Southern New Hampshire University

CS 255 Business Requirements Document – Jonathan Miller

System Components and Design

Purpose
- Our client, DriverPass, is looking to startup an education system to teach their customers how to drive in accordance with the DMV's policies and guidelines. DriverPass recognized a need for better driver training, so they wish to provide online classes, practice tests, and on-the-road driving training to help aid in this vision for a better driver training system.

System Background
- DriverPass wants their system to provide a web interface for students to take online classes, online practice tests, and online reservations for in-person driving training exercises.
- DriverPass wishes to create a more accessible and user-friendly way for students to accurately and efficiently learn how to drive. They want their students to efficiently learn the DMV's guidelines and policies for safe and legal automobile driving.
- Their solution involves a serverless, cloud-based web app interface for the customers (students) to easily access modules that will aid them in the process of learning to drive.
- The system will be used by the owner of DriverPass, Liam, the IT officer, Ian, and the secretary for DriverPass. The system will also be used by the registered driving students.
- Specific system data will need to be downloadable from the server so that it can be accessible offline by the permitted user/s.
- The system will need to be maintainable and flexible with administrator privileges to disable packages as needed.

Objectives and Goals
- The functionality of the system includes the following objectives and goals:
  - Student registration for one of the three available packages.
  - Accessibility to online practice tests for the student to take.
  - Accessibility to online classes for students to be involved in.
  - Ability for users to create, modify, and cancel on-the-road reservations.
  - On-the-road pickup and drop-off location specifications.
  - Photos of the student and driver for on-the-road reservations.
  - A special needs section for the users to edit.
  - Online test progress section for users to reference.
  - Student information section for users to edit.
  - Driver notes that include comments from the driver for users to reference.
  - A contact page for users to reference.
  - Ability for users to reset their password.
  - Administrative user access control.
  - Printable activity reports for tracking information.
  - Ability to track and assign students, drivers, times, and cars for reservations.
  - Ability for an administrator to disable packages.
  - Ability to connect to the DMV for the latest updates concerning guidelines and policies.
  - Update notifications from the DMV.
  - Downloadable data that users can access offline.
  - Serverless architecture for the web app.

Requirements

Nonfunctional Requirements

Performance Requirements

- The system will run in a serverless, cloud-based environment.
- The system will be accessible in web-based environments.
- All accessible web pages for all users must load in less than five seconds on an uninterrupted broadband internet connection.
- The system should be updated on a daily basis to keep up with user demand and DMV specifications.

Platform Constraints

- The system must be accessible in a variety of web browsers, including Chrome, Firefox, Edge, and Safari.
- The system must run on both the desktop and mobile versions of the previously mentioned web browsers.
- The system backend must run on a serverless, Windows-based operating platform.
- Redundancy and data security will be handled by the serverless provider.
- Databases for users and their profiles, photos, course catalog, course materials, appointments & reservations, and activity reports.

Accuracy and Precision

- Administrators, faculty, and customers (students) will have unique identifiers on the backend user database to distinguish between the different types of users.
- Customers will have flags associated with their user database entry to determine which package they belong to.
- Input should be case-sensitive to allow for more secure usernames and passwords. This will also enable grammatically correct user-profile information and test answers.
- The system should inform the administrators of security issues, backend maintenance, and system errors instantaneously.
- The system should provide daily automated tracking reports to the administrators.

Adaptability

- User changes can be made by administrators without changing the codebase. There will be an administrator interface to add, remove, and modify users in the system.
- System redundancy will allow for continuous normal usage during system maintenance and platform updates.
- Platform updates will be reflected upon the user immediately upon completion of the backend update.
- Platform updates should correspond to the most recent DMV policies.
- IT administrators will need low-level system access while being excluded from the business aspects of the system.

- The system shall be able to handle all active users without crashing or delays in processing.

Security

- Session based authentication of users through the verification of a username and an associated password will be handled through tools in the serverless architecture and browser cookies.
- Data encryption tools from the serverless provider will be utilized to prevent the unauthorized access of data.
- Platform-agnostic security services should be utilized to provide data encryption and key management across the various supported operating platforms and browsers.
- User accounts will be locked after five failed login attempts.
- If a user forgets their password, a "Reset Password" link will be sent to the user's registered email address so that the user can create a new password for the system.

Functional Requirements

- The system shall provide a means for online user registration.
- The system shall validate user credentials when logging in.
- The system shall send password reset links to users upon request.
- The system shall allow the customer to select a package upon registration.
- The system shall allow students to edit profile information.
- The system shall allow the user to add a photo for their profile.
- The system shall provide a means for student / driver reservation creation, modification, and cancellation.
- The system shall send reminder notifications to all users involved in upcoming driving reservations.
- The system shall match students with drivers based on customer information and needs.
- The system shall provide driver notes to students.
- The system shall provide a portal for each online class in the course catalog.
- The system shall show progress reports for student tests.
- The system shall provide downloadable activity reports for administrators.
- The system shall allow administrators to disable modules.
- The system shall allow administrators to reset and block user accounts.
- The system shall send DMV update notifications to the IT officer and developers.

User Interface

- The interface must fit and scale across mobile and desktop displays and resolutions.
- The interface must support both touchscreen and mouse/keyboard inputs.
- There shall be a unique interface associated with each user type (admin, driver, secretary, and student).
- The company logo shall be centered and displayed at the top of all web pages.
- The admin interface shall consist of the following options:
  - User management
  - Appointment management

- - Course management
  - Package management
  - Activity Report management
- The driver interface shall consist of the following information and options:
  - Profile information
  - Profile photo
  - Edit driver notes (name, time taken, score, and status) for specified students
  - Manage reservations
  - Contact student
- The student interface shall consist of the following information and options:
  - Online test progress for completed / ongoing tests
  - Profile information
  - Profile photo
  - Driver notes per session
  - Matched driver photo
  - Special needs section
  - Online course portals
  - Package modification
  - Contact DriverPass
  - Contact matched driver
- The secretary interface shall consist of the following information and options:
  - Register student
  - Edit student information
  - Create / Modify/ Cancel appointment
  - Contact student

Assumptions
- All users have internet access.
- The user should be connected to a broadband internet connection while using the system.
- The user should only be using the system on a modern iPhone device, Android device, PC, or Macintosh computer.
- All faculty meets the requirements in their job description

Limitations
- The system will only be accessible in an online environment.
- The developers will not have full control of the security of the system due to the serverless architecture.
- The developers will need to manually add new modules upon request.
- The system will not function correctly on unconventional means of access such as gaming consoles.
- The system will need to be completed within a 16-week time period.
- DriverPass only has the resources to focus on the business aspects of the system.
- DriverPass does not have the budget to create and maintain a backend server architecture.
- DriverPass will have no control over the server's architecture due to the serverless, cloud-based application architecture.

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Gantt Chart

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16
Collect Requirements	22-Jan to 4-Feb															
Create Use Case Diagrams				11-Feb to 18-Feb												
Build Activity Diagrams for Each Use Case				15-Feb to 9-Mar												
Research User Interface Designs						27-Feb to 7-Mar										
Build Class Diagram						1-Mar to 9-Mar										
Get Customer Approval							10-Mar to 11-Mar									
Build Interface								12-Mar to 24-Mar								
Link DB to Interface									24-Mar to 3-Apr							
Build Business Logic											5-Apr to 27-Apr					
Test System														27-Apr to 7-May		
Deliver System																8-May to 9-May
Sign-off Meeting																9-May to 10-May

Teams Key
- 🟠 Jonathan, Sam, & Jennifer
- 🟢 Toni & Clark
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