# Homework Two:
# IT Requirements and ER Diagram

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Capstone Project
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## IT Requirements

### Server Platform

In terms of storage capacity, we want to have it be scalable.  We also want the server speed to be an average speed that satisfies the customer.  Our virtual system requirements are planned to be created for deployment on a Google Cloud virtual machine which the client will set up for $5.13 a month.  This virtual machine is the f1-micro virtual machine, which has one virtual CPU, 614 MB of memory, 10 GBs of harddrive, and is running Ubuntu.  In creating it on the virtual machine here at Marist, we will utilize four GB of memory, sixty GB of storage, two CPUs, one image, and the supporting OS of Windows.  The site will have an interconnection to a database.

### Reliability

We expect the site to always be up unless for scheduled maintenance.  Response time should be fast as possible in working with the system.

### Recoverability

The administrator will have access to all backups.  We believe that it is best to hold onto as much data as possible.  We suggest backups to be performed monthly to the cloud.
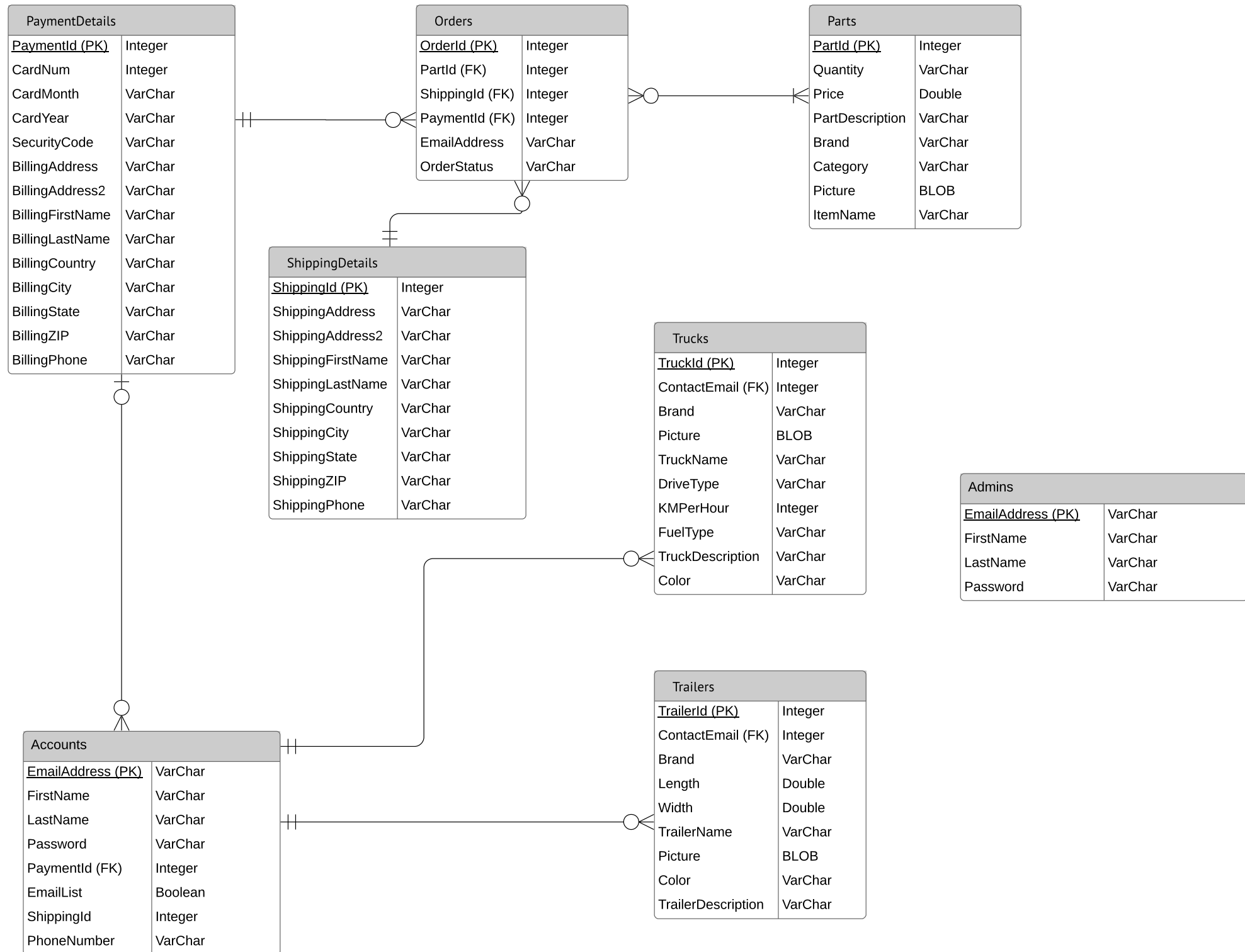
### Security and Privacy

In the database, personal account information will be hashed using SHA-256.  We will utilize MySQL security package when setting up the database.  In terms of access controls, customers will be able to edit their own accounts but won't have access to other accounts or any inventory.  Customers will also have access to their orders but won't be able to edit their order once it's been placed.  The administrator will be able to view and update most information, such as items in inventory and their attributes.  Customers can view parts, trucks, trailers, and their orders as well as edit their own account information.  The administrator will also have access to edit accounts if needed.  Personal account information will be hashed using SHA-256, and passwords will be required to be at least eight characters long, having at least one lowercase letter, one uppercase letter, one number, and one special character.  All stored credit card information will be compliant to PCI standards.  A full list of PCI requirements can be found at: https://www.pcisecuritystandards.org/.

**Maintenance**

Planned downtime will be based on statistics that calculate the times of lowest visitor activity. Rebooting is anticipated to not have to be done often, perhaps quarterly throughout the year. Security updates should be done automatically but checked by the administrator to make sure they were applied. Updates to the database and site information will be performed by the administrator when needed.

# CS Capping ERD

**PaymentDetails**

| Column | Type |
|---|---|
| PaymentId (PK) | Integer |
| CardNum | Integer |
| CardMonth | VarChar |
| CardYear | VarChar |
| SecurityCode | VarChar |
| BillingAddress | VarChar |
| BillingAddress2 | VarChar |
| BillingFirstName | VarChar |
| BillingLastName | VarChar |
| BillingCountry | VarChar |
| BillingCity | VarChar |
| BillingState | VarChar |
| BillingZIP | VarChar |
| BillingPhone | VarChar |

**Orders**

| Column | Type |
|---|---|
| OrderId (PK) | Integer |
| PartId (FK) | Integer |
| ShippingId (FK) | Integer |
| PaymentId (FK) | Integer |
| EmailAddress | VarChar |
| OrderStatus | VarChar |

**Parts**

| Column | Type |
|---|---|
| PartId (PK) | Integer |
| Quantity | VarChar |
| Price | Double |
| PartDescription | VarChar |
| Brand | VarChar |
| Category | VarChar |
| Picture | BLOB |
| ItemName | VarChar |

**ShippingDetails**

| Column | Type |
|---|---|
| ShippingId (PK) | Integer |
| ShippingAddress | VarChar |
| ShippingAddress2 | VarChar |
| ShippingFirstName | VarChar |
| ShippingLastName | VarChar |
| ShippingCountry | VarChar |
| ShippingCity | VarChar |
| ShippingState | VarChar |
| ShippingZIP | VarChar |
| ShippingPhone | VarChar |

**Trucks**

| Column | Type |
|---|---|
| TruckId (PK) | Integer |
| ContactEmail (FK) | Integer |
| Brand | VarChar |
| Picture | BLOB |
| TruckName | VarChar |
| DriveType | VarChar |
| KMPerHour | Integer |
| FuelType | VarChar |
| TruckDescription | VarChar |
| Color | VarChar |

**Admins**

| Column | Type |
|---|---|
| EmailAddress (PK) | VarChar |
| FirstName | VarChar |
| LastName | VarChar |
| Password | VarChar |

**Accounts**

| Column | Type |
|---|---|
| EmailAddress (PK) | VarChar |
| FirstName | VarChar |
| LastName | VarChar |
| Password | VarChar |
| PaymentId (FK) | Integer |
| EmailList | Boolean |
| ShippingId | Integer |
| PhoneNumber | VarChar |

**Trailers**

| Column | Type |
|---|---|
| TrailerId (PK) | Integer |
| ContactEmail (FK) | Integer |
| Brand | VarChar |
| Length | Double |
| Width | Double |
| TrailerName | VarChar |
| Picture | BLOB |
| Color | VarChar |
| TrailerDescription | VarChar |

**ERD Documentation**

## Accounts
**Primary Key:** Email Address
**Columns:**
- FirstName
- LastName
- Password
- EmailList : This value indicates if the account is signed up to receive promotional emails.
- PaymentId (FK) : An account can have 0 or 1 payment options linked to it.
- ShippingId
- PhoneNumber

## Admins
**Primary Key:** Email Address
**Columns:**
- FirstName
- LastName
- Password

## PaymentDetails
**Primary Key:** PaymentId
**Columns:**
- CardNum
- CardMonth : Credit card expiration month.
- CardYear : Credit card expiration year.
- SecurityCode
- BillingAddress
- BillingAddress2 : Optional second address line, if needed.
- BillingFirstName
- BillingLastName
- BillingCountry
- BillingCity
- BillingState
- BillingZIP
- BillingPhone

## ShippingDetails
**Primary Key:** ShippingId

**Columns:**
- ShippingAddress
- ShippingAddress2
- ShippingFirstName
- ShippingLastName
- ShippingCountry
- ShippingCity
- ShippingState
- ShippingZIP
- ShippingPhone

## Orders
**Primary Key:** OrderId
**Columns:**
- EmailAddress : If the user is signed into an account, it will use their account email address. If the user is using guest checkout, it will ask for an email address to fill this field.
- OrderStatus : Will tell if the order is being processed, confirmed, in transit, or delivered.
- PartId (FK) : Orders can consist of 1 or many parts.
- ShippingId (FK) : Orders have 1 and only 1 set of shipping information. If the customer is using an account and the account has shipping details linked, those shipping details will be used.
- PaymentId (FK) : Orders have 1 and only 1 set of payment information. If the customer is using an account and the account has payment details linked, those payment details will be used.

## Parts
**Primary Key:** PartId
**Columns:**
- Quantity : How many of this part is currently in stock.
- Price
- PartDescription
- Brand : What brand the product belongs to.
- Category : What area of the truck does this part correspond to.
- Picture : Picture of the part.
- ItemName

## Trucks
**Primary Key:** TruckId

**Columns:**
- Brand
- Picture
- TruckName
- DriveType : Four wheel drive, rear wheel drive, etc.
- KMperHour
- FuelType
- TruckDescription
- Color
- ContactEmail (FK to Accounts) : A truck has 1 and only 1 contact associated with the listing.

## Trailers
**Primary Key:** TrailerId
**Columns:**
- Brand
- Length
- Width
- TrailerName
- Picture
- Color
- TrailerDescription
- ContactEmail (FK to Accounts) : A trailer has 1 and only 1 contact associated with the listing.