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This template lays out all the different sections that you need to complete for Project Two. Each section has guidance to prompt your thinking. You will need to continually reference the interview transcript as you work to make sure that you are addressing your client’s needs. There is no required length for the final document. Instead the goal is to complete each section based on what your client’s needs are. Remove this note when you are finished, and replace all bracketed text with the relevant information.

## UML Diagrams

### UML Use Case Diagram

A diagram of a driver pass

Description automatically generated

Driving Instructor

### UML Activity Diagrams

A diagram of a software company

Description automatically generated

A diagram of a login account

Description automatically generated

DriverPass  
Servers

### UML Sequence Diagram

A diagram of a software project

Description automatically generated with medium confidence

### UML Class Diagram

A diagram of a company

Description automatically generated

## Technical Requirements

Servers should run on Ubuntu Server to be free, secure, and lightweight. Servers should have a 4tb 7200rpm HDD for backing up everything daily, with up to a week’s worth of data. Four 100Gb 7200 HDD drives should be kept in the system; One for the payment database, with encryption for the entire drive; one for the driver information database, with encryption for the entire drive; and one for the student database, with encryption for the entire drive. The final hard drive will contain the OS, whose partition will be 50Gb (Ubuntu recommends 25 for Ubuntu server, the extra wiggle room will allow lightweight utilities) and custom server software such as an administrator menu and database management software. The server itself may benefit from a high amount of low-frequency RAM for managing many instances of access and requests at once. 64Gb will likely be enough. The server will need fairly strong networking capabilities, so having a few dedicated ports for accessing and transmitting information is beneficial. Use of 50Gb of the primary harddrive as a cache will allow the use of only two NIC cards with a greater degree of efficiency in data transmission. This hardware layout runs affordably yet securely. Of course, a many-core Xeon or Epyc processor would be necessary to handle many instances of accessors at once.

A specific hardware build I’d recommend is the Intel Xeon E5-2699 (22 core 2.2Ghz server processor), Kingston Premier 64Gb (Error Correction Code and DDR4-3200Mhz), a large cheap 7200rpm drive for use as a partitioned drive to virtualize the four separate drives and to use as backup, with a spare to use as secondary backup using a raid configuration (Seagate ST6000NM0024 is a 6 TB drive that would be perfect for this), the ASUS Z10PE motherboard (dual CPU with plenty of RAM slots for future growth + multiple slots for NIC), a custom liquid cooling loop or two AIO loops, and a 1000W gold PSU (Corsair RM1000e looks great for this). This server would be ~$1200 for a business machine that would meet popular demand for peak hours, meet redundancy needs, and meet security needs.

For security, ClamAV would be fine for manually scanning or doing automated scans regularly. There should be a properly configured firewall that only allows out of network traffic in using ports recognized as in use by the app for specific data requests. Cloudflare should be used to prevent DDoS attacks and a VPN could be used by the business to protect its location. Normal browsing should not be allowed, nor normal email handling, from the server that interfaces with the apps and databases, and an administrator account on this server should have a timer on its account password after which it must be changed by an administrator, as well as have very restrictive permissions on the account under which automated processes occur. BitLocker should be used to encrypt the drives such that the drives cannot be taken from the server and used in a different system. Packets leaving the network, i.e. bank verification, should be encrypted, and payment processing should occur in secure sandboxes from which no data can escape. However, a user should be able to remotely access the databases and server from an authorized account on the work network.

The business needs a DriverPass bank account dedicated to running the facility, processing payments, and keeping the electric and internet bills going. There should always be internet access; If there is not, a text message should be automatically sent to an administrator. A 1Gb fiber optic line should provide plenty of speed and bandwidth between DriverPass and the ISP. The server should also have two Cat-8 ethernet cables directly connected into it.