# CS 255 System Design Document Template

## UML Diagrams

### UML Use Case Diagram

Diagram

Description automatically generated

### UML Activity Diagrams

Diagram

Description automatically generated

### UML Sequence Diagram

Diagram

Description automatically generated

### UML Class Diagram

Diagram

Description automatically generated

## Technical Requirements

There are a lot of technical requirements that this system design will warrant for its successful implementation. Some of the technical requirements include, hardware requirements, software requirements, tool requirements, infrastructure requirements and so on.

**Hardware Requirements**

These requirements are the system’s physical components that are associated with the system functionality. Some of the hardware requirements are system architecture, CPU processing power, system memory and the system peripherals like mouse, keyboards, routers and switches. Most systems are designed to run on specific architecture-types. The ideal thing to do would be to design a system that is architecture-independent, this means this system can run on any type of computer architecture. The suggestion would be to design a system for the x86 or 68k architecture-type because that is the architecture-type that supports Windows, MacOS, and Linux operating systems. The x86 and 68k also offer great support to the processing power of CPU’s. According to an online article, almost eighty per cent of the processors in the world today are designed to run on the x86 or 68k architecture-type. After determining the software that system will be using, the runtime, the amount of data needed to run smoothly then can we decide about the memory required by our system.

**Software Requirements**

Some of the software requirements are the platform on which the system will run on, the API’s and drivers needed to actuate the hardware components of the system and the web browser that will access the system online. The platform is the environment in which the system will operate in. The platform must have unique and specific application program interfaces for the software to run, The platform must be compatible with the system software. Web browsers act as an interface for system access online. The web browser displays the systems online interface or webpage to the desired device, or the device in use for example, desktop computer or mobile device.

**Tool Requirements**

There are various tools that will come into play during the system design phase and these tools are technical requirements. Some of the tools used are, context diagrams and UML diagrams in this case, data flow diagrams (DFD), flowcharts, pseudocode, use cases and so on. All these tools serve a purposes in the system design process for DriverPass. UML diagrams are usually created using CASE tools like Lucidchart for example.

**Infrastructure Requirements**

The most obvious infrastructure requirement is finances. Money enables the project to move forward paying for labor mainly for team members to get on tasks. Other infrastructure requirements are, servers, firewalls, encryption devices, and so on. Today, most servers are for cloud hosting - which is another technical requirement. DriverPass may at some point choose to host their own servers locally but the major players into server hosting are Microsoft, Amazon, Google, just to mention a few.

**Other Technical Requirements**

DriverPass is an online-based business, and the focus should be on website security, website updates, system performance and data engineering. Website security should include industry best practices like 256 bit TLS encryption, HTTPS instead of just HTTP for a secure online system. Website updates should be done by either the original developer or a hired third-party, but someone needs to constantly update the code for the system to ensure a smooth running system. Eventually, DriverPass will want custom reports on their system’s performance and functions. Data engineers will need to build these custom reports for DriverPass if the IT department cannot. These custom reports can show how many times clients use the system, what they use the most in the system, what they do not use the most in the system-this refers to system functions. The system should perform to industry standards completing each process in 100 milliseconds or less for the desired optimum performance.

**References**

Mittal, D. (2021, December 27). *Random access memory (RAM) and read only memory (ROM)*. GeeksforGeeks. <https://www.geeksforgeeks.org/random-access-memory-ram-and-read-only-memory-rom/>

Requirements Network. (2014). *Business requirements vs functional requirements*. Business requirements vs functional requirements from requirementsnetwork.com. <http://www.requirementsnetwork.com/business-functional.htm>