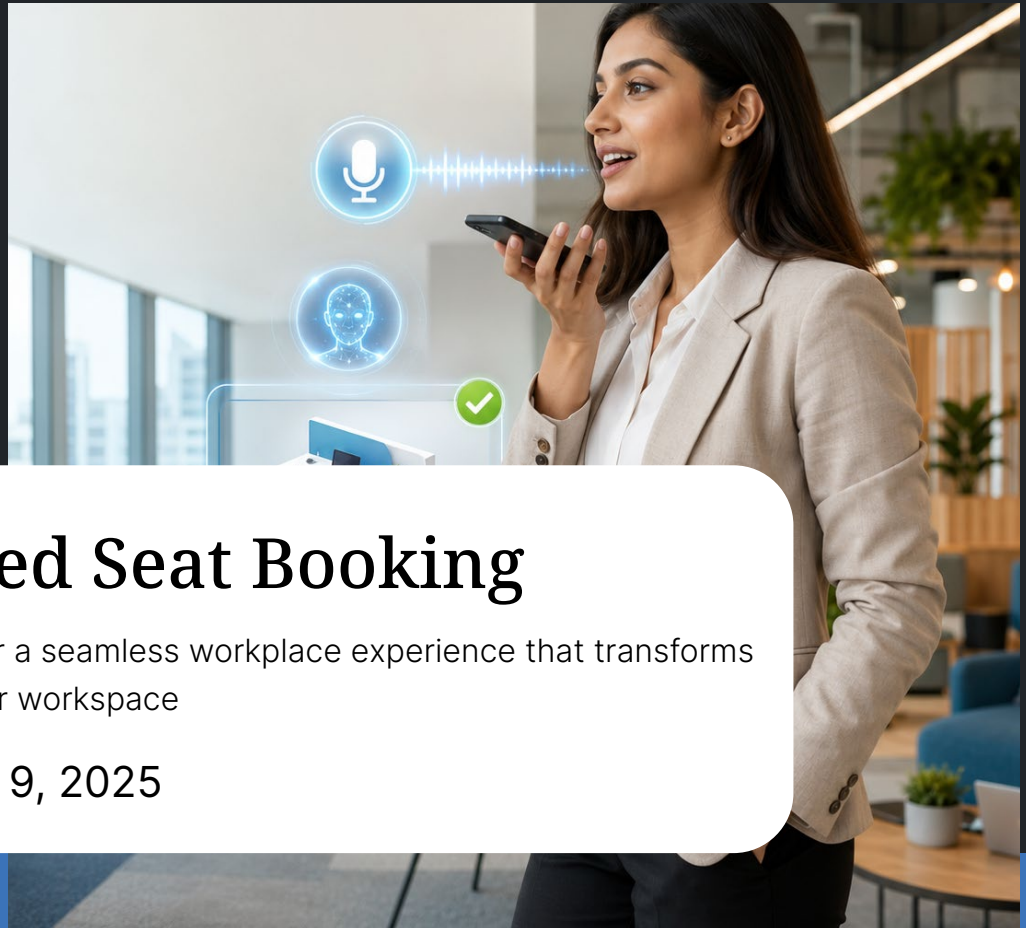




AI Voice-Based Seat Booking

Leveraging Generative AI for a seamless workplace experience that transforms how associates reserve their workspace

Md Sahil K | October 9, 2025

Today's Agenda

Join us as we explore how AI is revolutionizing workplace seat booking through intelligent conversation and automation.

Project Overview

Exploring the background, challenges, and core objectives behind our AI-powered solution

Live Demonstration

Showcasing the AI chatbot in action within the Associate Arena app

Architecture Deep Dive

A comprehensive walkthrough of technical components and data flow

Performance & Adoption

Analyzing user statistics and key performance indicators that demonstrate success

Challenges & Future Roadmap

Discussing hurdles overcome and our ambitious vision for continuous improvement

The Vision: Simplifying Seat Booking



The Challenge

Traditional seat booking systems create unnecessary friction in the daily workflow. Associates consistently face:

- Multiple clicks and complex navigation through outdated UIs
- Difficulty booking seats while mobile or on the go
- Valuable time wasted on repetitive administrative tasks
- Limited flexibility for multi-day or last-minute bookings

Our AI-Powered Solution

An intelligent, voice-based chatbot seamlessly integrated into the Associate Arena app that enables users to book, view, and manage office seats using natural language.

Key Objectives:

- **Enhance User Experience:** Frictionless, conversational interface
- **Increase Efficiency:** Reduce booking time by up to 80%
- **Promote Flexibility:** Enable easy multi-day and on-demand bookings

System Architecture Deep Dive

Our solution leverages cutting-edge AI and cloud technologies to deliver a robust, scalable booking experience.



User Interaction

Associate makes a natural language request in the **Associate Arena app**: “Book my seat for the next three days”



Authentication Layer

App sends encrypted **Auth Token** to our **FastAPI Endpoint** for secure identity validation.



AI Core - LangGraph Agent

User message processed by **LangGraph Agent** powered by **Azure OpenAI GPT-4o** to understand intent and context.



Intelligent Tool Selection

Agent selects the appropriate tool, for example, **book_seat_for_multiple_dates**, based on the analyzed intent.



API Execution

Selected tool calls the relevant backend API, for example, **api/flexi/book4Days**, to execute the booking action.



Database Transaction

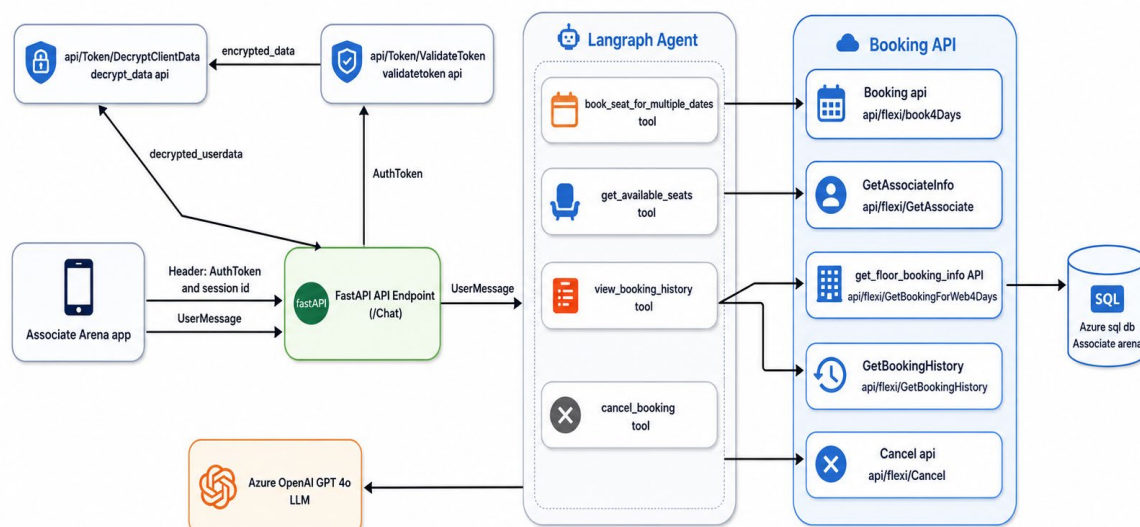
Azure SQL Database processes the request, confirms availability, and records the booking.



Confirmation Response

Success message returned to the user with booking details and confirmation number.

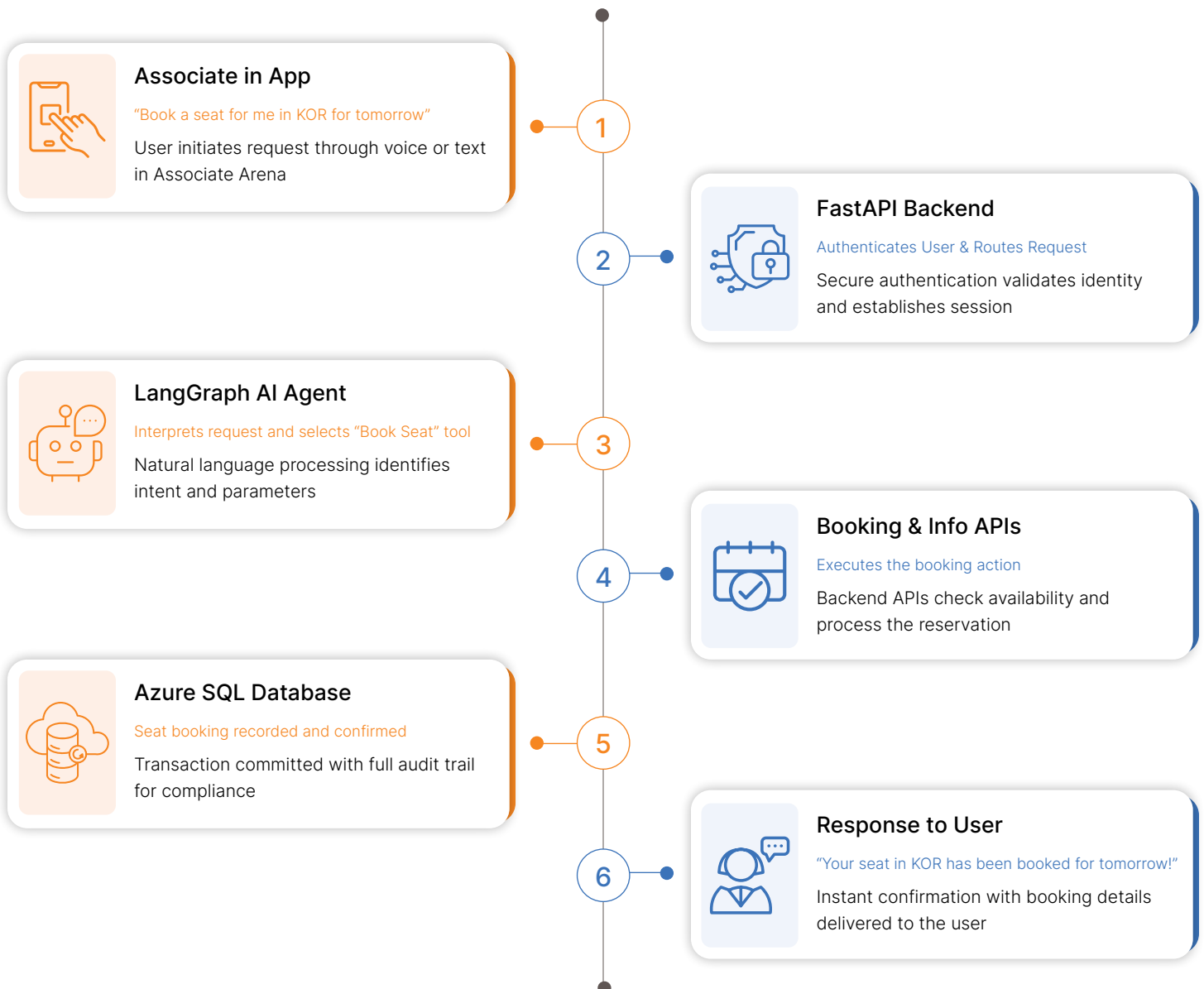
AI seat booking Architecture





The User Journey in a Nutshell

From voice command to confirmed booking experience the seamless flow that makes seat reservation effortless.



Strong Start: Analyzing User Adoption

Our AI-powered booking system has quickly gained traction, demonstrating clear value to associates across all office locations.

1079

Total Seats Booked

Fantastic initial adoption demonstrating strong user confidence in the AI system

362

ADU Office Bookings

Highest demand location showing exceptional engagement with flexible seating

183

Peak Daily Bookings

Recorded on September 1st as associates planned their weekly schedules

Key Objectives:

The tool demonstrates consistent daily engagement, with users returning regularly a strong indicator of satisfaction and system reliability. Peak usage patterns align with typical weekly planning cycles, validating our understanding of user behavior.

Learning and Evolving: Analyzing User Adoption

Issues Faced & Lessons Learned

LLM Hallucination:

Early versions occasionally generated incorrect information. Resolved by improving prompting techniques and combining redundant tools into streamlined functions.

Voice Recognition Accuracy:

Native Android and iOS features proved inconsistent. Successfully migrated to **OpenAI Whisper model** for superior voice-to-text conversion.

Initial Latency:

Early requests experienced delays due to Less optimized backend system.

Handling Ambiguity:

Vague requests like "book me a seat next week" required sophisticated clarification logic.

API Error Propagation:

Backend failures resulted in unclear error messages being shown to users.

Improvements & Future Roadmap

Performance Tuning:

Implemented intelligent caching for common queries, reducing average latency by 65%.

Robust Error Handling:

Developed user-friendly error messages with automatic retry mechanisms.

Exciting Future Features:

- QR codes and file upload in the chatbot to book a seat.
- Proactive booking notifications and reminders
- Meeting room bookings with calendar integration
- User feedback system (right/wrong) for continuous improvement



Thank You

Questions?

Md Sahil K

We're excited to hear your thoughts and answer any questions about our AI voice-based seat booking solution.



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