RumRunners.ca

Online Liquor Store

Database Project Design

UBC's Okanagan campus

COSC 304

Brittany Nicol, James Nowek, Crystal Parras, Tim Rutherford

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Contents

1 Introduction

1.1 Overview

RumRunners.ca is an online liquor store that will provide customers with the option to shop for alcoholic beverages online from the convenience of their own home. Rum Runners is a well-established liquor store chain operating in British Columbia and would like to expand their business by providing customers with the option to purchase alcohol online for pickup in-store or to have their order shipped to their door. With the recent approval of Bill C-311, allowing the shipment of alcohol between provinces, Rum Runners sees an opportunity to expand its customer base and grow nationwide.

1.2 Summary

RumRunners.ca will support three levels of users: Guests, Registered Customers, and Administrators. Guests will be able to browse products with the exception of being able to make purchases. Customers will have to input all the necessary information for shipments and create an account before being able to purchase alcohol online. The customer will receive a unique login for subsequent purchases.

When making a purchase the customer will be given the option of picking up in-store, with real-time inventory, or having the product shipped to their address. If a product is requested for pickup in-store, only stores with available inventory will be given as options. When the order is placed the product will be removed from inventory and considered sold.

Administrators will be able to view order invoices and update order status. Shipment orders will have extra information to store regarding shipment date and shipment status. They will also be able to view and update store inventory.

2 Domain Assumptions

2.1 Users

- Each user will have a unique userId assigned at registration.

- All users are from Canada and addresses outside Canada will not be accepted.
- Administrators will also have a unique login to identify themselves and gain access to administrative tools.
- Users can be under the age of majority, therefore the site should check to make sure they are able to purchase alcohol.

2.2 Items

- Products for sale on the website must be supplied by at least one vendor.
- All products may not be alcoholic, but all products must have an alcohol percentage listed.
- Products sold as packs, for example a 6-pack of beer, will be sold as one quantity of a pack, not six individual items. For this reason, every pack size of an item will be a separate product in inventory.

2.3 Invoices

- Invoices will be identified by a unique invoice number.
- Invoices will be marked as either Pick-up or Delivery, depending on the customer's shipment preferences.

2.4 Payment Methods

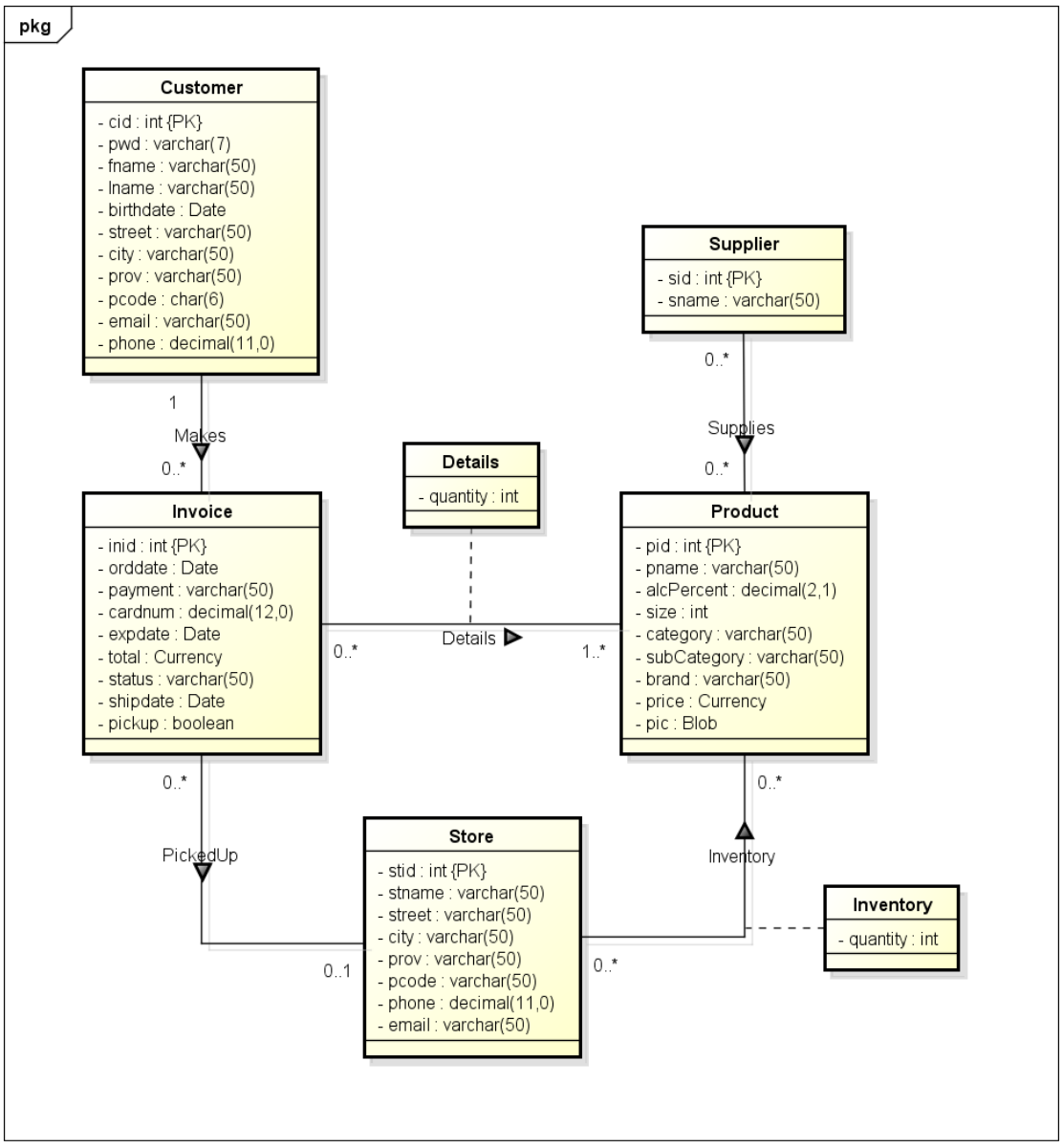
- Our website will offer payment by Visa, MasterCard, and American Express.
- If a customer wishes to pay by cash or cheque and pickup in-store, then they can either go purchase the products in-store, or pay by an approved method above as a deposit and have the products held for them. The company will not hold unpaid products for pickup, and customers can only pickup an order from one store.

2.5 Shipment Methods

- Preapproved shipping methods will be provided as options to the customer at checkout. These methods will include: Canada Post Regular Parcel, Canada Post Express, Purolator Ground Courier, and UPS.

3 Entity Description

3.1 UML Diagram



3.2 Relational Assumptions

The **Product** is uniquely identified by its product ID. The product's name will give a further description of the product and indicate if it is a pack of smaller items.

The **Supplier** supplies to all of the stores and is uniquely identified by the supplier ID.

A **Store** will have a unique store ID. The store's name, street, city, province, postal code, phone number, and email will be recorded as well.

The **Customer** relation stores customer information, and each customer is identified by their unique customer ID. Customers will be required to enter a birthdate to verify their age for purchases. They can log into the site to order products via a password and customer ID or email. They can buy multiple products through an Invoice and place multiple orders.

A customer can make an **Invoice** which will be identified by a unique ID. The invoice will also contain an order date, payment method, credit card information, total, status (received, processing, ready for pickup, or shipped), and shipping date.

When an order is placed, a new tuple is entered into the **Invoice** table with the information of that order. The invoice will be identified by a unique invoice number. The Boolean attribute *pickup* of an invoice will be true if the order is for pickup, or be false if it is to be shipped. If *pickup* is true, then there is a relation between **Invoice** and **Store**, indicating the store that the product will be picked up at, and *shipdate* will be NULL. If *pickup* is false, the relation between Invoice and Store will be NULL and *shipdate* will not be NULL.

Since an Invoice can contain many products, a **Details** relation must be made between invoice and product in order to store all the individual items in the Invoice.

The **Supplies** relation will simply store a supplier ID and a product ID, indicating which products are supplied by which vendor.

The **Inventory** relation is necessary to store inventory information on the quantities of products at specific stores.

3.3 Entity Attributes

3.3.1 Customer

Attribute	Description
cid {PK}	This is an integer primary key that is given to the customer upon making an account so they can log into the site.
pwd	A password the user sets for themselves with a limit of 7 characters.
fname	The customer's first name.
lname	The customer's last name.
birthdate	The birthdate of the customer, to ensure anyone under 19 is not ordering liquor.
street	The street the customer lives on.
city	The city the customer lives in.
prov	The province the customer lives in.
pcode	The postal code of the customer, must be 6 characters.
email	The email of the customer.
phone	The phone number of the customer that must have 11 digits.

3.3.2 Product

Attribute	Description
pid {PK}	The product ID uniquely identifies a product.
category	A product has a category of wine, spirit, beer, or cooler.
subCategory	This identifies what type of wine, spirit, beer, or cooler the product is (i.e. lager, amber ale, sauvignon blanc, etc.).
brand	The brand of the product.
size	The volume of the product.
pname	The name given by the brand.
alcPercent	The percentage of alcohol in the product.
pic	The image of the product.

3.3.3 Supplier

Attribute	Description
sid {PK}	The supplier ID that uniquely identifies the supplier.
sname	The supplier name.

3.3.4 Store

Attribute	Description
stid {PK}	The store ID uniquely identifies the store.
stname	The store's name.
street	The street the store is on.
city	The city the store is in.
prov	The province the store is in.
pcode	The postal code of the store.
phone	The phone number of the store.
email	The email of the store.

3.3.5 Invoice

Attribute	Description
inid {PK}	The invoice number uniquely identifies the invoice.
orddate	The date the invoice was made.
payment	The type of payment (i.e. Visa, Mastercard, or American Express).
cardnum	The card number that must have 12 digits.
expdate	The expiry date of the card.
total	The total amount of the order.
status	Status of invoice (i.e. received, processed, ready for pick-up, shipped, or delivered).
shipdate	The date the order was shipped.
pickup	If customer picks up at store this is True else False.

3.3.6 Details

Attribute	Description
quantity	The quantity of each product in the invoice.
price	The price of the product.

3.3.7 Inventory

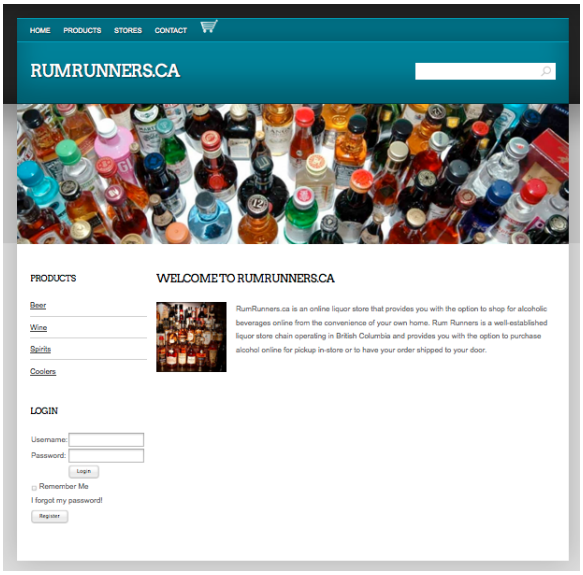
Attribute	Description
quantity	The quantity of each product in the store.

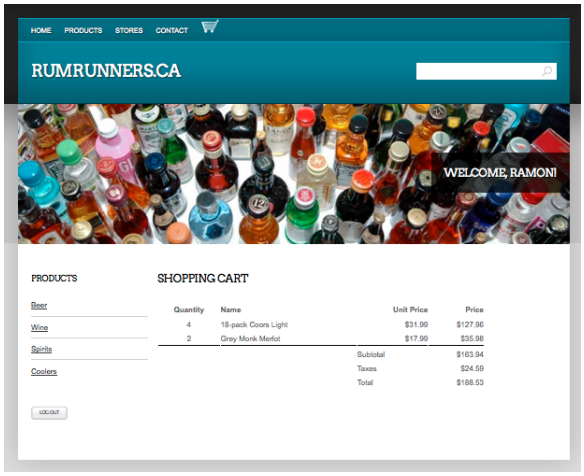
4 Relational Schema - SQL DDL

```
CREATE TABLE Customer (
       cid             INTEGER,       NOT NULL,
       pwd             VARCHAR(7)     NOT NULL,
       fname           VARCHAR(50)    NOT NULL,
       lname           VARCHAR(50)    NOT NULL,
       birthdate       DATE           NOT NULL,
       street          VARCHAR(50)    NOT NULL,
       city            VARCHAR(50)    NOT NULL,
       prov            VARCHAR(50)    NOT NULL,
       pcode           CHAR(6)        NOT NULL,
       email           VARCHAR(50)    NOT NULL,
       phone           DECIMAL(11,0),
       PRIMARY KEY (cid)
);

CREATE TABLE Invoice (
       inid            INTEGER,
       date            DATE,
       payment         VARCHAR(50),
       cardnum         DECIMAL(12,0),
       expdate         DATE,
       total           CURRENCY,
       status          VARCHAR(50),
       shipdate        DATE,
       pickup          BOOLEAN,
       cid             INTEGER,
       stid            INTEGER,
       PRIMARY KEY (inid),
       FOREIGN KEY (cid) REFERENCES Customer(cid)
              ON DELETE SET NULL ON UPDATE CASCADE,
       FOREIGN KEY (stid) REFERENCES Store (stid)
              ON DELETE SET NULL ON UPDATE CASCADE
);

CREATE TABLE Product (
       pid             INTEGER,
       pname           VARCHAR(50),
       alcPercent      DECIMAL(3,1),
       size            INTEGER,
       category        VARCHAR(50),
       subCategory     VARCHAR(50),
       brand           VARCHAR(50),
       price           CURRENCY,
       pic             BLOB,
       PRIMARY KEY (pid)
);

CREATE TABLE Supplier (
       sid             INTEGER,
       sname           VARCHAR(50),
       PRIMARY KEY (sid)
);
```

```
CREATE TABLE Store (
       stid            INTEGER,
       stname          VARCHAR(50)    NOT NULL,
       street          VARCHAR(50)    NOT NULL,
       city            VARCHAR(50)    NOT NULL,
       prov            VARCHAR(50)    NOT NULL,
       pcode           VARCHAR(50)    NOT NULL,
       phone           DECIMAL(11,0)
       email           VARCHAR(50),
       PRIMARY KEY (stid)
);

CREATE TABLE Details (
       inid            INTEGER,
       pid             INTEGER,
       quantity        INTEGER,
       PRIMARY KEY (inid, pid),
       FOREIGN KEY (inid) REFERENCES Invoice (inid)
              ON DELETE SET NULL ON UPDATE CASCADE,
       FOREIGN KEY (pid) REFERENCES Product (pid)
              ON DELETE SET NULL ON UPDATE CASCADE
);

CREATE TABLE Supplies (
       pid             INTEGER,
       sid             INTEGER,
       PRIMARY KEY (pid, sid),
       FOREIGN KEY (pid) REFERENCES Product (pid)
              ON DELETE SET NULL ON UPDATE CASCADE,
       FOREIGN KEY (sid) REFERENCES Supplier (sid)
              ON DELETE SET NULL ON UPDATE CASCADE
);

CREATE TABLE Inventory (
       pid INTEGER,
       stid INTEGER,
       quantity INTEGER,
       PRIMARY KEY (pid, stid)
       FOREIGN KEY (pid) REFERENCES Product (pid)
              ON DELETE SET NULL ON UPDATE CASCADE,
       FOREIGN KEY (stid) REFERENCES Store (stid)
              ON DELETE SET NULL ON UPDATE CASCADE
);
```

5 Web Interface





5.1 Features

The Home page consists of a top navigation tool, search bar, the option to browse through the four different categories of products with the lefthand navigation tool, a user login, and registration button.

The top navigation is tab-style, with the option of visiting the Home, Products, Stores, Contact, or Shopping Cart pages.

The Shopping Cart page will only be accessible when the user has logged in. Once the user has logged in there will be a "Log out" button where the log in information was. The Shopping Cart page is dynamic and updates according to the selections that the user makes.

5.2 Site Map

- Home Page
  - The main page of the RumRunners website. This page details general information about RumRunners and any items of interest.

- Products
  - This page details information on the products offered by RumRunners.
- Stores
  - This page details information on the RumRunners stores, such as address, email, and phone number.
- Contact
  - This page details information on how to contact RumRunners' head office.
- Shopping Cart
  - This page is only accessible by users who have logged in successfully. Once logged in this page details the customer's current order.