

UniStay Egypt - Project Documentation

1. Project Planning & Management

1.1 Project Proposal

Project Name: UniStay Egypt

Objective: Develop a comprehensive web platform tailored for university students in Upper Egypt, enabling them to find affordable accommodations near their institutions while fostering a collaborative knowledge-sharing environment.

Scope:

- **Accommodation Services:** Students can search, book, and list accommodations based on location, pricing, and amenities.
- **Knowledge Sharing:** A dedicated space where students can share study materials, ask academic questions, and form study groups.
- **User Authentication:** Secure login system for students and landlords, including email verification and two-factor authentication (2FA).
- **Payment Integration:** Online rental payments through secure payment gateways.
- **Review System:** A transparent rating and review system to ensure quality accommodation and reliable landlords.
- **Multilingual Support:** Arabic and English language options for better accessibility.

1.2 Project Plan

Timeline & Milestones

Phase	Task	Duration
1	Requirements Gathering & Planning	March 2025
2	System Design & Prototyping	April 2025
3	Development (Frontend & Backend)	May - July 2025
4	Testing & QA	August - September 2025
5	Deployment & User Training	October 2025
6	Maintenance & Feature Expansion	Ongoing

Deliverables

- **Project Proposal Document** (Scope, Objectives, Features, Stakeholder Analysis)
- **Wireframes & UI Prototypes**
- **ER Diagrams, DFDs, and System Architecture**
- **Functional System with Core Features**
- **Comprehensive Testing Reports & Bug Fixes**
- **Final Presentation & Deployment**

1.3 Task Assignment & Roles

Role	Responsibilities
Project Manager	Overseeing project execution, ensuring timely delivery
Frontend Developers	Implementing UI using React and Tailwind CSS
Backend Developers	Developing API endpoints with Django and managing PostgreSQL databases
Database Engineer	Designing optimized database structures
QA & Testing Team	Conducting unit, integration, and user acceptance testing
DevOps Engineer	Managing deployments, CI/CD pipelines, and cloud infrastructure

1.4 Risk Assessment & Mitigation Plan

Risk	Potential Impact	Mitigation Strategy
Security Breaches	Data leaks, unauthorized access	Implement end-to-end encryption, secure authentication mechanisms
Payment Failures	Loss of transactions	Integrate reliable payment gateways, ensure transaction logging
Low User Engagement	Limited platform adoption	Launch targeted marketing campaigns, partner with universities
Server Downtime	Service unavailability	Deploy redundant cloud servers and automated scaling

1.5 Key Performance Indicators (KPIs)

- **System Uptime:** 99.9%
- **Response Time:** < 200ms for API calls

- **User Growth Rate:** 15% monthly increase
 - **Average Page Load Time:** < 2.5 seconds
 - **Transaction Success Rate:** 98%+
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2. Literature Review

- Analysis of existing student accommodation platforms (Airbnb, Student.com, Nestpick).
 - Comparison of various web development frameworks for building scalable applications.
 - UI/UX best practices for improving student engagement.
 - Data security measures in multi-tenant web applications.
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3. Requirements Gathering

3.1 Stakeholder Analysis

- **Students:** Seeking affordable, safe, and convenient accommodation.
- **Landlords:** Renting out properties to students.
- **University Administrators:** Potential collaboration for student housing management.

3.2 User Stories & Use Cases

- **Student:** "As a student, I want to search for affordable accommodations near my university, compare listings, and securely book a room."
- **Landlord:** "As a landlord, I want to list my property with detailed descriptions, receive verified tenant requests, and manage rental payments online."
- **Admin:** "As an administrator, I want to ensure platform compliance, manage reports, and oversee the review system."

3.3 Functional Requirements

- **User Registration & Authentication** (OAuth, Email Verification, Role-based Access Control)
- **Property Listing & Search** (Advanced filters, Map View, Listing Management)
- **Booking & Payment Integration** (Stripe/PayPal integration, Secure transactions)
- **Messaging System** (Real-time chat between students and landlords)
- **Review & Rating System** (User-generated feedback, landlord verification)
- **Knowledge-sharing Forum** (Discussion boards, content moderation)

3.4 Non-functional Requirements

- **Scalability:** Cloud-based infrastructure for handling high traffic.
 - **Security:** SSL/TLS encryption, secure database access policies.
 - **Performance:** Optimized database queries, caching mechanisms.
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4. System Analysis & Design

4.1 System Architecture

- **Frontend:** React, Tailwind CSS
- **Backend:** Django REST Framework
- **Database:** PostgreSQL
- **Hosting:** AWS/Digital Ocean

4.2 Database Design & Data Modeling

- **ER Diagram:** Includes entities for Users, Properties, Bookings, Payments, and Reviews.

4.3 UI/UX Design & Prototyping

- **Wireframes & Mockups:** Created using Figma.
 - **Accessibility Compliance:** WCAG standards for usability.
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5. Implementation (Source Code & Execution)

5.1 Version Control & Collaboration

- **GitHub Repository:** Code versioning, pull request reviews.
- **Branching Strategy:** GitFlow methodology.

5.2 Deployment & Execution

- **Tech Stack:** Django (Backend), React (Frontend), PostgreSQL (Database)
 - **CDN:** Cloudflare for content delivery.
 - **CI/CD Pipelines:** Automated deployment via GitHub Actions.
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6. Testing & Quality Assurance

- **Unit Testing:** PyTest for backend, Jest for frontend.
 - **Integration Testing:** API validation.
 - **Load Testing:** Ensuring server performance under high traffic.
 - **User Acceptance Testing:** Feedback collection from students and landlords.
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7. Final Presentation & Reports

- **User Manual:** Step-by-step guide for students and landlords.
 - **Technical Documentation:** API endpoints, system design details.
 - **Presentation Deck:** Summary of the project, challenges, and solutions.
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Conclusion

UniStay Egypt is a purpose-driven platform aimed at revolutionizing student accommodation in Upper Egypt. With robust security, seamless UI, and innovative features, this project is designed to bridge the gap between students and reliable housing providers while promoting knowledge exchange among university communities.