Quiz Master - Project Report

1. Project Overview
Quiz Master is a web-based quiz management system that enables educational institutions to conduct online assessments. The application features a dual-role system (Admin/User) with comprehensive quiz management, real-time assessment, and performance analytics.

2. Technical Architecture

 -> Core Technologies
- Backend: Flask 3.0.2, SQLAlchemy
- Frontend: HTML5, CSS3, JavaScript
- Database: SQLite
- Authentication: Flask-Login
- API: Flask-RESTful

3. Key Features

-> User Features
- User registration and authentication
- Subject/Chapter navigation
- Interactive quiz taking
- Real-time timer
- Performance tracking
- Leaderboard access

-> Admin Features
- Subject/Chapter management
- Quiz creation and scheduling
- Question bank management
- User management
- Performance analytics

-> Quiz System
- Multiple choice questions
- Time-limited sessions
- Automatic scoring
- Performance analytics
- Detailed feedback

4. Database Schema

-> Core Models
1. User
  - id, username, email, password_hash
  - role (admin/user)
  - profile information

2. Subject
  - id, name, description
  - relationship with chapters

3. Chapter
  - id, name, subject_id
  - relationship with quizzes

4. Quiz
  - id, chapter_id, date
  - duration, remarks
  - questions relationship

5. Question
   - id, quiz_id, question_text
   - options, correct_answer

6. Score
   - id, quiz_id, user_id
   - total_scored, time_taken
   - timestamp

5. Security Implementation

-> Authentication
- Secure password hashing
- Session management
- Role-based access control

-> Data Protection
- CSRF protection
- Input validation
- SQL injection prevention
- XSS protection

6. User Interface

Design Principles
- Clean, modern interface
- Responsive design
- Intuitive navigation
- Consistent styling

Key Pages
1. Dashboard
   - Quick access to subjects
   - Recent performance
   - Upcoming quizzes

2. Quiz Interface
   - Timer display
   - Question navigation
   - Progress tracking
   - Submit functionality

3. Results Page
   - Score breakdown
   - Performance metrics
   - Answer review
   - Leaderboard link

4. Admin Panel
   - Management interfaces
   - Analytics dashboard
   - User controls

11. Conclusion

Quiz Master provides a robust platform for online assessments with features catering to both educational institutions and individual users. The system's modular architecture, security measures, and user-friendly interface make it an ideal solution for modern educational needs. Regular updates and maintenance ensure continued reliability and performance.