**CS255 DriverPass System Design Document**

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## UML Diagrams

### UML Use Case Diagram

*Chart, diagram, schematic

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### UML Activity Diagrams

*Diagram

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Diagram

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### UML Sequence Diagram

Diagram

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### UML Class Diagram

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## Technical Requirements

### Hardware

The following lists the hardware requirements at the local DriverPass offices and the development team. The backend servers and databases will be cloud-based, and the cloud requirements will be listed in the infrastructure section in a later section. We will also need various devices that customers will be using so that we can test our system on the myriad of technologies associated with those devices.

* Personal Computers and laptops with Windows OS, Mac OS, or various Linux distributions.
* Various mainstream mobile phones: iPhone, Samsung, Google, OnePlus, Motorola.
* Various tablets: iPad, Kindle, Surface Pro.

### Software

Since our system will need to operate on any device and any OS, we will choose a programming language that is platform independent. Furthermore, the language should have adequate APIs for web development. Our team is most familiar with Java, and Java meets all the requirements to implement the system. We also must be able to implement, use, and test the system using various devices and web browsers. Our team will be developing following the Scrum agile development methodology, and we will be using software to manage the work management. The following is a list of software used for our system. Specific tools are listed in the next section.

* Windows Server OS for our Azure virtual servers.
* Windows 11 Pro for workstations/laptops and Azure virtual machines.
* Mainstream web browsers such as MS Edge, Chrome, Opera, and Safari.
* Mobile and Tablet device browsers such as Brave, Bromite, Firefox Focus, DuckDuckGo, and Silk.
* Azure SQL for databases.
* Azure Data Storage for managing data stores.
* SQL Server Management Suite for local management of databases.
* MS Office with Project Management (MS Project).
* MS SharePoint.

### Tools

* Java SDK with JAX-RS and Jersey API’s.
* Eclipse IDE for Java development.
* Atlassian Jira Software for managing user stories and associated tasks.
  + We will be using Kanban boards as well, which Jira supports.
* BMC Remedy for managing change requests and incident tickets.
* PowerShell for command line task automation.
* Git, Git Bash, and GitHub for version control.
* LucidChart for system design and analysis.

### Infrastructure

DriverPass has requested that the system should be cloud-based so that they do not need to worry about backups, security, maintenance, and other factors associated with having local servers. There most of the infrastructure will in the cloud. Our team has chosen Azure as the cloud-provider for this system.

* Azure Cloud Computing Services for workstation and server virtual machines.
* Azure SQL for databases.
* Azure Security Center.
* Azure DevOps and Azure Pipelines for CI/CD.