

**ASSIGNMENT**

**PART:1** (WBS of Hotel Reservation System)

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**SUBJECT:** Software Engineering

**SECTION:** W3

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**Work Breakdown Structure** (WBS) for a Hotel Reservation System can be divided into several levels of detailed tasks.

**Level 1: Project Overview**

1. Hotel Reservation System

**Level 2: Major Phases/Modules**

1. Project Management and Planning
2. Requirements Analysis
3. System Design
4. Implementation
5. Testing
6. Deployment
7. Maintenance

**Level 3: Sub-Modules and Tasks**

**1. Project Management and Planning**

* 1.1. Define project scope
* 1.2. Develop project schedule
* 1.3. Allocate resources
* 1.4. Risk management and mitigation
* 1.5. Progress tracking and reporting

**2. Requirements Analysis**

* 2.1. Gather functional requirements:
  + 2.1.1. User registration and authentication
  + 2.1.2. Room availability checking
  + 2.1.3. Room booking and payment processing
  + 2.1.4. Reservation modification and cancellation
  + 2.1.5. User account management
* 2.2. Gather non-functional requirements
  + 2.2.1. Performance (speed, scalability)
  + 2.2.2. Security (encryption, authentication)
  + 2.2.3. Usability
  + 2.2.4. Backup and recovery
* 2.3. Stakeholder interviews and feedback
* 2.4. Document and validate requirements

**3. System Design**

* 3.1. High-level architecture design
  + 3.1.1. Frontend design (UI/UX)
  + 3.1.2. Backend design (server-side logic)
  + 3.1.3. Database design (schema, relationships)
* 3.2. Database schema design
  + 3.2.1. Tables (Users, Reservations, Rooms, Payments)
  + 3.2.2. Relationships and keys
* 3.3. System interaction flow (use cases)
* 3.4. API design (for integration with external systems)
* 3.5. Technology stack selection
  + 3.5.1. Frontend (e.g., React, Angular)
  + 3.5.2. Backend (e.g., Node.js, Java, Python)
  + 3.5.3. Database (e.g., MySQL, MongoDB)
* 3.6. UI/UX mockups and wireframes
* 3.7. Security protocols and authentication design

**4. Implementation**

* 4.1. Frontend development
  + 4.1.1. User Registration/Login page
  + 4.1.2. Room availability and search page
  + 4.1.3. Reservation and payment pages
  + 4.1.4. Account management pages
* 4.2. Backend development
  + 4.2.1. User authentication and session management
  + 4.2.2. Reservation processing logic
  + 4.2.3. Room availability and pricing logic
  + 4.2.4. Payment gateway integration
* 4.3. Database implementation
  + 4.3.1. Create tables and relationships
  + 4.3.2. Implement stored procedures and triggers (if necessary)
* 4.4. API development
  + 4.4.1. Develop REST APIs for frontend-backend interaction
  + 4.4.2. Integrate third-party APIs (e.g., for payment processing)
* 4.5. Integrate frontend with backend

**5. Testing**

* 5.1. Unit testing
  + 5.1.1. Test individual components/modules
  + 5.1.2. Test database queries and operations
* 5.2. Integration testing
  + 5.2.1. Test interactions between frontend and backend
  + 5.2.2. Test API integrations
* 5.3. System testing
  + 5.3.1. Test entire system end-to-end
  + 5.3.2. Test user workflows
* 5.4. Performance testing
  + 5.4.1. Test load capacity (number of concurrent users)
  + 5.4.2. Test response times under load
* 5.5. Security testing
  + 5.5.1. Test for vulnerabilities (SQL injection, XSS)
  + 5.5.2. Test data encryption
* 5.6. User acceptance testing (UAT)
  + 5.6.1. Gather feedback from stakeholders/users
  + 5.6.2. Address any changes or bugs

**6. Deployment**

* 6.1. Setup production environment (servers, database)
* 6.2. Deploy backend (API, database)
* 6.3. Deploy frontend (website/app)
* 6.4. Configure cloud services (if applicable)
* 6.5. Backup and rollback strategy
* 6.6. Monitor system performance post-deployment

**7. Maintenance**

* 7.1. Monitor system health
* 7.2. Implement bug fixes and patches
* 7.3. Implement new features (based on user feedback)
* 7.4. Regular database and server maintenance
* 7.5. Update and improve security protocols

This WBS structure breaks down the major phases and components of the hotel reservation system project, ensuring clear responsibility allocation, timeline estimation, and deliverables for each phase.