Requirement traceability Matrix  
(Student Accommodation Finder)

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**Functional Requirements:**

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| Requirement ID | Requirement Description | Source/Reference | Design Component | Implementation Component | Test Case |
| FR-01 | User registration and authentication (students, property owners) | SRS Functional Requirements | User Authentication Module | Registration and Login Forms, Role-Based Access Control | TC-01: User Registration, TC-02: Login |
| FR-02 | Property listings management by property owners | SRS Functional Requirements | Property Management Module | Listing Creation, Edit, View, Delete Features | TC-04: Property Creation, TC-05: Listing Updates, TC-06: Listing Deletion |
| FR-03 | Property search and filtering for students | SRS Functional Requirements | Search Engine Module | Filter by Location, Price, Amenities | TC-07: Search by Location, TC-08: Search by Price |
| FR-04 | Roommate matching system | SRS Functional Requirements | Matching Algorithm | Match Generation | TC-09: Match Generation |
| FR-06 | Maps integration for property location visualization | SRS Functional Requirements | Map Integration Module | Google Maps API, Distance Calculation | TC-13: Map Display, TC-14: Distance to Campus |
| FR-07 | User reviews and ratings for properties | SRS Functional Requirements | Reviews Module | Rating and Comment Systems | TC-15: Submit Review, TC-16: View Ratings |
| FR-09 | Notifications for important events | SRS Functional Requirements | Notification System | Push Notifications, Email Alerts | TC-19: Notification Alerts |

**Non-Functional Requirements:**

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| Requirement ID | Requirement Description | Source/Reference | Design Component | Implementation Component | Test Case |
| NFR-01 | System should be scalable to support more users | SRS Non-Functional Requirements | Cloud Architecture | Database Sharding, Load Balancers | TC-22: Load Testing, TC-23: Performance Under High Load |
| NFR-02 | Ensure high availability and minimal downtime | SRS Non-Functional Requirements | Backup and Redundancy Plan | Server Monitoring, Automated Backups | TC-24: Downtime Simulation, TC-25: Backup Recovery |
| NFR-03 | Use data encryption for security | SRS Non-Functional Requirements | Security Protocols | Secure Data Storage | TC-26: Data Encryption |
| NFR-04 | The platform should have an intuitive UI | SRS Non-Functional Requirements | UI/UX Design | Responsive Design, User-Friendly Navigation | TC-28: Usability Testing, TC-29: Cross-Browser Compatibility |
| NFR-05 | System should be maintainable and well-documented | SRS Non-Functional Requirements | Code Documentation | Modular Codebase, Internal Docs | TC-30: Code Quality Review |
| NFR-07 | The application should support multiple devices and browsers | SRS Non-Functional Requirements | Frontend Design | Cross-Platform Compatibility, Responsive UI | TC-33: Cross-Browser Testing |