# CS 255 Business Requirements Document

## System Components and Design

### Purpose

* To develop a comprehensive web-based driver training management system for DriverPass
* To provide an integrated platform for online driver education and in-person lesson management
* To help customers better prepare for DMV driving tests through structured learning resources
* To create a cloud-based solution that integrates all aspects of DriverPass's business operations
* To implement a secure and scalable system that can grow with the company's needs

### System Background

* Problem Statement:
  + High failure rate at DMV driving tests
  + Lack of adequate preparation resources for driving test candidates
  + Gap in the market for comprehensive driver training services
* Solution Components:
  + Online learning platform with practice tests
  + In-person driving lesson scheduling system
  + Fleet management for 10 cars and associated drivers
  + Three-tiered package system for different learning needs
  + Integration with DMV updates and policies
  + Administrative tools for business management

### Objectives and Goals

* User Management
  + Implement secure role-based access system (Admin, IT Officer, Secretary, Customers, Drivers)
  + Enable user registration and authentication
  + Provide password reset functionality
  + Track user activities and modifications
* Reservation System
  + Create booking system for 2-hour driving lessons
  + Enable multiple booking channels (online, phone, in-person)
  + Track vehicle and instructor assignments
  + Manage pickup/drop-off locations
* Package Management
  + Implement three training packages with different features
  + Allow package activation/deactivation
  + Support future package customization
  + Track package enrollment and completion
* Learning Management
  + Provide online class materials
  + Deliver practice tests with progress tracking
  + Monitor test completion status
  + Integrate DMV rules updates
* Administration
  + Generate activity reports
  + Enable data export capabilities
  + Track driver notes and lesson times
  + Monitor system usage and modifications

## Requirements

### Nonfunctional Requirements

#### Performance Requirements

* System must be web-based and cloud-hosted
* System must be accessible from any computer or mobile device
* System must support concurrent access from multiple users
* System must maintain real-time data synchronization
* System must receive and process DMV updates promptly
* System must prevent offline data modifications to avoid redundancy

#### Platform Constraints

* System must operate through web browsers
* System must be cloud-based to avoid local backup/security management
* System requires database backend for user and reservation management
* System must support Excel-compatible data export
* System must integrate with DMV notification systems
* System must support secure credit card processing

#### Accuracy and Precision

* System must distinguish between users through:
  + Unique usernames
  + Email addresses
  + Role-based identification
  + System must enforce input requirements:
  + Usernames are case-sensitive
  + Passwords are case-sensitive
  + Email addresses are case-insensitive
  + Names and addresses are case-insensitive
* System must notify admin of problems when:
  + Multiple failed login attempts occur
  + Payment processing fails
  + Scheduling conflicts are detected
  + System errors occur
  + DMV updates fail
  + User reports system issues
  + Data inconsistencies are detected
* Additional accuracy requirements:
  + System must maintain accurate scheduling without double-booking
  + System must track all modifications with user identification
  + System must accurately record test scores and progress
  + System must maintain precise timing for 2-hour lesson blocks
  + System must correctly match drivers, cars, and time slots
  + System must accurately calculate and display package hours remaining

#### Adaptability

* IT admin must be able to modify user access rights
* System must support package enabling/disabling without code changes
* System must accommodate future package modifications
* System must adapt to DMV policy and rule changes
* System must support fleet size changes
* System must allow for new driver additions/removals

#### Security

* Login Requirements:
  + Users must log in with unique username/email and password
  + Passwords must meet minimum complexity requirements (8+ characters, mix of uppercase, lowercase, numbers, special characters)
  + Multi-factor authentication for administrative accounts
  + System must authenticate users before granting access
  + System must implement role-based access control
* Data Exchange Security:
  + System must use HTTPS for all client-server communications
  + System must encrypt all data transmissions using industry-standard protocols
  + System must protect stored credit card information
  + System must use secure cloud infrastructure
* Brute Force Protection:
  + System must lock account after 3 failed login attempts
  + System must notify user via email of suspicious login activity
  + System must require CAPTCHA after failed login attempts
  + System must maintain audit trails of all login attempts
  + System must alert IT admin of potential security breaches
* Password Reset Process:
  + System must provide secure password reset functionality through email verification
  + System must enforce password expiration policies
  + System must prevent reuse of previous passwords
  + System must validate security questions for password recovery
  + System must maintain audit trails of all password changes
* Additional Security Requirements:
  + System must maintain audit trails of all system changes
  + System must implement regular security updates
  + System must log all security-related events
  + System must authenticate users before allowing system access

### Functional Requirements

* The system shall validate user credentials when logging in
* The system shall allow customers to register for new accounts
* The system shall enable booking of 2-hour driving lessons
* The system shall track vehicle and instructor availability
* The system shall process credit card payments
* The system shall generate activity reports
* The system shall allow download of reports in Excel format
* The system shall notify users of DMV updates
* The system shall track test progress and scores
* The system shall enable package selection and purchase
* The system shall manage pickup/drop-off locations
* The system shall allow appointment modifications
* The system shall maintain driver notes and feedback
* The system shall enable password resets
* The system shall track lesson completion status

### User Interface

* Primary Access Methods:
  + Web browsers
  + Mobile devices
  + Office computers
* Interface Requirements by User Type:
  + Customers:
    - Registration form
    - Package selection interface
    - Appointment booking system
    - Test progress tracking
    - Practice test interface
    - Account management
  + Secretary:
    - Customer information entry
    - Appointment management
    - Package registration
    - Payment processing
  + IT Officer:
    - User management interface
    - System configuration
    - Password reset tools
    - Access control management
  + Owner:
    - Report generation interface
    - Package management
    - Business metrics dashboard
    - Activity monitoring

### Assumptions

* Users have reliable internet access
* Users have basic computer literacy
* Users have access to credit cards for payment
* Users have transportation to pickup locations
* Users have valid email addresses
* Users have basic web browser knowledge
* DMV will provide regular policy updates
* Cloud service providers maintain high availability
* Staff can operate basic office software
* Customers can access practice materials online

### Limitations

* System cannot modify data offline
* System cannot automatically create new packages
* System requires developer intervention for major changes
* System depends on cloud service availability
* System cannot guarantee DMV test passage
* System limited to 10 cars initially
* System requires internet connectivity
* System cannot automatically verify user identity
* System cannot guarantee instructor availability
* Training packages cannot be customized by users

### Gantt Chart

