**Project Charter: Bookify Hotel Reservation System**

**Date:** October 26, 2023  
**Version:** 1.0

**Project Name**

**Bookify - Full Stack Hotel Reservation System**

**Project Idea**

To build a robust, scalable, and modern hotel reservation web application. The system will feature a customer-facing Angular application for browsing and booking rooms, and a secure admin panel for managing the hotel's operations. The backend will be a clean, maintainable [ASP.NET](https://asp.net/) Core 9 Web API, leveraging established design patterns (N-Tier, Repository, Unit of Work) to ensure code quality, performance, and data integrity.

**Team Members**

* **Ahmed Khaled** (Team Leader / Project Manager)
* **Bassant Khattab**
* **Salma Samir**
* **Abdullah Ibrahim**
* **Muhab Islam**
* **Noha Sharif**

**Work Plan**

**Week 1: Architecture Setup & Core Modules**

* **Backend:** Setup of N-Tier Architecture (API, Services, Data layers). Implement Entity Framework Core with Code-First approach and migrations. Configure [ASP.NET](https://asp.net/) Core Identity for JWT-based authentication.
* **Frontend:** Initialize Angular project structure, set up routing, and create core services for API communication. Implement login/register components.
* **Database:** Design and create initial database schema (Users, Roles, RoomTypes, Rooms).

**Week 2: Core Features Development**

* **Backend:** Develop Repositories and Services for Rooms, RoomTypes, and Bookings. Implement the Reservation Cart functionality using the backend (e.g., temporary holds in database or cache).
* **Frontend:** Build the public room listing page, room details page, and the reservation cart component. Secure Angular routes using guards.

**Week 3: Booking Flow & Admin Panel**

* **Backend:** Implement the Booking confirmation endpoint using the Unit of Work pattern for transactions. Integrate the Stripe payment gateway API. Develop Role-Based Authorization for Admin endpoints.
* **Frontend:** Create the booking checkout process with Stripe integration. Build the Admin Dashboard with components to manage rooms, room types, and view bookings.

**Week 4: Polish, Testing & Deployment**

* **Backend:** Implement Health Checks, Structured Logging (Serilog), and Global Error Handling. Finalize API documentation (Swagger/OpenAPI).
* **Frontend:** Enhance UI/UX with Angular Material or Bootstrap. Implement toast notifications for user feedback. Conduct unit and integration testing.
* **DevOps & QA:** Final end-to-end testing (QA). Prepare application for deployment (Docker, database deployment scripts).

**Roles & Responsibilities**

* **Ahmed Khaled (Leader):** Overall project management, coordination between teams, backend architecture, and integration.
* **Frontend Team (Bassant Khattab, Salma Samir, Abdullah Ibrahim, Ahmed Khaled, Muhab Islam, Noha Sharif):**
  + Angular application development, UI/UX implementation, and client-side functionality.
  + *Specialization:* Bassant Khattab and Salma Samir will focus on the customer booking flow. Abdullah Ibrahim and Muhab Islam will focus on the Admin Panel. Noha Sharif and Ahmed Khaled will focus on authentication and core services.
* **Backend Team (Bassant Khattab, Salma Samir, Abdullah Ibrahim, Ahmed Khaled, Muhab Islam, Noha Sharif):**
  + [ASP.NET](https://asp.net/) Core Web API development, business logic, and database interaction.
  + *Specialization:* Muhab Islam and Ahmed Khaled will lead API controller and service layer development. Bassant Khattab and Abdullah Ibrahim will focus on Entity Framework and Repository pattern. Salma Samir and Noha Sharif will work on Authentication and DTOs.
* **Database & DevOps Team (Muhab Islam, Bassant Khattab, Ahmed Khaled):**
  + Database design, optimization, and creation of migration scripts. Setup of deployment environment and CI/CD pipeline considerations.
* **Documentation & QA Team (Salma Samir, Noha Sharif, Abdullah Ibrahim):**
  + Creating technical documentation, user manuals, and writing/test cases. Performing quality assurance testing throughout the development lifecycle.

**KPIs (Key Performance Indicators) – Metrics for Project Success**

* **API Response Time:** 95% of all API endpoints respond in under 200ms.
* **Application Uptime:** Target of 99.9% availability for the live application.
* **User Adoption Rate:** Achieve a 75% conversion rate from room view to successful booking during testing.
* **Defect Density:** Less than 0.5 critical bugs per 1000 lines of code at the time of release.
* **Payment Success Rate:** Stripe payment processing success rate of 98% or higher in the production environment.
* **Test Coverage:** Achieve a minimum of 70% unit test coverage for the backend Services layer.

**Instructor**

\* [Hesham Mohamed]

**Project Files**

You can find the full project files here:  
**GitHub Repository:** [https://github.com/AhmedX2111/Bookify-Hotel-Reservation-System]

**License**

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