Yarn Shop Database Implementation

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System Description

An online yarn shop wishes to create a database to keep track of staff, products, customers, orders, suppliers, a storage facility, classes, teachers and a venue it uses for classes.
It is a small company with 2 members of staff; one owner/manager and one employee. The manager manages the employee.

The shop sells yarn of different types, craft books and craft accessories. All stock is stored at the storage facility.

Staff member details to be recorded include staffId(unique), pps number, name, address, salary, date of birth, hours worked and supervisor.

Customer details to be recorded include customerId(unique), name, address, contact number and email address.

Supplier details to be recorded include supplierId(unique), name, address, contact number and email address.

Product details to be recorded include productId(unique), product type, quantity and price.
Products are broken down into 3 sub-types, Yarn, Book and Accessory.
Yarn details to be recorded include brand, colourway, dye lot, weight, and fibre content.
Book details to be recorded include title, author and craft type.
Accessory details to be recorded include product type and craft type.

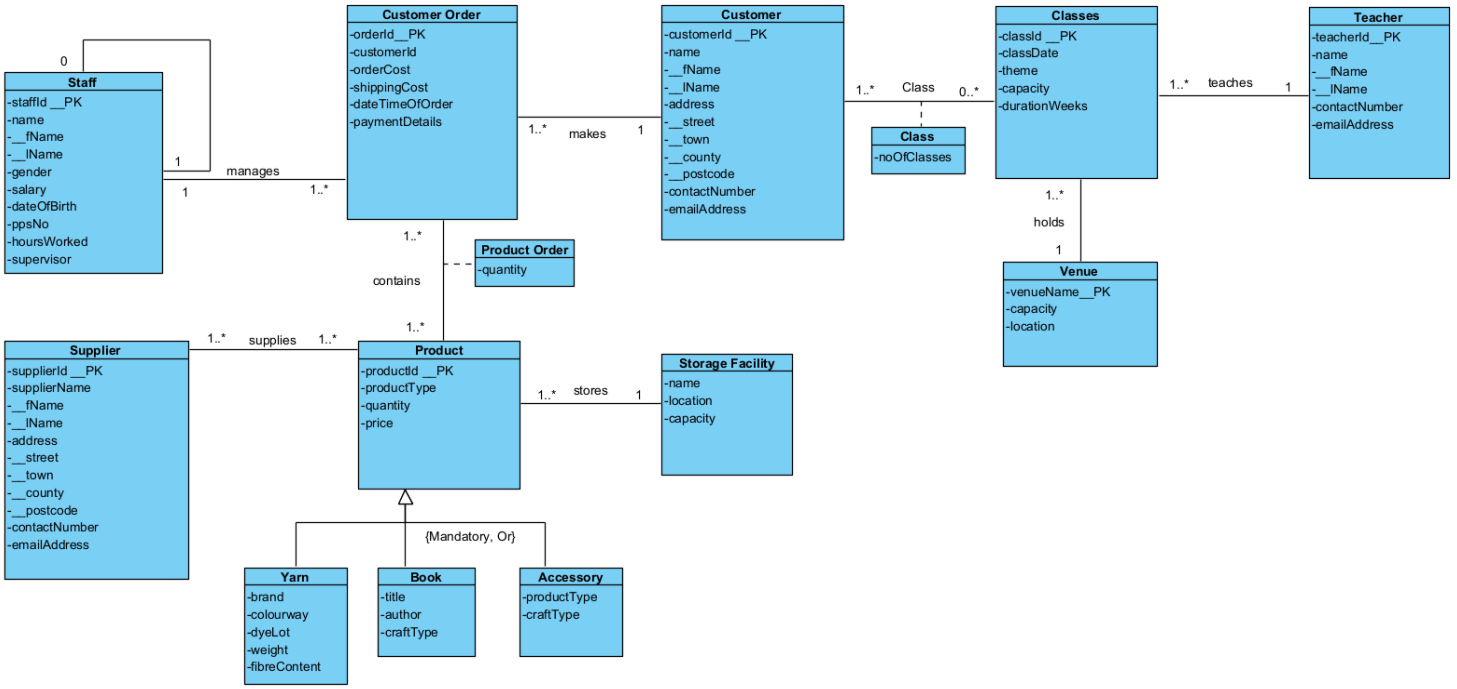
Customer Order details to be recorded include orderId(unique), customerId, order cost, shipping cost, date/time of order, and payment details. The quantity of product ordered must also be recorded.

Storage facility details to be recorded include name, location and capacity.
Class details to be recorded include classId(unique), classDate, theme, length and capacity.
Teacher details to be recorded include teacherId(unique), name, contact number and email address. Number of classes must also be recorded.
Venue details to be recorded include venueName(unique), capacity and duration in weeks.

The employee is managed by the manager/owner. (Recursive relationship)
Each order is managed by 1 member of staff. Each member of staff can manage one or more orders.
Each order is owned by 1 customer and each customer can have 1 or more orders. A customer can attend 0 or more classes. Each class is attended by 1 or more customers.
A teacher teaches one or more classes. Each class is taught by 1 teacher. The classes are held at 1 venue, the venue can hold one or more classes.
An order can have 1 or more products, each product can be part of 0 or more orders.
Each supplier supplies one or more products to the shop. Each product is provided by 1 or more suppliers.
One or more products are stored at one storage facility.

Enhanced ER Diagram

Yarn Shop ER Diagram



Logical Design

Staff(staffId, fName, lName, gender, salary, dateOfBirth, ppsNo, hoursWorked, supervisor)
Primary key staffId
Foreign key supervisor references Staff(staffId)

Customer Order(orderId, customerId, orderCost, shippingCost, dateTimeOfOrder, paymentDetails, staffId)
Primary key orderId
Foreign key staffId references Staff(staffId)
Foreign key customerId references Customer(customerId)

Customer(customerId, fName, lName, street, town, county, postcode, contactNumber, emailAddress)
Primary key customerId

Supplier(supplierId, fName, lName, street, town, county, postcode, contactNumber, emailAddress)
Primary key supplierId

Product(productId, productType, quantity, price)
Primary key productId

Yarn(productId, brand, colourway, dyeLot, weight, fibreContent)
Primary key productId
Foreign key productId references Product(productId)

Book(productId, title, author, craftType)
Primary key productId
Foreign key productId references Product(productId)

Accessory(productId, productType, craftType)
Primary key productId
Foreign key productId references Product(productId)

Storage Facility(name, location, capacity)
Primary key name

Classes(classId, classDate, theme, durationWeeks, capacity, teacherId, venueName)
Primary key classId
Foreign key teacherId references Teacher(teacherId)
Foreign key venueName references Venue(venueName)

Teacher(teacherId, fName, lName, contactNumber, emailAddress)
Primary key teacherId

Venue(venueName, capacity, location)
Primary key venueName

ProductOrder(orderId, productId, quantity)
Primary key orderId, productId
Foreign key orderId references Order(orderId)
Foreign key productId references Product(productId)

Supplies(supplierId, productId)
Primary key supplierId, productId
Foreign key supplierId references Supplier(supplierId)
Foreign key productId references Product(productId)

Stores(name, productId)
Primary key name, productId
Foreign key name references Storage Facility(name)
Foreign key productId references Product(productId)

Attends(customerId, classId, noOfClasses)
Primary key customerId, classId
Foreign key customerId references Customer(customerId)
Foreign key classId references Classes(classId)