



Design Document

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Introduction

1.1 Purpose

The purpose of this document is to outline the design requirements and framework for the Perfectly Legal Wildlife Trade website using UML diagrams and SQL DDL.

1.2 Mission Statement

Our mission is to give everyone the opportunity to collect glorious animal parts without having to hunt and hack them off yourself, in a perfectly legal way.

1.3 Executive Summary

There has always been a humongous demand for the trade of prestigious animal trophies. Unfortunately, due to the draconic and oppressive restrictions imposed by the United Nations, this noble enterprise has been forced to conduct itself through shady black market avenues. Here at the Perfectly Legal Wildlife Trade (PLWT) we seek to legitimize this trade and dispel the international stigma towards our perfectly ethical and acceptable business model.

The PLWT contacts and verifies suppliers in order to bring the finest animal parts to the consumer. Our website aims to compile and catalogue a wide array of rare and high quality biological memorabilia in order to appeal to a broad variety of needs. All of our products are acquired humanely as we only deal with the finest of poachers and smugglers.

Users can browse our exhaustive catalogue or search for their specific requirements. They can add orders to their cart, and when they checkout we have the most secure and confidential payment structure available. There is absolutely no paper trail that can connect you to our highly “legal and legitimate” business operation. We guarantee that your data will not be immediately sold upon entering it into our site.

When a user checks out the orders in their cart are split into multiple shipments depending on the location of the closest supplier. They are then shipped to the customer by the most expedient method possible.

Domain Assumptions

2.1 Users

Each user account is designated as either a customer account or a supplier account. If a user requires both services then they must make two separate accounts.

Customer

- a. A customer account will store the user's shipping address, payment information, contact information, cart, and login credentials (unique username and password).
- b. Customers can browse the available animal parts, add parts to their cart, and purchase parts when logged into their account.
- c. Customer accounts cannot sell animal parts.

Supplier

- a. Suppliers must go through a verification process and be certified by Perfectly Legal Wildlife Trade.
- b. A supplier account will store the supplier's address, contact information, and login credentials (unique username and password).
- c. Supplier accounts cannot purchase animal parts from other suppliers.

2.2 Countries/Shipping

If the customer's country has strict laws regarding the selling of parts of endangered species and are unwilling to establish a deal with PLWT, then smuggling will be required to get the product from supplier to customer and an extra shipping fee will be applied.

2.3 Payment

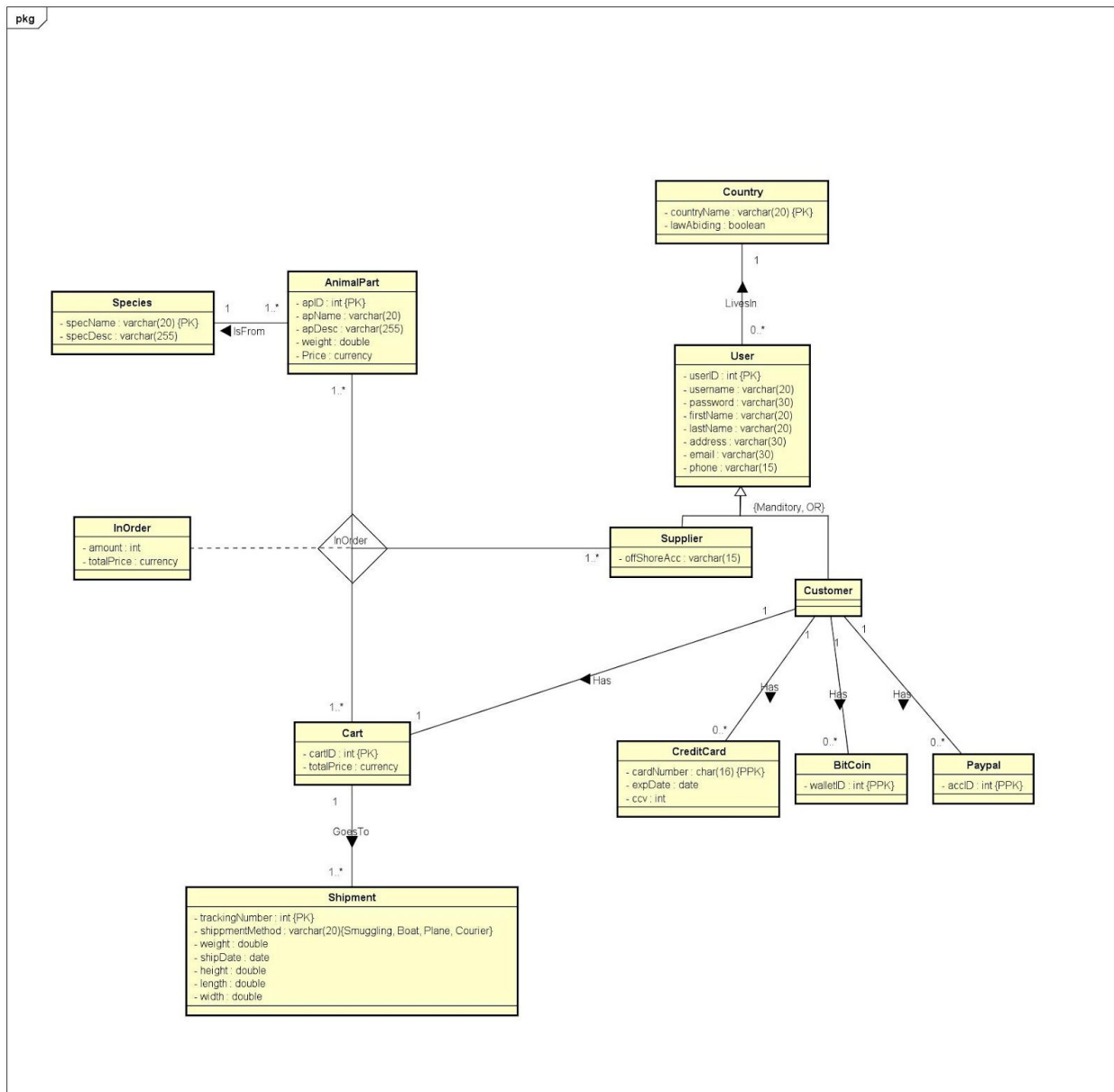
A user account can link three different types of payment options to their account: Paypal, Credit Card, and Bitcoin. A user can have multiple instances of the same type of payment option linked to their account. Supplier accounts cannot link payment options to their account.

2.4 Products

We have an expansive catalogue of animal parts available for sale and when a user orders a part we request the part from a supplier and add the part to the user's cart. It is then shipped from the supplier to the customer.

Data Model

3.1 UML Diagram



3.2 Relational Assumptions

Relationship	Description
User LivesIn Country	This is a one to many relationship. A user lives in one country and a country can have many users.
Customer has Cart	This is a one to one relationship. A customer must have a cart and a cart must have a customer. (A customer is assigned a cart upon creation of their account)
Cart GoesTo Shipment	This is a one to many relationship. A cart can result in many shipments from different areas but a shipment is only the result of one cart.
Animal Part IsFrom Species	This is a one to many relationship. An animal part is from one species but a species potentially has many sellable parts.
Customer Has Credit Card, Bitcoin, Paypal	This is a one to many relationship. A customer can have many credit cards, many bitcoin wallets, and many paypal accounts, but each credit card, bitcoin wallet, and paypal account is only associated with one customer.
InOrder	This is a three way many to many relationship between AnimalPart, Supplier, and Cart. There are many AnimalParts that could be ordered, many Suppliers that could provide the part, and many Carts the item could be ordered for.

3.3 Entity Description

User

Attribute	Description
<u>userID</u> {PK}	Auto incremented value that defines a user
username	Used to login to the website
password	Password to the users account
firstName	First name of the user
lastName	Last name of the user
address	The address of the user for billing and shipping
email	Email of the user for extra information and receipts
phone	The users phone number
countryName {FK} references Country (countryName)	The country in which the user lives

Customer

Attribute	Description
<u>cid</u> {PK} {FK} references User(userID)	The auto incremented unique user id that the customer account received.

Supplier

Attribute	Description
<u>sid</u> {PK} {FK} references User (userID)	The auto incremented unique user id that the supplier account has received.
offshoreAcc	The bank account number that the suppliers cut of the sale will be transferred to

CreditCard

Attribute	Description
<u>cardNumber</u> {PK} when paired with cid	The unique sixteen digit number that defines the credit card
expDate	The date upon which the card expires
ccv	The three digit security code used for online purchases with the card
cid {PK} {FK} references Customer (cid)	The id of the customer who owns this card

Bitcoin

Attribute	Description
<u>walletID</u> {PK} when paired with cid	Auto incremented unique value that defines a bitcoin wallet
cid {PK} {FK} references Customer (cid)	The id of the customer who owns this bitcoin wallet

Paypal

Attribute	Description
<u>accID</u> {PK} when paired with cid	Auto incremented unique value that defines an account
cid {PK} {FK} references Customer (cid)	The id of the customer who owns this account

AnimalPart

Attribute	Description
<u>apID</u> {PK}	Auto incremented unique value that defines an animal part
apName	The name of the part
apDescription	A short description of the product
weight	The weight of the part in kg, used for shipping cost calculation
price	The current black market price of the part
specName {FK} references Species (specname)	The name of the species from which the part was acquired

Species

Attribute	Description
<u>specName</u> {PK}	The unique scientific name of the species
specDesc	A short description of the species (Habitat, rarity, endangered status, value/prestige of trophies)

Cart

Attribute	Description
<u>cartID</u> {PK}	Auto incremented unique value that defines a cart
totalPrice	The summed price of all parts in the cart
cid {FK} references Customer (cid)	The id of the customer with which the cart is associated

InOrder

Attribute	Description
<u>sid</u> {PK} {FK} references Supplier(sid)	The id that identifies supplier of the order
<u>apID</u> {PK} {FK} references Animapart(apID)	The id that identifies the part being ordered
<u>cartID</u> {PK} {FK} references Cart(cartID)	The id that identifies the cart the order is being placed in
amount	An integer value of the number of parts being ordered
totalPrice	A decimal value of the total price of the parts in the order

Country

Attribute	Description
<u>countryName</u> {PK}	The name of the country
lawAbiding	A boolean value that stores whether or not the country's government will allow internationally outlawed poaching practices to occur within it's borders

3.4 Relational Schema - SQL DDL

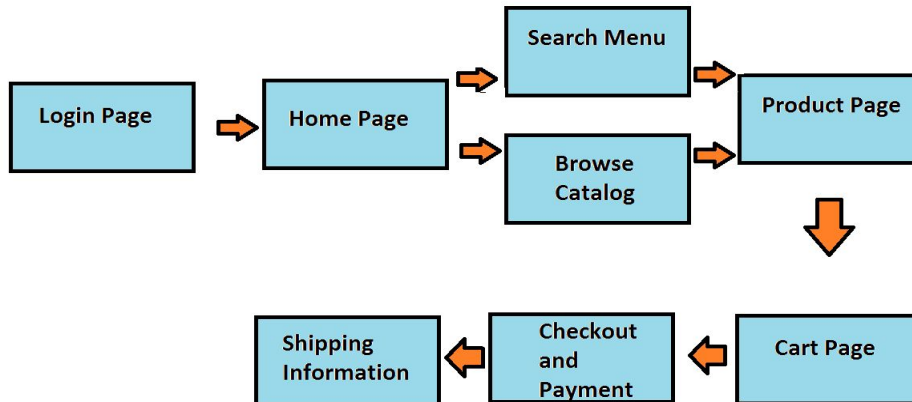
<pre>create table Species(specName varchar(20) NOT NULL, specDesc varchar(255) NOT NULL, PRIMARY KEY (specName));</pre>	<pre>create table AnimalPart(apID int NOT NULL AUTO_INCREMENT, apName varchar(20) NOT NULL, apDesc varchar(255) NOT NULL, weight double NOT NULL, Price decimal(8,2) NOT NULL, specName varchar(20) NOT NULL, PRIMARY KEY (apID), FOREIGN KEY (specName) REFERENCES Species(specName) ON UPDATE CASCADE ON DELETE NO ACTION);</pre>
<pre>create table Country(countryName varchar(20) NOT NULL, lawAbiding boolean NOT NULL, PRIMARY KEY (countryName));</pre>	<pre>create table User(userID int NOT NULL AUTO_INCREMENT, username varchar(20) NOT NULL UNIQUE, password varchar(30) NOT NULL, firstName varchar(20) NOT NULL, lastName varchar(20) NOT NULL, address varchar(30) NOT NULL, email varchar(30) NOT NULL UNIQUE, phone varchar(15) NOT NULL, countryName varchar(20) NOT NULL, PRIMARY KEY (userID), FOREIGN KEY (countryName) REFERENCES Country(countryName) ON UPDATE CASCADE ON DELETE NO ACTION);</pre>
<pre>create table Supplier(offShoreAcc varchar(15) NOT NULL, sid int NOT NULL, PRIMARY KEY (sid), FOREIGN KEY (sid) REFERENCES User(userID) ON UPDATE CASCADE ON DELETE NO ACTION);</pre>	<pre>create table Customer(cid int NOT NULL, PRIMARY KEY (cid), FOREIGN KEY (cid) REFERENCES User(userID) ON UPDATE CASCADE ON DELETE NO ACTION);</pre>

<pre> create table CreditCard(cardNumber char(16) NOT NULL UNIQUE, expDate Date NOT NULL, ccv int NOT NULL, cid int NOT NULL, PRIMARY KEY (cardNumber, cid), FOREIGN KEY (cid) REFERENCES Customer(cid) ON UPDATE CASCADE ON DELETE NO ACTION); </pre>	<pre> create table BitCoin(walletID int NOT NULL UNIQUE, cid int NOT NULL, PRIMARY KEY (walletID, cid), FOREIGN KEY (cid) REFERENCES Customer(cid) ON UPDATE CASCADE ON DELETE NO ACTION); </pre>
<pre> create table Paypal(accID int NOT NULL UNIQUE, cid int NOT NULL, PRIMARY KEY (accID, cid), FOREIGN KEY (cid) REFERENCES Customer(cid) ON UPDATE CASCADE ON DELETE NO ACTION); </pre>	<pre> create table Cart(cartID int NOT NULL AUTO_INCREMENT, totalPrice decimal(8,2) NOT NULL, cid int NOT NULL, PRIMARY KEY (cartID), FOREIGN KEY (cid) REFERENCES Customer(cid) ON UPDATE CASCADE ON DELETE NO ACTION); </pre>
<pre> create table Shipment(trackingNumber int NOT NULL, shippmentMethod varchar(15) CHECK (shippmentMethod IN ('Smuggling', 'Boat', 'Plane', 'Courier')), weight double NOT NULL, height double NOT NULL, width double NOT NULL, length double NOT NULL, shipDate date NOT NULL, cartID int NOT NULL, PRIMARY KEY (trackingNumber), FOREIGN KEY (cartID) REFERENCES Cart(cartID) ON UPDATE CASCADE ON DELETE NO ACTION); </pre>	<pre> create table InOrder(sid int NOT NULL, cid int NOT NULL, cartID int NOT NULL, amount int NOT NULL, totalPrice decimal(8,2) NOT NULL, PRIMARY KEY (sid, cid, cartID), FOREIGN KEY (sid) REFERENCES Supplier(sid) ON UPDATE CASCADE ON DELETE NO ACTION, FOREIGN KEY (cid) REFERENCES Customer(cid) ON UPDATE CASCADE ON DELETE NO ACTION, FOREIGN KEY (cartID) REFERENCES Cart(cartID) ON UPDATE CASCADE ON DELETE NO ACTION); </pre>

Interface

4.1 Site Map

This is the Customer account view of the Website



4.2 Page Descriptions

1. Login Page - Page where the user enters their account details to gain access to their account.
2. Home Page - Displays logo and trending products as well as suggestions based on the user.
3. Search Menu - Allows the user to search through the catalogue of products using tags and attributes.
4. Browse Catalog - Allows the user to filter and organize inventory lists to browse for products.
5. Product Page - Displays product details and description, as well as an image of the part.
6. Cart Page - Displays your orders and total price.
7. Checkout and Payment - Allows the user to select from their available payment options.
8. Shipping Information - Displays the details of the shipments resulting from the order.