives. This result enhances client experience, reduces physical crowding, and improves functional effectiveness in banking surroundings.

Key Words: Web-based application, Queue management system, ASP.NET, Banking automation, Slot booking system.

1. INTRODUCTION

In today's fast-paced environment, long queues in banks lead to customer dissatisfaction and reduced service efficiency. To address this issue, Queue Master, a web-based queue management application, has been developed. The system utilizes ASP.NET for backend operations, HTML, CSS, and JavaScript for the frontend, and SQL for database management. It allows users to sign up or log in, select desired banking services such as cash deposit, cash withdrawal, cheque deposit, or meeting with the manager, and book queue slots accordingly. The application provides a real-time waiting screen and notifies users when their turn arrives, thus enhancing user convenience and optimizing bank workflow.

2. LITERATURE REVIEW

Queue management has long been a focus in banking sector research due to its direct impact on customer satisfaction and operational efficiency. Traditional token systems and manual queue handling often result in long waiting times and customer frustration. Several studies have explored digital queue solutions using web technologies, emphasizing automation, time-saving, and real-time notifications. Existing applications like Qmatic and Qminder provide advanced queue handling but often require expensive hardware and are not always tailored to regional banking workflows. Research also supports the use of ASP.NET and SQL for scalable, secure backend development in such applications.

3. METHODOLOGY

- Frontend Development Designed using HTML, CSS, and JavaScript to produce a responsive and stoner-friendly interface.
- Backend Development enforced using ASP.NET to handle stoner authentication, line sense, and service section processing
- Database operation SQL Garçon used to store stoner details, service sections, reserving records, and line status.
- Workflow druggies subscribe up or log in, select sections like cash deposit, pullout, etc., and book line places
- Queue System Logic System calculates estimated stay time grounded online position and displays a preamble screen
- Alert Notification When staying time reaches zero, the system sends an alert or communication notifying the stoner.

4. RESULT

The developed Queue Master application effectively streamlines queue management in banking environments. Users can register or log in, choose specific banking services (such as cash deposit, cash withdrawal, cheque deposit, or meeting the manager), and book queue slots accordingly. The system then displays real-time waiting times, updating users until their turn arrives. Upon reaching zero wait time, the system notifies users via alert or message. The integration of ASP.NET, HTML/CSS/JavaScript, and SQL ensures a responsive, user-friendly, and secure experience, ultimately reducing in-branch congestion and improving service efficiency.

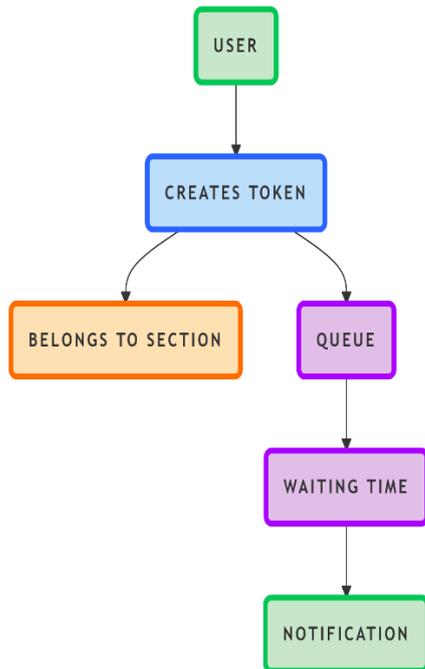


Figure 1. Analysis Model

5.DISCUSSION:

The Queue Master application follows a systematic and user-friendly flow to address queuing issues in banks. Initially, users are required to sign up or log in to access the system. Once authenticated, the interface presents multiple service sections—such as cash deposit, cash withdrawal, cheque deposit, and meeting with the manager. The user selects the desired services and proceeds to book queue slots accordingly. Upon successful booking, the system displays a waiting time screen, which updates in real time. When the waiting time reaches zero, the user is notified through an alert or message. This structured flow ensures minimal wait times, orderly service delivery, and an improved overall customer experience in the banking environment.

6.CONCLUSION

The implementation of the Queue Master application significantly enhances the queue management system in banks. By enabling online slot booking, real-time wait tracking, and automated notifications, the application reduces in-branch congestion and waiting times. Developed using ASP.NET for the backend, HTML/CSS/JavaScript for the frontend, and SQL for data handling, the system offers a scalable and efficient solution. Overall, Queue Master demonstrates how digital queue management can lead to operational efficiency and improved customer satisfaction in banking services.

Future enhancements for the Queue Master application include integrating SMS and email notifications for better user communication, implementing AI-based queue prediction to optimize slot allocation, and developing a mobile app version for greater accessibility. Additionally, incorporating feedback mechanisms and analytics dashboards can help banks monitor performance and improve service quality continuously.

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REFERENCES

1. Q. Li, Q. Han, X. Cheng, and L. Sun, "Queue sense: Collaborative recognition of queuing on mobile phones," in Sensing, Communication, and Networking (SECON), 2014 Eleventh Annual IEEE International Conference on, June 2014, pp. 230–238.
2. Y. Lin and Y. Lin, "Mobile ticket dispenser system with waiting time prediction," Vehicular Technology, IEEE Transactions on, vol. PP, no. 99, pp. 1–1, 2014.
3. R. Arun and P. Priyesh, "Smart queue management system using GSM technology," Research India Publications, vol. 3, no. 8, pp. 941–950, 2013.
4. Azmat Ullah, Xiao-dong Zhang, Khalid Iqbal, Muhammad Ayat IEEE Conference on Service System and Service Management (ICSSSM), 2014
5. Opti-Q by ICICI Bank ICICI Bank implemented Opti-Q, a dynamic queue management system, across over 700 branches in India and abroad. The system integrates with CRM systems to optimize service delivery and improve customer satisfaction.