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# **Full Technical Documentation: Guest Stay Web Application**

### **Deployment Flow**

* **Frontend** → Vercel (auto-deploy from GitHub)
* **Backend** → Render / Heroku (Docker container)
* **Database** → PostgreSQL (Supabase) or MongoDB Atlas
* **CI/CD** → GitHub Actions (test + deploy)

## **Technology Stack**

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| **Layer** | **Technology** |
| **Frontend** | React 18, TailwindCSS, React Router, Axios |
| **Backend** | Node.js, Express.js, JWT, bcrypt, Prisma ORM |
| **Database** | PostgreSQL (preferred) or MongoDB Atlas |
| **Deployment** | Vercel (frontend), Render/Heroku (backend) |
| **Testing** | Jest (backend unit tests), Cypress (UI tests) |
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## **Testing Logs**

### **Unit Testing**

* **Auth Service:**
  + ✅ Register user → hashed password stored
  + ✅ Login → returns JWT
  + ❌ Invalid credentials
* **Booking Service:**
  + ✅ Booking created with valid user/stay/date
  + ✅ Prevent overlapping bookings
  + ✅ Cancel booking → status updated

### **UI Testing**

* ✅ Home page loads within 2s
* ✅ User can search for stays
* ✅ Booking flow works (search → details → book)
* ✅ Dashboard lists user bookings
* ❌ Edge case: Booking dates outside availability → handled with error

## **6. Project Reflections**

### **Challenges**

* Managing **date overlaps** in bookings required custom logic.
* Ensuring **secure JWT authentication** while keeping UX smooth.
* Optimizing database queries for search/filter functionality.

### **Achievements**

* Built a scalable **microservices-ready backend**.
* Clean, responsive UI with **TailwindCSS**.
* CI/CD pipeline automated deployments.

### **Future Improvements**

* Add **Mobile Money payment** integration.
* Implement **reviews & ratings** for stays.
* Enhance search with **location map filters**.
* Introduce **role-based admin dashboard**.