TheDinosaurCompany

YOUR DINOSAUR SUPPLIER

Design Document

University of British Columbia Okanagan
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1 Introduction

1.1 Purpose of Document

This document aims to provide the foundational structure of TheDinosaurCompany's website by defining our data model through UML diagrams and SQL DDL code, and by discussing our website's features and interface.

1.2 Mission Statement

We at TheDinosaurCompany aim to provide our customers with the amazing lifetime opportunity of owning a living, breathing, totally real dinosaur. Our diverse catalog ensures you will find the right dinosaur for you.

1.3 Executive Summary

Dinosaurs have been endangered and threatened by human existence for years. Unfortunately, society, through the use of propaganda and media, has portrayed dinosaurs as a wild and dangerous species. Thus there has been an ongoing effort to sustain the existence of dinosaurs and integrate them within human society. The goal of TheDinosaurCompany is to facilitate this effort by allowing individuals to purchase or 'adopt' a premium dinosaur from our collection here at Jurassic Park.

We have a wide variety of dinosaurs for the consumer to choose from. In an attempt to match each dinosaur and consumer with a perfect fit, users can browse our catalogue by ordering on attributes such as price, or filtering on attributes such as species, gender, or era. All dinosaurs are listed with an image, specific details including a description about their personalities, and the price.

To order a dinosaur, the user must have an account with TheDinosaurCompany. To create an account, the user must provide their full name, address, phone number, and set a password. The customer then uses their email and password to log into our site. Once the customer has selected their dinosaur(s), they are added to their cart. Shipment is then determined based on the size and type of the dinosaur as well as the number of handlers required to safely deliver the dinosaur right to your doorstep.

2 Domain Assumptions

2.1 Customer

1) Customer is identified by a unique auto-incrementing number that has no meaning to them.
2) Customer's address is their shipping and billing address.
3) Phone number must be a Canadian number (11 digits long) which includes the area code (+1).

4) Passwords are recommended to have an uppercase, lowercase and number, but we will not check this constraint, so password security is at the customer's own risk. Passwords must be less than 15 characters.
5) Addresses and emails will not be validated. Assume that correct addresses and emails are entered by the customer.

2.2 Dinosaur

1) Gender must be either male or female.
2) Dinosaur price cannot be greater than $99,999,99.99.
3) Available indicates whether a particular dinosaur is available to be ordered. Unavailable means that it has already been sold.

2.3 Species

1) Dinosaur species have a diet that is either herbivore, carnivore, or omnivore.
2) Dinosaur species must be from a particular era: either Jurassic, Triassic, or Cretaceous.
3) The tranquilizer strength is ranked on a scale of 1 to 5. High energy or heavy weight dinosaurs will require a greater tranquilizer strength for shipping.
4) Species name uniquely identifies a species
5) A minimum of two handlers per dinosaur (based on their species) is required for shipment.

2.4 Order

1) A dinosaur can only be in one order at a time, since it can only be ordered once. If a dinosaur is ordered, it becomes unavailable to all other carts.
2) The total price includes the sum of each dinosaur price and its shipping price. It cannot exceed $9,999,999,999,999.99.

2.5 Shipment

1) Dimensions of the shipping box will always be in whole numbers.
2) Mode of transport must be either air, ground, or water.
3) Shipment ID (sid) uniquely identifies a shipment.
4) Shipdate is the date that the order was shipped (not the date the order was placed).

2.6 Jurassic Park

1) The pid uniquely identifies each park.
2) There are multiple parks, each with various dinosaurs.

2.7 Credit Card

1) Ccname must match the name the credit card is registered in.

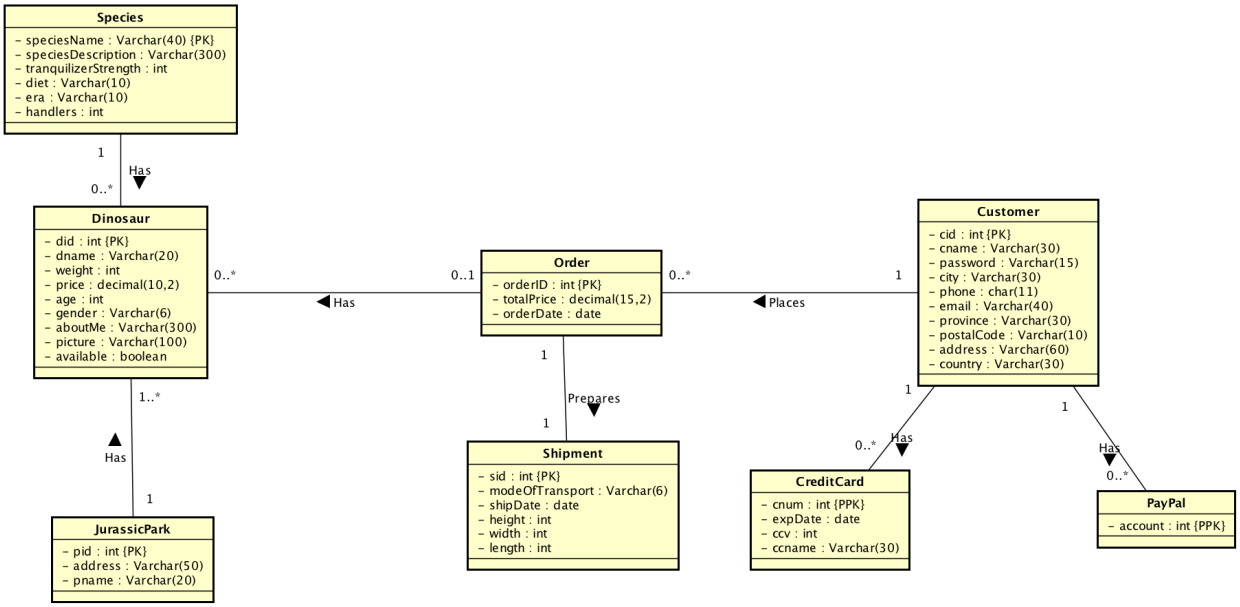
2) Expiration date must be entered in the form MM/YY.
3) Credit card number (cnum) is unique. However, the primary key for credit card is the cnum and Customer(cname) since a credit card cannot exist without a customer.

2.8 PayPal

1) Account number uniquely identifies a paypal account, along with with the cname of the customer.

3 Data Model

3.1 UML Diagram



3.2 Description of UML Diagram

3.2.1 Customer

Our customers are individuals who care about dinosaurs and supporting their existence on earth even when the struggle may seem futile, especially when the dinosaur ends their existence on earth. In this case, we guarantee a full refund of purchase and highly recommend life insurance! Customers registered with TheDinosaurCompany must enter a username, which is their email, a password, a full name, and an address (for shipping purposes). Phone is optional.

3.2.2 Payment

Customers may pay for their order with either credit card or PayPal. They may have information for multiple payment methods on their file.

3.2.3 Order

An order contains all the dinosaurs a customer is planning to order at a particular time. Order sends all appropriate information to shipment when the order is placed.

3.2.4 Shipment

Shipment prepares a shipment to a customer that includes everything on their shopping cart as long as it is still available at the time the order is placed.

3.2.5 Species

Species is unique for each species, based on the Latin name. It holds a description of each species and contains important shipping information such as tranquilizer strength (rated on a scale of 1 to 5) and number of handlers. The tranquilizer is both for the dinosaur's comfort and the handlers' safety during the shipping process. Handlers are the number of human handlers needed to safely transport a dinosaur. For example, brontosauri are easy going so they only need two handlers, but a tyrannosaurus rex can get violent when it is hungry or cranky, so eleven handlers are necessary. A minimum of two handlers per dinosaur is required (good to have extra in case some get stepped on).

3.2.6 Dinosaur

Each dinosaur is unique, and is identified by its did. However, our dinosaurs are not just a number; they have a name, a personality, and a picture that helps paint the true picture of who they are.

3.2.7 Jurassic Park

Each Jurassic Park stores dinosaurs. It is where they roam, breed, and grow until they are ordered and shipped to their new owners.

3.3 Entity Attribute Description

3.3.1 Customer

Attributes	**Description**
cid: INTEGER PRIMARY KEY	Unique, auto-created customer identification number.
cname: VARCHAR(30)	The customer's full name.
password: VARCHAR(15)	The customer's login password.
city: VARCHAR(30)	The customer's shipping city.
phone: CHAR(11)	The customer's optional phone number.
email: VARCHAR(40)	The customer's login email.

province: VARCHAR(30)	The customer's shipping province.
postalCode: VARCHAR(10)	The customer's shipping postal code.
address: VARCHAR(60)	The customer's shipping address.
country: VARCHAR(30)	The customer's shipping country.

3.3.2 Credit Card

Attribute	**Description**
cnum: INTEGER PARTIAL PRIMARY KEY	The customer's unique credit card number.
expDate: DATE	The expiry date on the customer's credit card.
ccv: INTEGER	The customer's CCV number.
ccname: VARCHAR(30)	The customer's name as it appears on the credit card.

3.3.3 Paypal

Attribute	**Description**
account: INTEGER PARTIAL PRIMARY KEY	The customer's unique PayPal account number.

3.3.4 Order

Attribute	**Description**
orderID: INTEGER PRIMARY KEY	The unique id that is created when an order is placed.
totalPrice: DECIMAL(15, 2)	The total price of the order.
orderDate: DATE	The date the order was placed.

3.3.5 Shipment

Attribute	**Description**
sid: INTEGER PRIMARY KEY	Unique id created for every shipment.

modeOfTransport: VARCHAR(6)	Method selected to ship the ordered dinosaurs.
shipDate: DATE	The date where the shipping occured.
height: INTEGER	The height of the container where the dinosaur is shipped.
width: INTEGER	The width of the container where the dinosaur is shipped.
length: INTEGER	The length of the container where the dinosaur is shipped.

3.3.6 Dinosaur

Attribute	**Description**
did: INTEGER PRIMARY KEY	The unique identification number assigned to each dinosaur.
dname: VARCHAR(20)	The dinosaur's name.
weight: INTEGER	The weight of the dinosaur.
price: DECIMAL(10,2)	The price of the dinosaur.
age: INTEGER	The age of the dinosaur.
gender: VARCHAR(6)	The gender of the dinosaur.
aboutMe: VARCHAR(300)	A short description of the dinosaur.
picture: VARCHAR(100)	An image of the dinosaur.
available: BOOLEAN	Whether or not the dinosaur is available for purchase.

3.3.7 Species

Attribute	**Description**
speciesName: VARCHAR(40) PRIMARY KEY	Uniquely identifies a species.
speciesDescription: VARCHAR(300)	Short description of the species for the user's benefit.
tranquilizerStrength: INTEGER	Strength of tranquilizer to subdue dinosaur for shipment
diet: VARCHAR(10)	Describes the food type the diet eat.
era: VARCHAR(10)	Describes the time period the dinosaur is from.
handlers: INTEGER	Number of trained professionals needed to handle the dinosaur for safe shipment.

3.3.8 Jurassic Park

Attribute	**Description**
pid: INTEGER PRIMARY KEY	Unique park identifier.
address: VARCHAR(50)	Address of the park.
pname: VARCHAR(20)	Descriptive name of the park.

3.4 Relational Assumptions

1) Customer can have zero to many credit cards and paypal accounts. Each credit card or paypal account may only be linked to one customer.
2) Each customer may have multiple orders, but each order is associated with only one customer.
3) Each order is only shipped once, and each shipment only ships one order.
4) An order can have have zero to many dinosaurs, but a dinosaur can only be ordered once.
5) A dinosaur must be in one park, but a park may have many dinosaurs. A park cannot have zero dinosaurs, or else it will shut down.
6) A species can have multiple dinosaurs, but a dinosaur can only belong to one species. A species may have zero dinosaurs because we are in the process of expansion and are creating species that we are preparing to sell, but have no dinosaurs of, yet.

3.5 SQL DDL

```
CREATE TABLE CreditCard(
cnum INTEGER,
cid INTEGER,
expDate DATE NOT NULL,
ccv INTEGER NOT NULL,
ccname VARCHAR(30) NOT NULL,
PRIMARY KEY(cnum,cid),
FOREIGN KEY (cid) REFERENCES Customer(cid)
ON UPDATE CASCADE ON DELETE NO
ACTION);
```

```
CREATE TABLE PayPal(
account INTEGER,
cid INTEGER,
PRIMARY KEY(account,cid)
FOREIGN KEY (cid) REFERENCES Customer(cid)
ON UPDATE CASCADE ON DELETE NO
ACTION);
```

```
CREATE TABLE Customer(
cid INTEGER AUTO_INCREMENT,
cname VARCHAR(30) NOT NULL,
password VARCHAR(15) NOT NULL,
address VARCHAR(60) NOT NULL,
city VARCHAR(30) NOT NULL,
province VARCHAR(30) NOT NULL,
country  VARCHAR(30) NOT NULL,
postalCode VARCHAR(10) NOT NULL,
phone CHAR(11),
email VARCHAR(40) NOT NULL,
PRIMARY KEY(cid));
```

```
CREATE TABLE Shipment(
sid INTEGER,
orderID INTEGER NOT NULL,
modeOfTransport VARCHAR(6)
CHECK(modeOfTransport IN ('air','water','ground'))
shipDate DATE NOT NULL,
height INTEGER NOT NULL,
width INTEGER NOT NULL,
length INTEGER NOT NULL,
PRIMARY KEY(sid),
FOREIGN KEY (orderID) REFERENCES
Order(orderID)
ON UPDATE CASCADE ON DELETE NO
ACTION);
```

```
CREATE TABLE Order(
orderId INTEGER AUTO_INCREMENT,
cid INTEGER NOT NULL,
totalPrice DECIMAL(15,2) NOT NULL,
PRIMARY KEY(orderId),
FOREIGN KEY cid REFERENCES Customer(cid)
ON UPDATE CASCADE ON DELETE NO
ACTION);
```

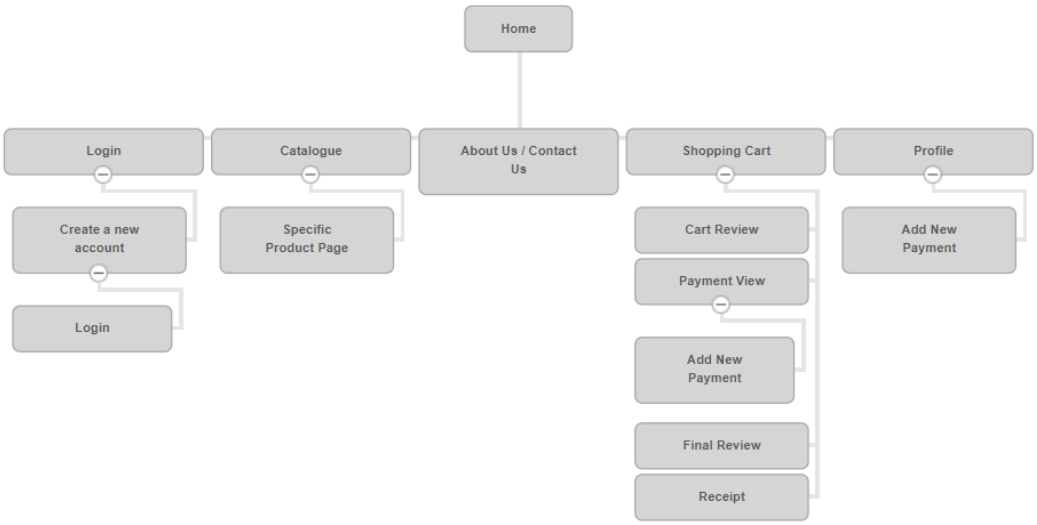
```
CREATE TABLE JurassicPark(
pid INTEGER,
address VARCHAR(50) NOT NULL,
pname VARCHAR(20) NOT NULL,
PRIMARY KEY (pid));
```

```
CREATE TABLE Species(
speciesName VARCHAR(40),
speciesDescription VARCHAR(300) NOT NULL,
tranquilizerStrength INTEGER CHECK
(tranquilizerStrength IN (1,2,3,4,5)),
diet VARCHAR(10) CHECK (diet IN
('herbivore','carnivore','omnivore')),
era VARCHAR(10) CHECK (era IN
('jurassic','triassic','cretaceous')),
handlers INTEGER NOT NULL,
PRIMARY KEY(speciesName));
```

```
CREATE TABLE Dinosaur(
did INTEGER, dname VARCHAR(20) NOT NULL,
weight INTEGER NOT NULL,
price DECIMAL(10,2) NOT NULL,
age INTEGER NOT NULL,
gender VARCHAR(6) CHECK(gender IN ('male',
'female')),
aboutMe VARCHAR(300),
picture VARCHAR(100),
speciesName VARCHAR(40) NOT NULL,
available BOOLEAN NOT NULL,
tranquilizerStrength INTEGER CHECK
(tranquilizerStrength IN (1,2,3,4,5)),
orderID INTEGER,
PRIMARY KEY (did),
FOREIGN KEY (speciesName,tranquilizerStrength)
REFERENCES
Species(speciesName,tranquilizerStrength) ON
UPDATE CASCADE ON DELETE NO ACTION,
FOREIGN KEY (orderID) REFERENCES
Order(orderID) ON UPDATE CASCADE ON
DELETE NO ACTION );
```

4 Site Map and Description

4.1 Site Map



4.2 Description of Pages

- Without logging in, the user can see the home page, the catalogue, and the about us / contact us page.
    - If the user is not logged in, the 'add to cart' button will be greyed out and the user will not be able to click on this.
- Once the user creates a new account, we will direct them to the login screen and require they login before continuing to our site.
- The login button will be on the top right of the screen.
    - If the user is logged in, the login button will be replaced with the user's name and a button to their shopping cart.
- Home page: Customer's first arrive at the home page which features a blog with updates about the dino of the month and articles/tips about dino care.
- On the catalogue page, the user can browse through our collection of dinosaurs or search for a specific dinosaur. The catalogue page will display all the dinosaurs by default. Since dinosaurs are a limited commodity for the foreseeable future, we are not concerned about this being too much data to display. From here the user can see the specifics about a dinosaur and also add that dinosaur to their cart.
- The about and contact page will be a static page showing information to contact TheDinosaurCompany company as well as bios of the masterminds behind the company.
- On the shopping cart page, a user can view what is in their shopping cart and delete any dinosaurs they don't want. Upon check out, the customer will choose their payment (or add a new payment

and then choose payment), before doing a final review of their order. After confirming their order, they can then view their receipt (which includes their shipping information).

- Under profile, a user can see their personal information and edit any of the fields. From here they also have the option to add a new form of payment.

5 Thinking Ahead

5.1 Limitations

1) We are not sending the receipts, just displaying them on the screen for the user to decide what to do with.
2) We are not implementing a forgot password, we are assuming our customer base is not forgetful and that the users are creating safe passwords.
3) We do not actually have any Jurassic Parks, nor do we own any dinosaurs, so everything on our website (except the fun facts) is fictitious.
4) No payments will go through, and no shipments will be processed.
5) The user cannot enter real credit card or PayPal information on this site, since it is not secure or encrypted.

5.2 Future Aspirations

We are currently only interested in expanding our company and its services to countries with enough geographical area to support our dinosaurs -- like Russia! If TheDinosaurCompany takes off in Canada, we would like to expand to Russia next.