

**CSE7101- Capstone Project
Review-1**

PSCS-481 Online Chatbot Based Ticketing System

Batch Number: ISE 45

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Problem Statement :

Organization: Travel and Tourism

Category : Software

Problem Description: Visitors to museums often face several significant challenges due to manual ticket booking systems. One prominent issue is the inefficiency and time consumption associated with the process. Long queues are common, especially during peak hours, weekends, or special exhibitions, leading to frustration and impatience among visitors. Besides the wait times, the manual system is prone to errors, such as incorrect ticket issuance, double bookings, or lost records, which can cause further delays and inconvenience. Overall, these challenges associated with manual ticket booking systems significantly detract from the visitor experience, reducing satisfaction and potentially impacting the museum's reputation and visitor numbers.



Objectives :

1. Automate the Ticket Booking Process:

Replace the manual ticketing system with a fully automated chatbot solution that can handle entry passes, special exhibition tickets, and show reservations.

2. Reduce Visitor Wait Times:

Minimize queues and manual processing delays by enabling real-time online ticket booking and instant confirmations.

3. Enhance Visitor Experience:

Provide a user-friendly, multilingual chatbot interface that makes booking simple, fast, and accessible for all visitors.

4. Ensure Payment Integration:

Integrate secure, reliable payment gateways to allow complete booking and payment without human intervention.



Objectives :

5. Improve Operational Efficiency

Streamline booking, confirmation, and record-keeping processes to reduce staff workload and operational bottlenecks.

6. Minimize Human Errors

Reduce mistakes such as double-booking, incorrect ticket issuance, or lost records through automated validation and confirmation.

7. Provide Accessibility for All

Ensure that the chatbot is available across devices (mobile, desktop, kiosks) and supports multiple languages for inclusivity.

8. Handle High Booking Volumes

Design the system to efficiently manage large-scale ticket requests during peak seasons or major events without downtime.



Background and Related work for title Selection:



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Analysis of Problem Statement (Software Requirements)

1 Frontend

- HTML
- CSS
- JavaScript

2 Backend

- Python with Flask

3 AI/ML Model

- Natural Language Processing(NLP): TensorFlow, PyTorch

4 Database

- MySQL Database

5 Development Tools:

- **IDE/Text Editor:** Tools like VS Code, PyCharm
- **Testing and Debugging:** Web Browser (Chrome, Firefox, Edge) and Postman (API Testing)



Analysis of Problem Statement (Hardware Requirements)

1 Development Machine

- **Processor:** A modern multi-core processor(e.g., Intel i3 or AMD Ryzen)
- **RAM:** At least 4 GB
- **Storage:** 10 GB recommended

2 Network:

- **Internet Connection:** Stable and standard speed internet connection for development and deployment

3 Additional Hardware (Optional for Deployment)

- **Cloud Server or Hosting Service** (AWS, Azure, GCP, or DigitalOcean) for production.
- **QR Code Scanner:** For ticket validation.



Innovation or Novel Contributions

1. Multilingual AI-Powered Chatbot:

Integration of Natural Language Processing (NLP) using TensorFlow and PyTorch to enable real-time interaction in multiple languages, improving accessibility for diverse visitors.

2. End-to-End Automated Ticketing:

From entry pass booking to show reservations, with secure payment gateway integration, eliminating human intervention in the entire booking cycle.

3. Smart Queue Management:

Predictive load handling during peak hours using AI-based booking pattern analysis to avoid system slowdowns and ensure smooth visitor flow.

4. Personalized Visitor Interaction:

AI-driven recommendations for exhibitions, shows, and guided tours based on user preferences and past booking history.



Innovation or Novel Contributions

5. Integrated Analytics Dashboard:

Real-time booking and visitor trend analytics to assist museum management in decision-making, event planning, and targeted promotions.

6. Error-Free Transactions:

Automated verification system to prevent double bookings, incorrect ticket issuance, or lost records.

7. Cross-Platform Availability:

Unified chatbot interface accessible via web, mobile, and on-site kiosks, ensuring inclusivity and ease of access.

8. QR Code-Based Entry Validation:

Contactless, fast, and secure verification system reducing entry bottlenecks and enhancing visitor safety.



Github Link

The Github link provided should have public access permission.

Github Link

<https://github.com/ISE-45/PSCS-481-Online-Chatbot-Based-Ticketing-System.git>



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Timeline of the Project (Gantt Chart)

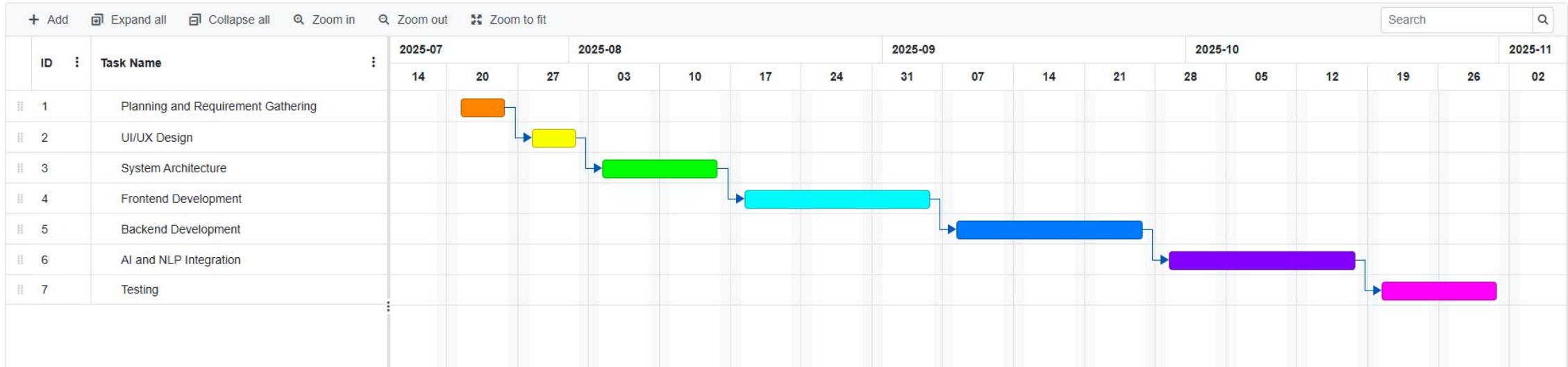


Fig 1. Gnatt Chart



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