MERCHKRAFT DOCUMENTATION

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Introduction

Merchkraft is an ecommerce website that provides a wide range of gaming merchandise, such as Skyrim T Shirts, Fallout 4 Curtains or other gaming accessories. Customers can browse through categories and add products into their shopping cart and buy them either using their bank card or their online Paypal account. The goal of Merchkraft is to provide the customer with an excellent online shopping experience using a user-friendly interface, intuitive design, and reliable product and user information.

Instructions

Login

You can log into MerchKraft using any of the username and password credentials found in the Database. There are 5 default users in the SQL file:

- Admin Login 1 - **Username:** admin111 **password:** password1
- Admin Login 2 - **Username:** admin222 **password:** password2

- User Login 1 - **Username:** user1111 **password:** password1
- User Login 2 - **Username:** user2222 **password:** password2
- User Login 2 - **Username:** user3333 **password:** password3

After filling in the login form in login.aspx, the user must manually use the mouse to click on the ‘Login’ button. ***You cannot use the enter button on the keyboard, as it will not log in the user properly.***

- Admins can update user accounts, and edit/delete products. They can view their profile and make changes.
- Customers can view all products (default page and via category). They can add items to their shopping cart and checkout by making a payment. Customers can also view their profile, edit their details, and view their purchase history.

→ CONNECTING TO THE DATABASE ←

There is a class in the DAL called DatabaseAccess.cs. There is code here to connect to the connection strings in the web.config file. It is at the top, in the constructor. The variable is called connection.

```
connection =
System.Configuration.ConfigurationManager.ConnectionStrings["Merchkraft1_DBConnectio
nString"].ConnectionString;
```

Put the connection name of the connection in the Web.config file of the DB you want to connect to. The SQL file (called MerchkraftDB.sql) is supplied.

Adding Items to Cart

When adding items to cart, it will automatically be added to shopping cart. There is no redirection in pages.

Sessions

The session of a user expires in 20 minutes

Design & Justification

Classes

Merchkraft consists of classes that store data. These classes include:

- Admin
- AdminAccount
- BankCard
- Category
- Customer
- CustomerAccount
- DiscountType
- Login
- MailingAddress
- PaymentMethod
- PayPal
- Product
- PurchasedItem
- ShoppingCart

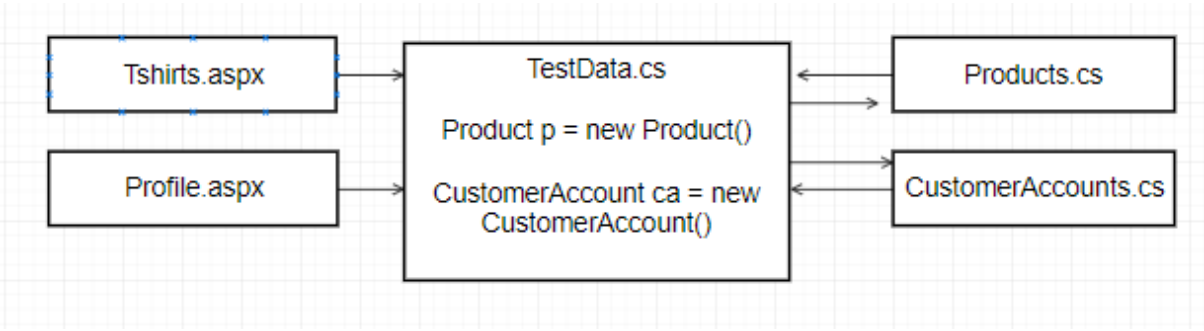
Each class has its own .cs file with attributes to store data, as well as methods including getters and setters for each class.

Test Data

Test Data is used as the control class for this project. It creates objects based on the classes (Products, Customers, etc) and uses them to store or retrieve the data from the Database. We found that having this class helped control and mediate the different functionalities and which classes and methods we need to use in order to do them.

Whenever a page needs to display test data, it would call methods from TestData.cs, which acts as a middle class between the classes that store the data and the interface.
.

For example:



Projects

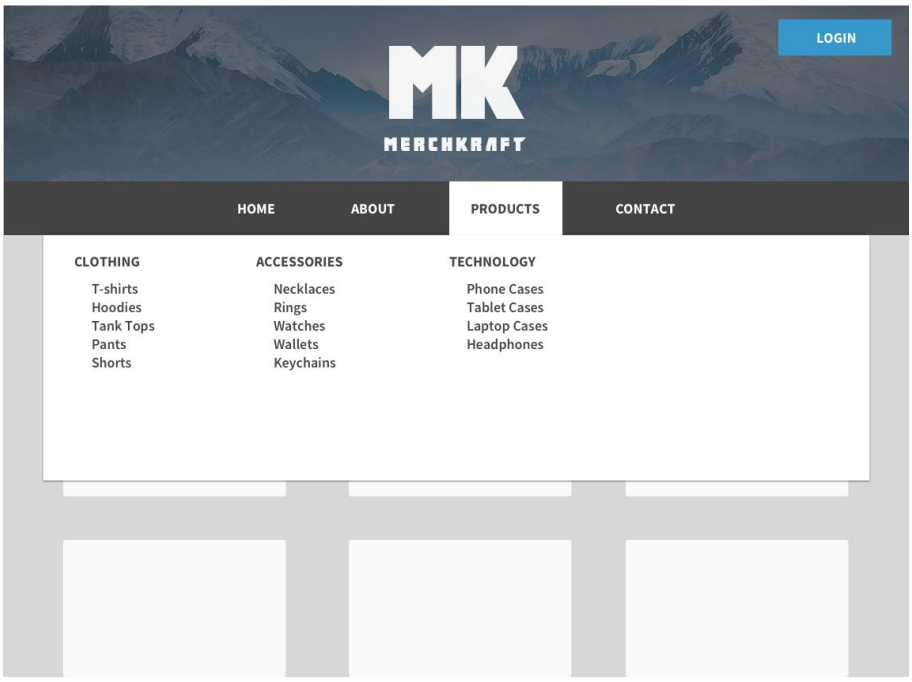
The User Layer, Business Layer and Data Access Layer have also been separated into their own projects under the main solution. This is so we had clear separation between the different UL, BL and DAL layers, and also because it was the best coding design practice recommended.

Master Pages

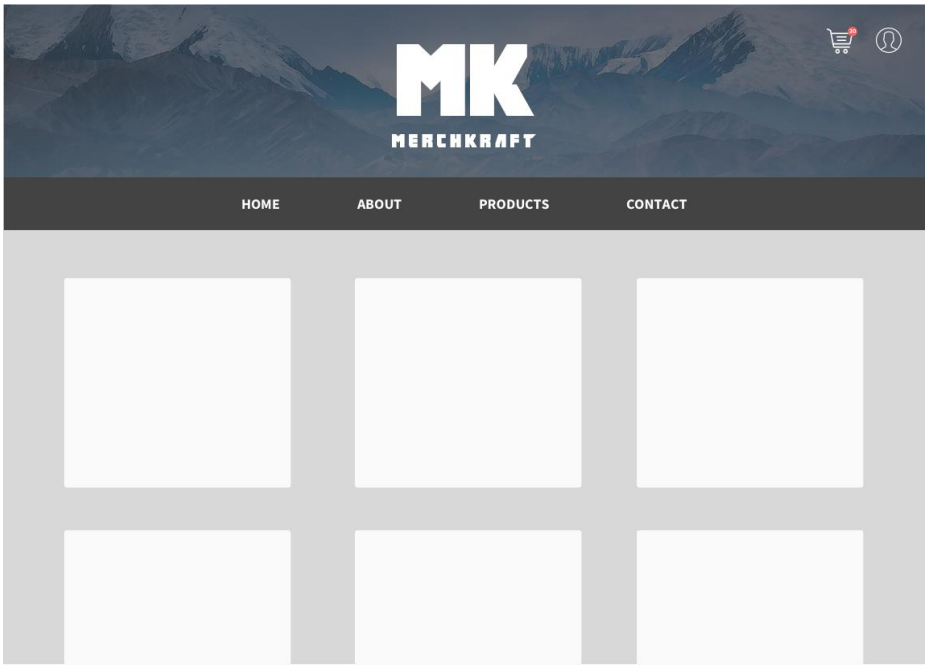
Master pages were applied to give a consistent look to all the pages in the website, and to avoid repetitive code.

Design Documentation

Merchkraft products can be viewed without logging in. However, customers must log in if they wish to buy the product or add it to their shopping cart. Below is the design of the public main page along with the navigation.



This is the view of Merchkraft when a customer is logged in. In addition to viewing the products, they can now pay for the items in their shopping cart.



All the products are listed under the same tab in the menu bar. This is intuitive as the customer can easily establish where the find the products they are looking for.

Pages

Merchkraft includes the following pages:

Accessory pages:
- Keychains
- Necklaces
- Rings
- Wallets
- Watches

Clothing pages:
- Hoodies
- Pants
- Shorts
- Tank-Tops
- T-shirts

Technology:
- Headphones
- Laptop Cases
- Phone Cases

Home Decor:
- Cups
- Curtains

Main default pages:
- Home
- About
- Contact

If not logged in:
- Login
- Register
- Admin Register

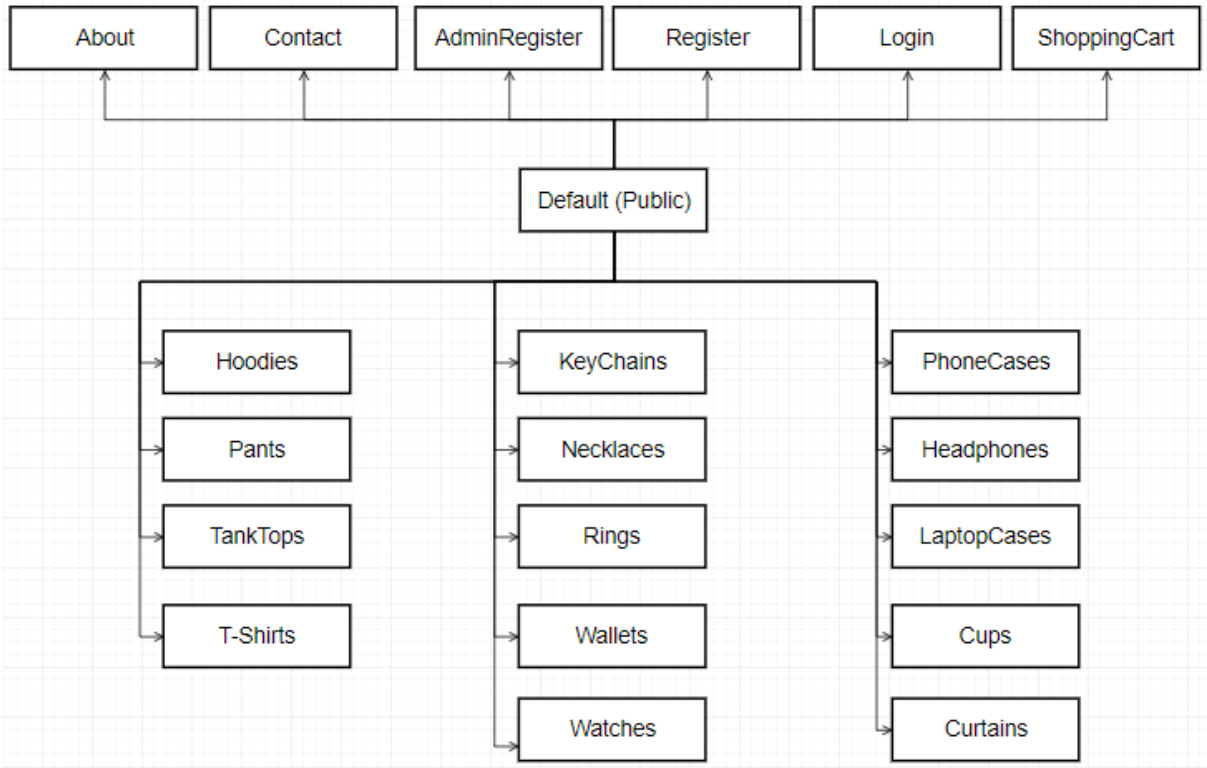
If a customer is logged in:
- Logout
- Shopping Cart
- Checkout (Payment)
- Purchase Confirmation
- Purchased Items

If an admin is logged in:
- Logout
- Manage Item
- Add new Product
- Edit Product
- Delete Product
- Manage User Accounts
- Edit User

Storyboard

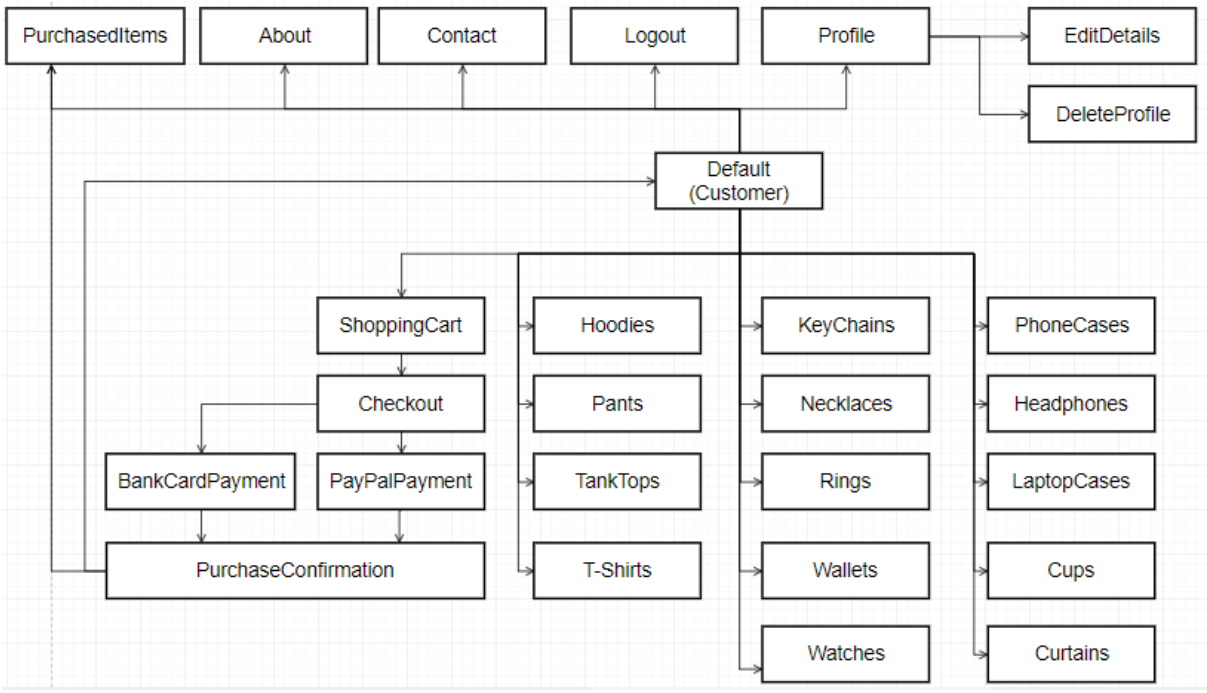
Public

Customers do not need to sign up to view the products. They have a general view of the website, including the basic links such as ‘Contact’ and ‘About.’ From here, they can login and register.



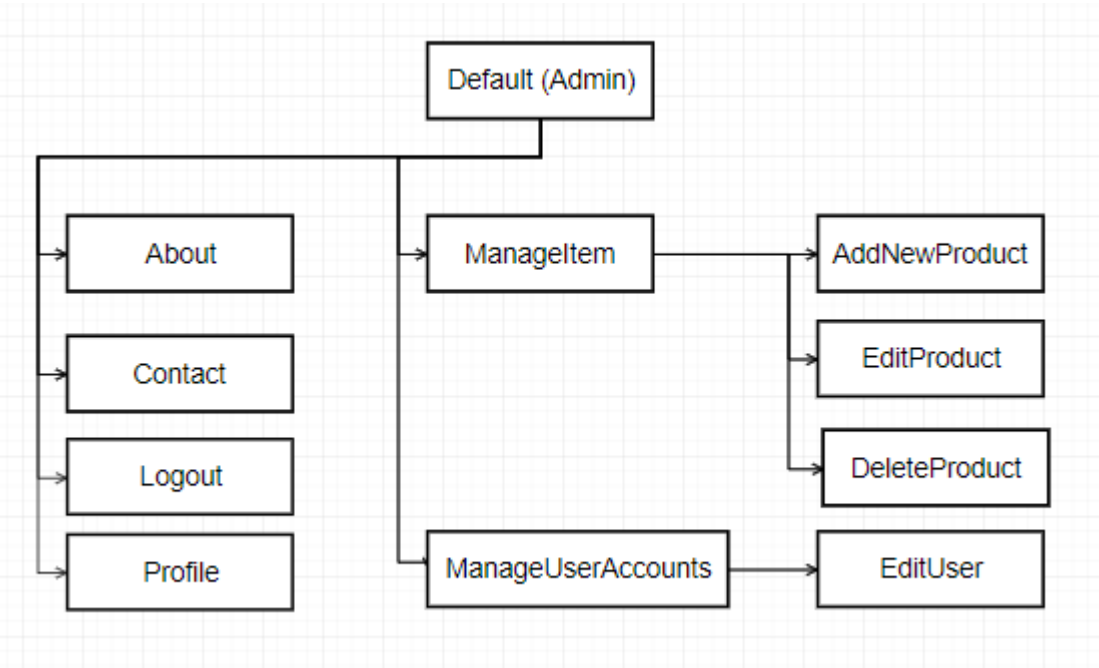
Customer

When a customer is logged in, they have access to additional functionalities. In addition to the public view, they can view their profile and edit their details, as well as buy the products in their shopping cart. They have a purchase history that they can also view.

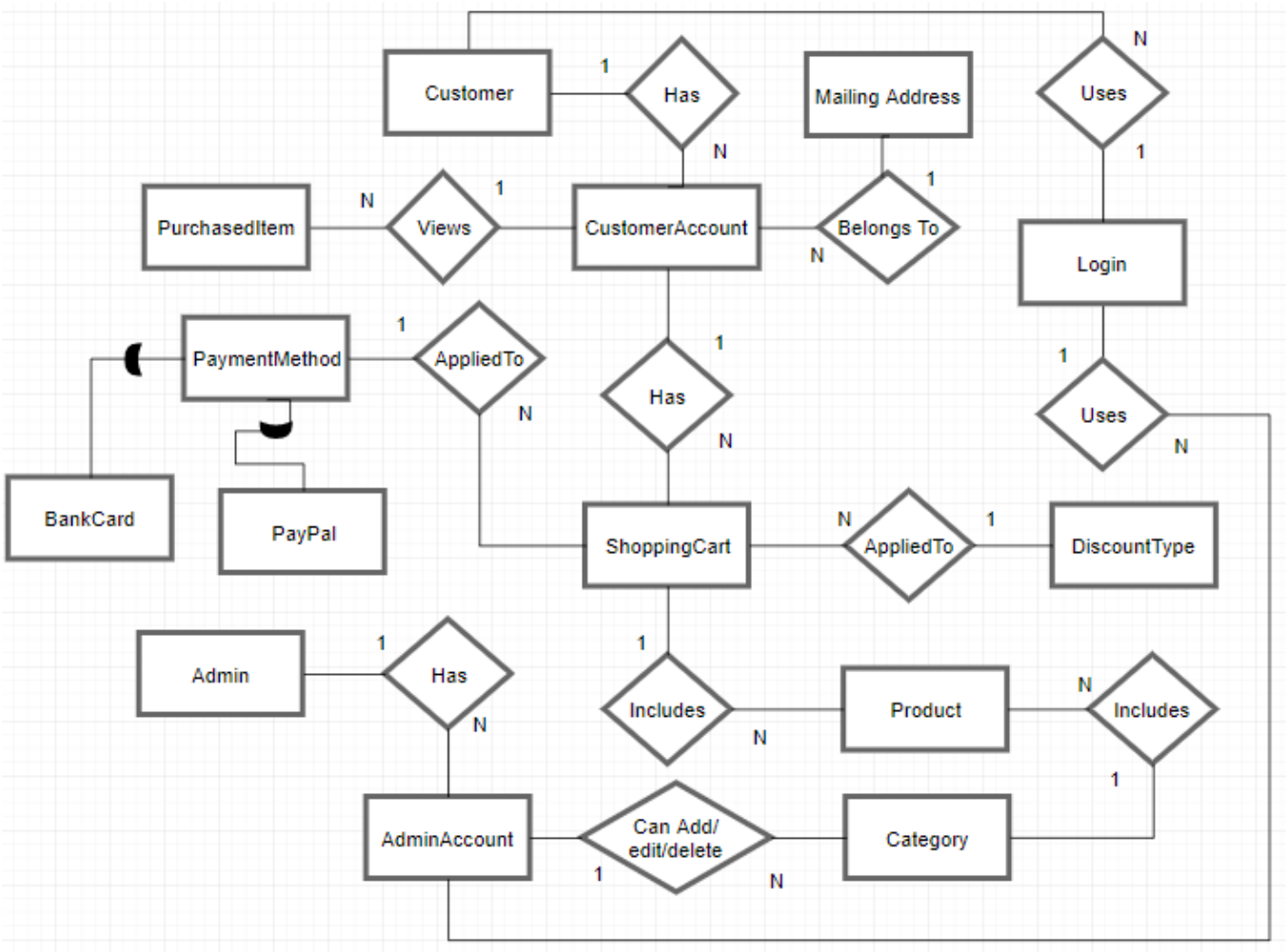


Admin

Admin staff are able to manage products and user accounts. They can add, delete and edit products, as well as edit customer accounts.



EER Diagram


Customer
Has
Mailing Address
Uses
PurchasedItem
Views
CustomerAccount
Belongs To
Login
PaymentMethod
AppliedTo
Has
Uses
BankCard
PayPal
ShoppingCart
AppliedTo
DiscountType
Admin
Has
Includes
Product
Includes
AdminAccount
Can Add/
edit/delete
Category
1
N

Data Dictionary

Entity Types

Entity Name	Description	Aliases	Occurrence
PurchasedItem	An item that has previously been purchased by the Customer		Each PurchasedItem can only be for one CustomerAccount
Customer	A Customer can buy items from the website	Customer	Each Customer can only have one CustomerAccount
Customer-Account	The account linked to the Customer on the website which the Customer uses to buy products		A CustomerAccount is only associated with one Customer. It has one mailing address, and one shopping cart. A CustomerAccount can view many PurchasedItems
Login	The login credentials a customer uses to login into their account		Each Login is used by one Customer and one admin
Mailing-Address	The address used to mail the Customer the product		Each MailingAddress belongs to one CustomerAccount
ShoppingCart	The area on the site that holds the list of items the user intends to buy		Each ShoppingCart is associated with one CustomerAccount. It can hold many products. There is one PaymentMethod and one DiscountType that can be used
DiscountType	A discount that the user can apply when buying a product.		A DiscountType can be applied to many ShoppingCarts
Payment-Method	Can be PayPal or BankCard. This is the method that the Customer uses to purchase the items.		A PaymentMethod can be applied to many ShoppingCarts
PayPal	A method of payment where the user signs in		

	using paypal credentials to complete their payment		
BankCard	A method of payment where the user inputs their card details		
Product	The type of item	Item	A product can be under one Category and can only be part of one shopping cart
Category	The main category		A Category can have one or more products
AdminAccount	The account linked to the administrator		An AdminAccount is associated with one Admin. They can add/edit/delete items from the website for any category of any items
Admin	The administrator of the website can edit/add/delete items		An Admin can have only one admin account

Relationship Types

Entity Name	Multiplicity	Relationship	Multiplicity	Entity Name
CustomerAccount	1	Views	N	PurchasedItem
Customer	1	Has	1	CustomerAccount
CustomerAccount	N	Uses	1	Login
MailingAddress	1	Belongs To	N	CustomerAccount
CustomerAccount	1	Has	N	ShoppingCart
DiscountType	1	Applied To	N	ShoppingCart

PaymentMethod	1	Applied To	N	ShoppingCart
Product	N	Is Added To	1	ShoppingCart
ShoppingCart	1	Includes	N	Product
Category	1	Includes	N	Product
AdminAccount	1	Can Add/Edit/Delete	N	Category
Admin	1	Has	1	AdminAccount
AdminAccount	N	Uses	1	Login

Attributes

Entity Name	Attributes	Description	Data Types & Length	Nulls	Multi - valued	Derived	Default
Purchased-Item	purchasedItemID	Unique ID for each item purchased	int				Auto - Incremented
	datePurchased	Purchase date of item	datetime				
	receiptNumber	Receipt of purchase	char (8)				
	CustomerAccountID	ID of the Customer’s account	int			Yes - derived from CustomerAccount	
Customer	CustomerID	Unique ID for each Customer	int				Auto - Incremented

	customerAccountID	Unique ID used for the Customer's account	int			Yes - derived from CustomerAccount	
	customerLoginID	Unique ID for the customer's set of login credentials	int			Yes - derived from Login	
	firstName	The Customer's first name	varchar (30)				
	lastName	The Customer's last name	varchar (50)				
	dateOfBirth	The Customer's date of birth	date				
	emailAddress	The Customer's email address	varchar (200)				
Customer-Account	CustomerAccountID	Unique ID used for the Customer's account	int				Auto - Incremented
	joinDate	The date the Customer joined	date				
	numOfPurchases	Counts the number of items bought by the Customer	int				
	addressID	Address ID of the Customer associated with the account	int			Yes - derived from MailingAddress	
	customerID	Unique ID for each Customer	int			Yes - derived from Customer	
	shoppingCartID	Unique ID of a Shopping Cart for a Customer	int			Yes - derived from ShoppingCart	

	loginID	Unique ID for the customer's set of login credentials	int			Yes - derived from Login	
Login	loginID	Unique ID for the customer's set of login credentials	int				
	username	Unique name used for the customer's login	varchar (8)				
	password	Unique password used for the customer's login	varchar (50)				
Mailing-Address	addressID	Unique ID used for the Customer's address	int				Auto - Incremented
	unit	Part of the Customer's address	varchar (3)				
	street	""	varchar (50)				
	suburb	""	varchar (50)				
	city	""	varchar (50)				
	state	""	varchar (3)				
	country	""	varchar (50)				
	postcode	""	char (4)				
Shopping-Cart	shoppingCartID	Unique ID used for the shopping cart	int				Auto - Incremented

	numberOfItems	The number of items currently held by the shopping cart	int				
	shippingCost	Additional cost for shipping	decimal (5,2)				
	totalPrice	The total calculated price	decimal (6,2)			(numItems*price + shippingcost) - disc	
	discountID	The code used if the Customer wants to apply a discount	int	Y		Yes - derived from DiscountType	
	paymentID	The code for the method of payment	int			Yes - derived from PaymentMethod	
Discount-Type	discountID	Unique ID used for the discount code					Auto - Incremented
	discountCode	Unique code relevant to type of discount	Varchar (20)				
	discountAmount	The discount dollar value off the total price	decimal (5,2)				
	conditions	Conditions that need to be met to be eligible for discount	varchar (500)	Y			
Payment - Method	paymentID	Unique ID used for each paymend method	int				Auto - Incremented
	paymentTransaction	Type of payment, can be paypal or bank card	varchar (6)				
PayPal	paymentMethodID	Unique ID used for each paymend method	int			Yes - derived from PaymentMethod	

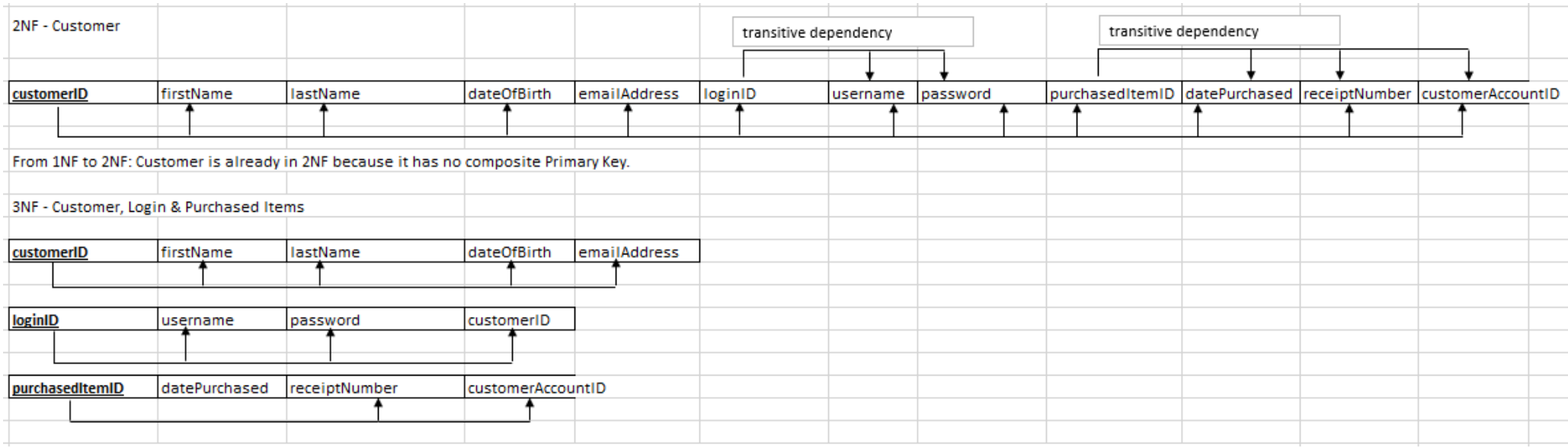
	paypalEmail	The email used to log into paypal	varchar (200)				
	paypalPassword	The password used to log into paypal	varchar (50)				
BankCard	paymentMethodID	Unique ID used for each paymend method	int			Yes - derived from PaymentMethod	
	cardNumber	Card number of the bank card	char (16)				
	CVV	The CVV of the bank card	varchar (4)				
	expiryDate	The expiry date of the bank card	date				
Product	productID	Unique ID used for the product	int				Auto - Incremented
	productDescrip-tion	The item’s description	varchar (300)				
	price	The cost of the item	decimal (6,2)				
	audience	The type of customer the item is for (eg. male, female, kids)	varchar (20)				
	colour	The colour of the item	varchar (50)				
	printType	The print on the item	varchar (200)				

	size	The size of the item	varchar (15)				
	categoryID	ID of Category	int			Yes - derived from Category	
	shoppingCartID	ID of the shoppingCart	int			Yes - derived from shoppingCart	
Category	catagoryID	Unique ID used for the category	int				Auto - Incremented
	name	The name of the category	varchar (50)				
	categoryDescription	The description of what the category is about	varchar (200)				
Admin-Account	adminAccountID	Unique ID used for the admin's account	int				Auto - Incremented
	joinDate	The date the admin has joined	date				
	companyRole	The role of the admin in the company	varchar (50)				
	lastAccessed	The date and time the admin has lastly accessed the website	datetime				
	changeLog	The date and time of any changes made by the admin	datetime				
	loginID	Unique ID for the admin's set of login credentials	int			Yes - derived from Login	

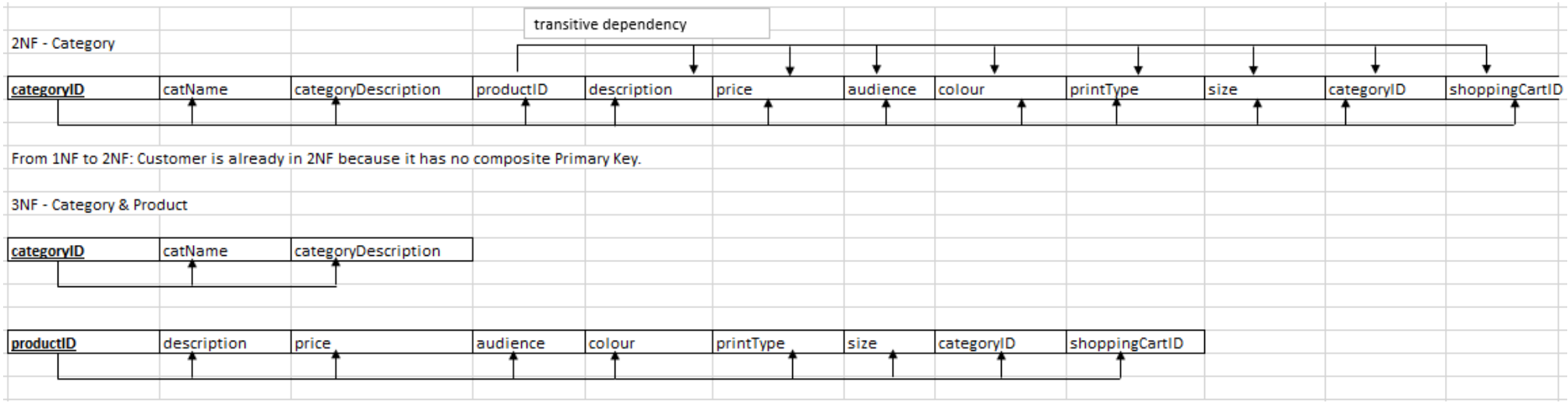
Admin	adminID	Unique ID used for the admin	int				Auto - Incremented
	adminAccountID	Unique ID used for the Admin's account	int			Yes - derived from AdminAccount	
	firstName	The admin's first name	varchar (30)				
	lastName	The admin's last name	varchar (50)				
	dateOfBirth	The admin's date of birth	date				
	emailAddress	The admin's email address	varchar (200)				

Normalisation

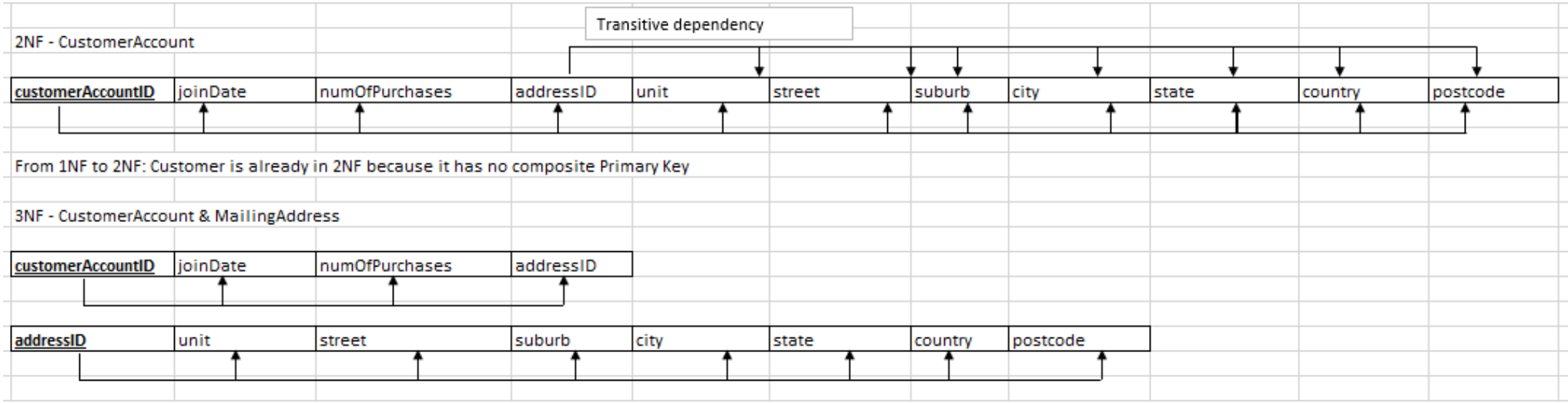
Customer Table



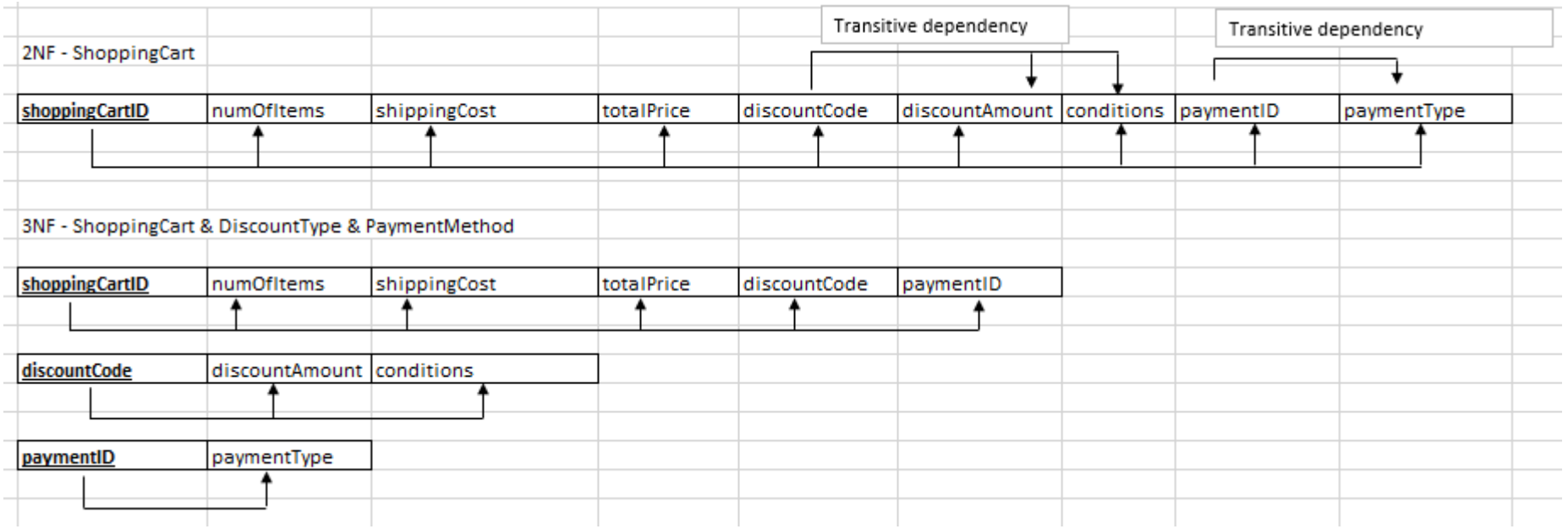
Category Table



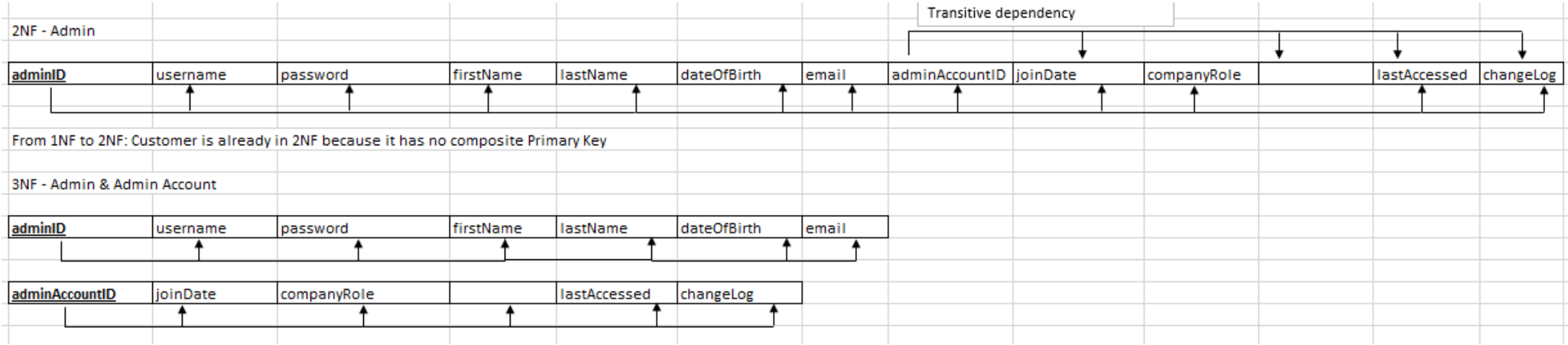
Customer Account Table



Shopping Cart Table



Admin Table


Transitive dependency
2NF - Admin
adminID
username
password
firstName
lastName
dateOfBirth
email
adminAccountID
joinDate
companyRole
lastAccessed
changeLog
From 1NF to 2NF: Customer is already in 2NF because it has no composite Primary Key
3NF - Admin & Admin Account
adminID
username
password
firstName
lastName
dateOfBirth
email
adminAccountID
joinDate
companyRole
lastAccessed
changeLog

References

Images Used

Skyrim T-Shirt by Spread Shirt Media - https://image.spreadshirtmedia.net/image-server/v1/products/133821034/views/1,width=800,height=800,appearanceId=2,version=1478003241/fus-ro-dah-5Bskyrim5D-maenner-t-shirt.png

Fallout Shirt by Shopify - https://cdn.shopify.com/s/files/1/1703/7219/products/hoody-ashgrey-rear-parachuting_800x_crop_center.png?v=1504691143

Witcher T-Shirt by Branca - https://cdn.colab55.com/images/1476389565/studio/9932/art/23652/tees/standard/branca/1.png

Morrowind Gloves by Wikia - https://vignette.wikia.nocookie.net/elderscrolls/images/a/af/Mystic_Tuning_Gloves.png/revision/latest?cb=20120827041009

Green Diamond Necklace by China Novelties Palace - https://sc01.alicdn.com/kf/HTB1fg3oHpXXXXXSXVXXq6xXFXXXs/China-Novelties-Palace-Green-Floating-Diamond-Necklace.jpg

Skyrim Shoes by Scene7 - https://fgl.scene7.com/is/image/FGLSportsLtd/332538410_20_a?wid=800&hei=800&bgColor=0,0,0,0&fmt=png-alpha&resMode=sharp2&op_sharpen=1

Cases by Shopify - https://cdn.shopify.com/s/files/1/2017/9971/products/Blackbutler_phone_case_Store_DP_800x.png?v=1499434923

Pokemon Toy by Canada World - http://www.canadacardworld.com/3473-thickbox_default/presell-pokemon-sun-and-moon-booster-6-box-case.jpg

Vector Icons

Shopping Cart by Gregor Cresnas - https://www.flaticon.com/authors/gregor-cresnar
User

User Icon by SmashIcons - https://www.flaticon.com/authors/smashicons

Code references

Bootstrap Login Form by Bootstrap - https://bootsnipp.com/snippets/GXAAE

How to: Detect When the Enter Key Pressed by Microsoft Docs - https://docs.microsoft.com/en-us/dotnet/framework/wpf/advanced/how-to-detect-when-the-enter-key-pressed