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Introduction

We have been contacted by “Ramon’s Electronics”, a small computer store that is trying to expand and make a name for themselves by offering their services online.

Ramon’s Electronics prides itself on providing customers with superior products at a competitive price and also providing comprehensive, easy to use customer support.

This document introduces our plans to provide the client with everything necessary to maintain an online store that is current and easy to use. It also shows an ER diagram of our database design and the relational schema that is associated. There is also a description of what the user may see when browsing the website.

Mission Statement

We wish to create an online shopping website for a small computer company that is focused on customer satisfaction. Users must have the ability to browse items, search for products, create an account, purchase items, and seek customer support. Managers must be able to retrieve records of sales and demographics pertaining to each sale. Employees of the company must be able to update prices and stock information.

Executive Summary

RamonsElectronics.com will implement a shopping cart, allowing the user to select multiple items while still browsing for more.

The website will provide images of each product; giving the user a better experience.

It is possible for a user to shop and add items to the shopping cart without having an account but they must register an account before purchasing. This ensures that all necessary information for shipping is present. The user can retrieve their login information via the e-mail address entered when signing up.

Items will be shipped to the address associated with the account once the payment has been received.

Once a user is logged in they can track their orders. They will also have access to some other features such as “recommendations”, “promotional offers”, and “product review”.

Managers have the ability to retrieve information about sales (Number of items sold, destination of items, etc.). There must also be easy access to inventory information

(Update/view items in stock). This is done by giving the manager an account that has more access than a regular customer account.

Employees and managers must have the ability to update information about a product such as price.

Requirement Chart

Category: B - Basic requirements; must implement.

A - Additional; will implement given enough time and resources

C - Challenging; unlikely to implement.

Requirements for External User (Customer)

Category	Description
B	Browse for items without registering
B	Search for items by keyword without registering
B	Register at the site by providing their name, email, address, etc.
B	Allow user login by providing user id and password
B	Add, remove, and update items in their shopping cart while browsing/searching
B	Checkout and pay for items in their shopping cart
A	See order status/invoice and shipment info after order has been placed
A	Search for items by category/subcategory
A	Provide order history that can be accessed at any time
A	Allow users to add reviews to items
A	Support user feedback on order status and overall website experience
A	Allow users to retrieve their forgotten user id/password using their email address
A	Send email notification on registering, order shipments, other events
A	Product suggestion feature that recommends similar products
A	Allow users to create custom computer systems
A	Users able to choose their payment methods (PayPal, Visa, Mastercard)
A	Be able to pick from selection of shipping options
C	Allow a user to save a shopping cart to be remembered the next time they login (users should only have a single shopping cart)
C	Product comparison feature that shows differences of related products
C	Allow a user to delete their account
C	Ability to cancel an order that is not yet shipped
C	User keeps a wishlist of items which they can add/remove items

Requirements for internal user (Employee/Manager)

<u>Category</u>	<u>Description</u>
B	Recover the system with base values
B	Add, remove, or update items currently for sale
B	Items must be able to have at least one picture
B	Track inventory levels of items in warehouse
B	Only allow item sales given sufficient stock
B	All administrator/manager functions must be secured by user id/password
B	Generate simple sales reports including frequent items, sales volume, etc
A	Show/promote items on the main page
A	Provide reviews for items when shopping
A	Generate profit/loss statements based on cost of goods and sales generated
A	Ability for store personnel to lookup a user account and order history
A	Administrator may be able to modify/change orders to fix problems
A	Produce summary reports on the number of users, orders, and items in the system
C	Offer customer service/help/support
C	Add/update/remove promotional codes or rebates which provide a discount on an order, ensuring the code can only be used once
C	Dynamically select items shown based on user or sales info
C	Items may have multiple pictures and extended info (warranty, features, etc) and HTML descriptions
C	Generate detailed reports that include graphics/charts, desirable if reports can be exported to analysis software like Excel
C	Inventory tracker system that generates alerts when items need to be re-ordered and monitor items for unusually high/low sales volume
C	Track customer preferences and spending habits

Domain Assumptions

Users

- A user will have a unique Id combined with a password which will allow the user to log in to the site and identifies them.
- User will be allowed to browse for products, add them to a shopping cart, create a wish list, rate products, and create a custom computer and purchase products in their shopping cart.
- Guests will be allowed to browse for products, sign up for an account and create a custom computer without the ability to purchase it. No guest can purchase a product.

Employees

- Employees will have a unique employee number and normal user log in but will have higher access level to the site depending on their title.

Orders

- Orders will be placed from a shopping cart the user has created. Employees are also allowed to place an order but are denied access to change information in the orders.
- Only an administrator can edit and view orders but are not allowed to place orders themselves. They must create a separate account.

Product

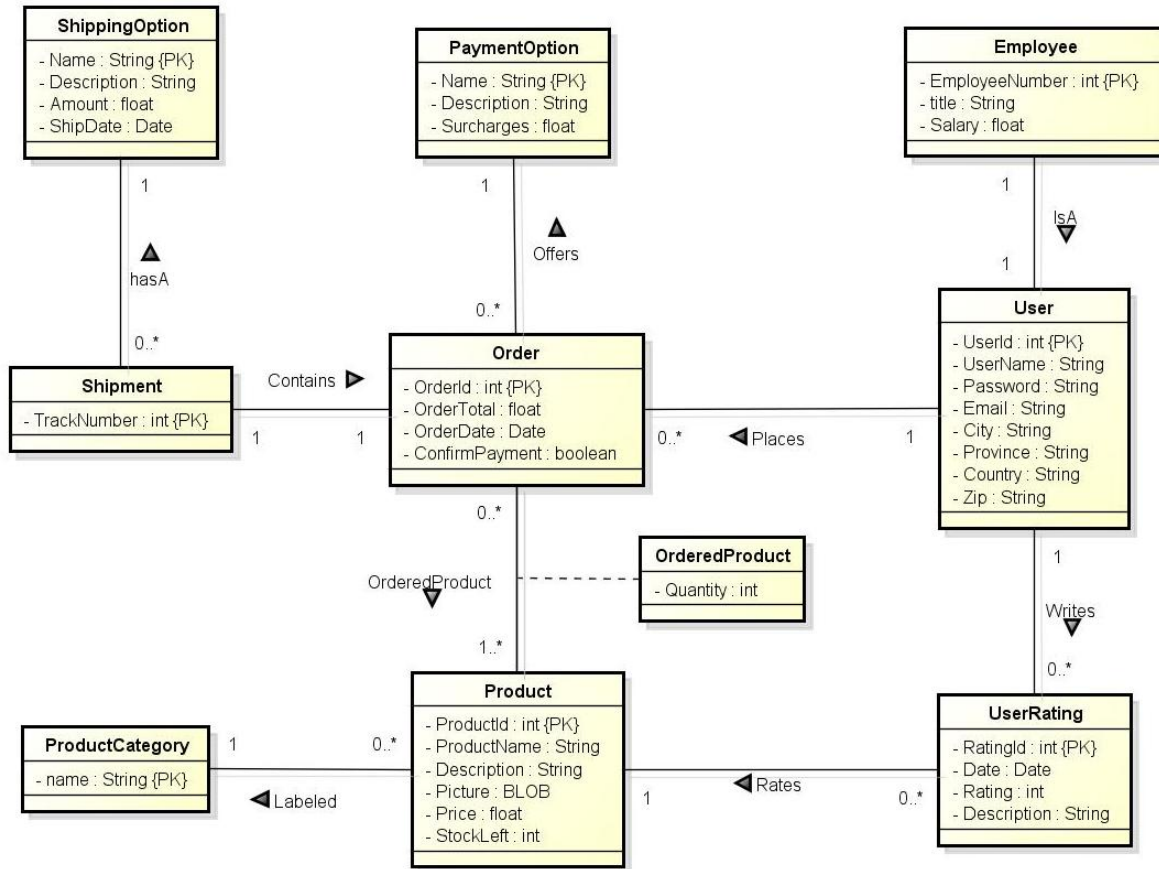
- A custom computer will use certain products depending on the category they exist in and has a minimal amount of products required.
- A custom computer will be treated separately until it is added to the shopping cart in which case it will have its parts summed up and treated as a regular product. Extra costs can be added if they require assembly.

Shipping Options

- Recommended shipment methods are [**FedEx**®, **UPS**® or **Purolator**®] but can be edited later on. Each company will have their own shipping rates.

Payment Options

- Payment methods will include [**Paypal**®, **Visa**®, or **MasterCard**®] but can be changed later on.



Relational Mapping

User(userId, cname, password, email, city, province, country, zip)

Employee(empId, userId, title, salary)

userId is a FK referencing User

UserRating(ratingId, userId, date, rating, desc, productId)

userId and productId are FK's referencing User and Product respectively

Order(orderId, userId, total, date, confirmation, paymentName, TrackNumber)

userId and TrackNumber are FK's referencing User and Shipment respectively

OrderedProduct(orderId, productId, quantity)

orderId and productId are FK's referencing Order and Product respectively

Product(productId, pname, desc, picture, price, stockLeft, categoryName)

categoryName is a FK referencing ProductCategory

ProductCategory(categoryName)

ShippingOption(sname, desc, amount, shipDate)

Shipment(TrackNumber, sname)

sname is a FK referencing ShippingOption

PaymentOption(paymentName, desc, surcharges)

)

Relational Assumptions

The **User** entity contains user information including the shipping address. The user can rate and order multiple products.

The **Employee** is an extension of user which allows higher level of access. There must always be one employee that is an administrator who can create/edit/delete new employees.

A **UserRating** contains a rating from a single user for a single product. Users can write multiple reviews.

An **Order** must be placed by a registered user and contain some product. Guests can not place orders.

The **OrderedProduct** stores the products contained in a particular order.

The **Product** contains a list of different products for sale along with a picture of the product. It also stores the amount of a certain stock currently in the warehouse.

The **ProductCategory** labels the different products into groups for easier sorting and searching.

The **ShippingOption** offers different courier services for an order.

The **PaymentOption** offers different methods to pay for the current purchase.

Web Interface

All users, both customers and employees, will access the site through the same interface. Customers will login to access their carts, order history, and wish lists, while employees will use the same login form to access administrator privileges associated with their account. The site will consist of 5 primary types of pages: the homepage, browsing listings, product pages, user accounts and staff accounts.

Please note that some features listed below will depend on time and manpower constraints. See the features list included in this document for specific information as to what features will be included and may not be included.

Home Page

The home page will contain the company logo, a list of featured products and a search bar allowing registered and unregistered users to search for products by keyword. It will also feature links for visitors to login or create a new customer account, as well as to browse all items for sale, buy prebuilt systems, and offer customers the option to build their own system. If a user is logged in, extra links will be added allowing them to view their account page, their cart, or their wish list.

Product Page

An item page will include important information about an item, including its part number, description, price, whether the item is currently in stock, as well as options for users to add the item to their cart or wish list, leave a rating for an item they have purchased, and view ratings other customers have left.

User Account Page

An individualized page will be provided to users upon login containing their account details and options to maintain their account. It will include options for maintaining their profile (address, e-mail address, password, etc), cart and wish lists. As well, users will be able to see information on past orders, as well as the status of current orders still in processing.

Staff Account Page

A page will also be provided to employees with features not available to a standard user. A staff member will be able to recover the system, add/remove/update items currently for sale, track inventory levels for items and generate various reports. Staff members will be required to login to access any of these options, and certain options will only be available to certain staff based on their title.