2021

Colorado T-Shirts eCommerce Site

PROJECT PLANNING, ANALYSIS, & DESIGN REPORT

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COLORADO T-SHIRTS ECOMMERCE SITE REPORT

BACS487 Group 4

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The following report discusses the planning, analysis, design, and implementation for the creation of *Colorado T-shirts'* web-based eCommerce site

PLANNING AND PROJECT MANAGEMENT

Project Team

UI/UX Designer (UI/UX) - Austin Sneddon: Responsible for using the architecture that was built by the web developer and implementing it into a form that adheres to modern design principles and makes the program understandable and easy to use. Austin is responsible for the creation of the data flow diagrams.

Web Developer (Web Dev) - Conner John: Responsible for working with other members of the team to plan and develop a functional site for the end user to use consisting of several tabs and pages. Conner will create user stories.

Database Architect (DBA) - Josh Martinez: Responsible for designing, securing, and maintaining the database as well as the creation of the entity-relationship diagrams.

Project Manager (PM) - Taylor Slinkard: Responsible for planning and project management report write-up, maintaining scope and schedule, and facilitating communications. Taylor coordinated the interview process and wrote the requirements definition statement.

Project / System Request

Project Name: Colorado T-Shirts eCommerce Site

Project Sponsor/SME: Lydia A., 2+ years of experience in retail and management

Need: Currently, Colorado T-Shirts, a graphic t-shirt firm, operates solely as a brick-and-mortar store, but company owners want the additional capability to reach online shoppers and facilitate online sales.

Initial Requirements:

- Customers can visit website homepage and browse a variety of tabs for each type and style of shirts
- The system keeps an up-to-date record of t-shirt availability
- Customers can add shirts to cart and view cart items
- System collects order information and payment information to process sales
- Employees can easily access and update the website as needed

See ANALYSIS section for the detailed list of requirements

Value

- Tangible Value: Based on market research and industry estimates (such as average conversion rates and avg monthly visitors), this project will increase t-shirt sales by an estimated:

    - 8.43% over the first year
    - 11.8% over two years
    - 16.86% over three years
- Intangible Value:
    - Increased company visibility
    - Enhanced brand image

Constraints

- Design deadline for December 8, 2021 (end of Fall semester)
- Implementation deadline for May 2, 2022 (near end of Spring semester)

Level of Effort

- Estimated LOE is 152 hours over the course of two 16-week semesters. Planning, analysis and design (approx. 52 hours) will be completed during the Fall '21 semester. Development and implementation will be completed in Spring '22.
- These estimates will be refined throughout the project.

Feasibility Analysis

Technical Feasibility

The Colorado T-Shirts E-Commerce Design Project is feasible technically. Some risks have been identified.

BACS487 Group 4's risk regarding familiarity with an E-commerce website is moderate.

- The project team is familiar with information systems, object-oriented systems, and has knowledge of multiple programming languages.
- The Colorado T-Shirts E-Commerce Design Project contains some unfamiliar elements – analysts on the project team have finite understandings of implementing UI/UX, web development, and database architecture.

BACS487 Group 4's risk regarding familiarity with technology is low.

- The technology used in the proposed Colorado T-Shirts E-Commerce Design Project will be similar to existing projects previously done by peers in the CIS Department.
- The project team has extensive continued education on all aspects of this project.

The project size is considered moderately low

- Project scope has been intentionally limited to the inventory database, website framework, individual tabs and pages, and the back-end view of database.
- The project team consists of four people.

The compatibility with Colorado T-Shirts E-Commerce Design Project existing technical infrastructure should be good.

- An Internet infrastructure is already in place at Kepner Hall.
- The system will be based on courses taken over the first three years of the project team in their Computer Information Systems emphasis of study.

Economic Feasibility

A cost-benefit analysis was performed (see spreadsheet included with submission). This project is economically feasible and has the potential to increase company sales and net income.

- Estimated net $13,067 ($21,200 in costs and $34,267 in benefits over three years)
- Cash Flow numbers (over three years):
    - High Return on Investment (ROI): 61.64%
    - Low Break-Even Point (BEP): 2.14 years
    - Positive Net Present Value (NPV): $8,017
    - All three measurements indicate this is a value-adding project

Organizational Feasibility

From an organizational perspective, this project has moderately low risk.

Stakeholder Analysis

- *Project champion:* Company owner is the project champion and will promote the project and provide support.
- *System users (employees):* There are 2-3 employees responsible for ensuring the website is up to date with the most recent products, prices, and deals. It will be important to seek occasional feedback on the system usability from these employees throughout the project. While these employees have some basic technical knowledge, it may be necessary to work with the company owner to provide them with any needed training on website upkeep.
- *System users (customers):* As a basic eCommerce website, the majority of online shoppers will be familiar with this system. They can expect a clean, convenient user interface to browse products, add products to their cart, and place an order.

Strategic Alignment

- This project is closely aligned with the company business strategy.
- *Colorado T-Shirts*' company executives recently announced their objective to further increase their customer base within the next three years.
- The creation of an eCommerce website supports this business goal by enabling the company to reach new online shoppers in addition to providing another avenue to connect with returning customers.

Project Plan

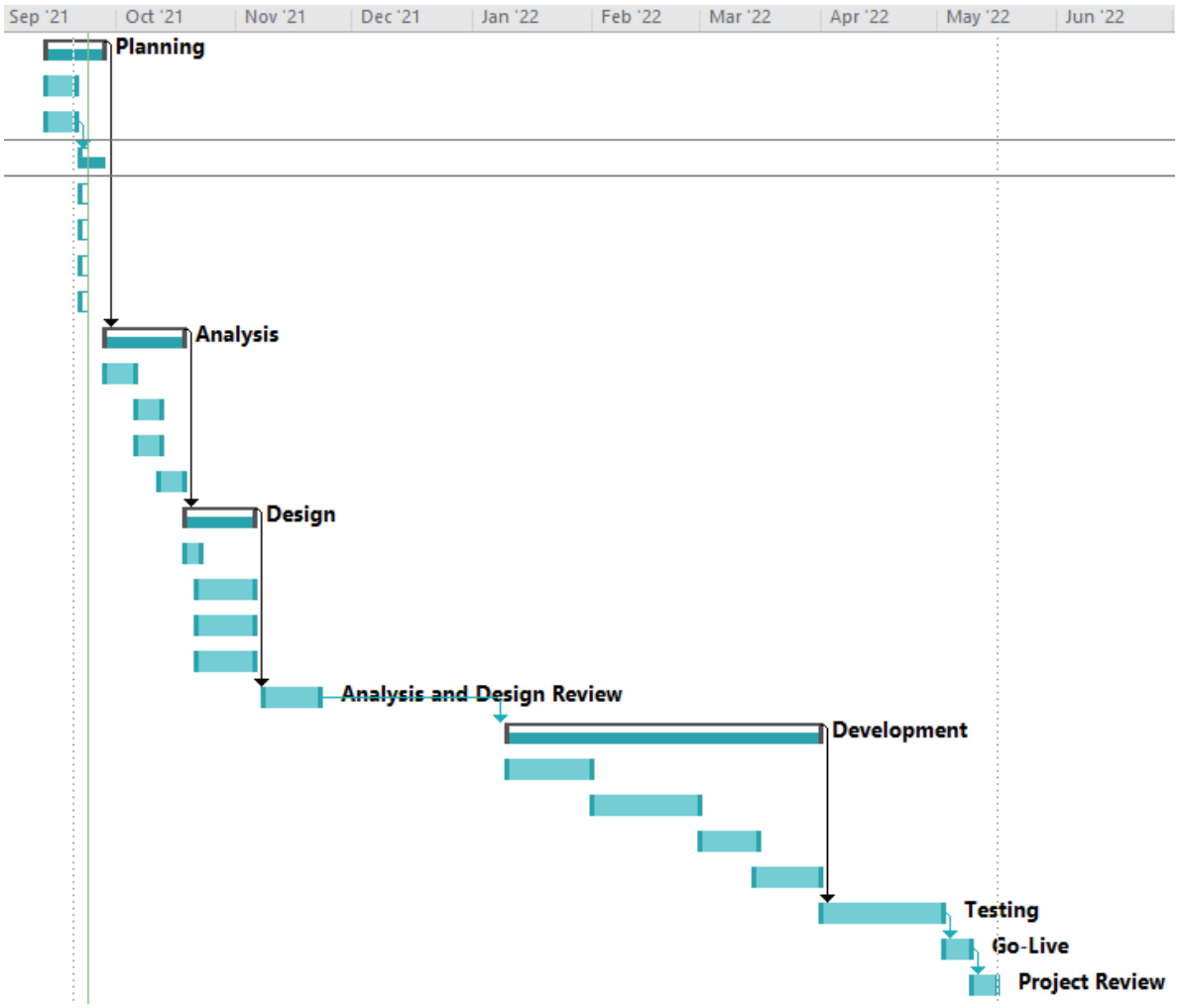
Approach

Team members will complete this project utilizing the waterfall methodology and following the Systems Development Life Cycle, beginning with project **planning**. During this phase, the project manager and team will define the project request, conduct a feasibility analysis, and determine the work plan and rough order of magnitude (ROM) which will be refined as the project progresses. From there, team members will perform project **analysis** by reviewing any

as-is systems, gathering requirements, and creating the system proposal. In the following **design** phase, the team will determine the design strategy, architecture and program design details and further narrow down database and file specifications. Product **development and implementation** will be completed in Spring 2022.

Tasks and Timeline

Project Gantt Chart



Work Breakdown Structure

Task No.	Task	LOE (hrs)	Start Date	End Date	Dependency	Role
1	Planning	13	9/13/21	10/1/21		
1.1	Project Request	1	9/13/21	9/20/21		PM
1.2	Define Business Requirements	3	9/13/21	9/20/21		PM
1.3	Feasibility Analysis	6	9/21/21	10/1/21	1.2	PM
1.3.1	Technical Analysis	2	9/21/21	10/1/21		DBA
1.3.2	Economic Analysis	3	9/21/21	10/1/21		PM
1.3.3	Organization Analysis	1	9/21/21	10/1/21		PM
1.4	Create WBS	3	9/21/21	10/1/21	1.2	PM
2	Analysis	22	10/2/21	10/29/21	1	
2.1	Analyze To-be Systems	4	10/2/21	10/10/21		Tech Team
2.2	Develop Analysis Strategy	2	10/2/21	10/10/21		Tech Team
2.3	Conduct SME Interview	2	10/12/21	10/12/21		Full Team
2.4	Define Requirements	3	10/13/21	10/25/21	2.3	PM
2.5	Create User Stories	3	10/13/21	10/25/21	2.4	Tech Team
2.6	Create Process Models Diagrams	3	10/13/21	10/25/21		UI/UX
2.7	Create Data Model Diagrams	3	10/13/21	10/25/21		DBA
2.8	Compile & Submit System Proposal	2	10/25/21	10/29/21	2.4-7	PM
3	Design	9	10/30/31	11/19/21	2	
3.1	Determine Design Strategy	2	10/30/21	11/5/21		Tech Team
3.2	Create Design Narrative	2	11/6/21	11/16/21		DBA
3.3	Create List of Technologies	1	11/6/21	11/16/21		UI/UX
3.4	Create Physical Process Models	2	11/6/21	11/16/21		Web Dev
3.5	Create Physical Data Models	2	11/6/21	11/16/21		DBA
3.6	Compile & Submit Design Report	1	11/17/21	11/19/21		PM
4	Create Implementation Plan	4	11/20/21	11/24/21	3	Full Team
5	Final Report Review & Submission	8	11/29/21	12/8/21	4	Full Team
6	Development	80	1/10/22	3/31/22	5	
6.1	Inventory Database	24	1/10/22	1/31/22		DBA
6.2	Website Framework	24	2/1/22	2/28/22	6.1	Web Dev
6.3	Individual Tabs/Pages	16	3/1/22	3/15/22	6.2	Web Dev
6.4	Database Back-end view	16	3/15/22	3/31/22	6.3	Tech Team
7	System Testing	16	4/1/22	5/2/22	6	Tech Team
8	Go-Live	2	5/2/22	5/6/22	7	Full Team
9	Project Review	2	5/2/22	5/6/22	8	Full Team

**Tech Team = Database Architect + Web Developer + UI/UX Designer

ANALYSIS: SYSTEM PROPOSAL

Requirements Definition Statement

At this point in time, *Colorado T-shirt*s only operates as a brick-and-mortar store. Company owners currently are struggling to reach a larger target market. They would like to establish an online presence to connect with both returning and new customers. This eCommerce website will allow the business to reach online shoppers and facilitate online sales. Customers can visit the website to join the mailing list, browse the different types of t-shirts, and purchase shirts accordingly.

Business Requirements

1. Website must contain homepage and tabs to view t-shirt pages
2. Website must allow account creation for both employees and customers
3. Website must allow for online purchases
4. Purchases from website must only be available to domestic customers (no international sales)
5. Company should have a mailing list
6. Website pages should be accessible and editable by company employees

User Requirements

Customer

7. Customer should be able to see deals listed on the website homepage (example: clearance items)
8. Customer should be able to view and select from tabs on the website homepage
9. Customer should be able to select from the following tab options: Women's, Men's, Youth, Toddler's, New Arrivals, Clearance, Returns
10. Customers should be able to view and fill in the following fields after selecting the "Returns" tab: order number, product size
11. Customer should see the following categories on each tab (except the "Returns" tab): activewear, plain tees and graphic tees
12. Customer should only be able to view a maximum of 15 shirts displayed per tab with subsequent pages should there be more than 15 of a specific type of shirt (e.g. Women's graphic tees)
13. Customer should be able to select a t-shirt by clicking on the image or shirt title
14. After selecting a shirt, the customer should be able to view the following t-shirt specifics: T-shirt name, image, price, size options, size availability, fabric makeup, shirt length, and estimated shipping date

- Shirt length example: The length from shoulder to bottom of shirt is 18 inches on a size small.

15. When viewing a specific shirt, customer should also be shown additional recommendations on the bottom of the screen

- Recommendations would be other shirts similar to the shirt being viewed

16. Customers should see the following t-shirt size options for men, women, and youth: x-small, small, medium, large, and extra large
17. Customers viewing toddler t-shirts should see the following size options 1T, 2T, 3T, 4T, 5T

- 1T (18-24 months)
- 2T (5/6 yrs)
- 3T (6/7 yrs)
- 4T (7/8 yrs)
- 5T (8/10)

18. Customers should be able to add user reviews for a specific shirt
19. Customers should be able to view other customers' reviews
20. When writing a review, customers should have the option to enter comments
21. When writing a review, customers should also be able to select:
    - 1, 2, 3, 4, or 5 stars
    - runs small, true to size, runs large
    - poor quality material, medium quality material, high quality material
22. If there is a deal on a specific shirt, Customers should be able to see both the discount price and original price so he/she can determine the amount saved
23. Customer should be able add t-shirt to cart via an "Add to Cart" button on the t-shirt page
24. Customer should be able select a "View Cart" button on any webpage and navigate to the Cart
25. On the Cart page, customer should see Cart Total, product details, and "Order Now" button
26. Customer must see the following product details: t-shirt type/t-shirt name, male/female/youth, size, and quantity
27. When the customer clicks on the "Order Now" button, he/she should be directed to the account creation page
28. To create a customer account, a customer must complete the following fields: First name, last name, email address, and shipping address
29. If the customer has a promo code, he/she should be able to enter it in a promo code field at checkout
30. Customer should be able to pay with card
31. Customers must be able to view and fill in the following card information: card type, name on card, card number, expiration date, and CVV
32. After ordering, the customer should receive an email with order confirmation and order information
33. Customers should be able to unsubscribe from mailing list

Employee

34. Employees should be able to add promo codes to the emails that are sent out to the mailing list
35. Employees should be able to create an employee specific account

36. To create an account, an employee must enter complete the following fields: Employee ID, first name, last name, email address
37. Employees should be able to manage customer accounts
38. Employee should be able to see order information and invoices for each customer
39. Employee should be able to track shipping for each customer
40. Employees should be able to add new t-shirts to the website
41. Employees should be able to change prices on the website
42. Employees should have a page to view and manage inventory

Functional Requirements

43. The system should require the customer to create an account before processing an order
44. The system should collect customer card payment information
45. The system should apply deals at checkout
46. The system must recognize and apply promo codes at check out
47. If customer is international, system should not process the payment
48. The system should process the payment
49. If a customer does not complete an order within 15 minutes, the system should automatically time out
50. The system should assign an order number to each order
51. The system should add email addresses to a mailing list
52. Once an order is placed, the system automatically sends the user an email with the order confirmation and order information
53. Order confirmation information should include the following customer name, order number, t-shirt type/t-shirt name, male/female/youth, size, quantity, and estimated shipping date
54. System should automatically update t-shirt size availability for a specific t-shirt so customers can view real-time data on t-shirt availability

Nonfunctional requirements

Operational

55. The system should be compatible with any Web browser

Performance

56. Website load time should not exceed 3 seconds

Security

57. Customer account password will be encrypted and secured
58. Customer payment information will be encrypted and secured

Cultural and Political

59. Only customers in the U.S. can purchase from this website

User Stories

Owner

1. As an owner I can disable employee accounts so old employees can't access the system.
2. As an owner I can perform the same actions as an employee account so I can fully manage the site.

Employee

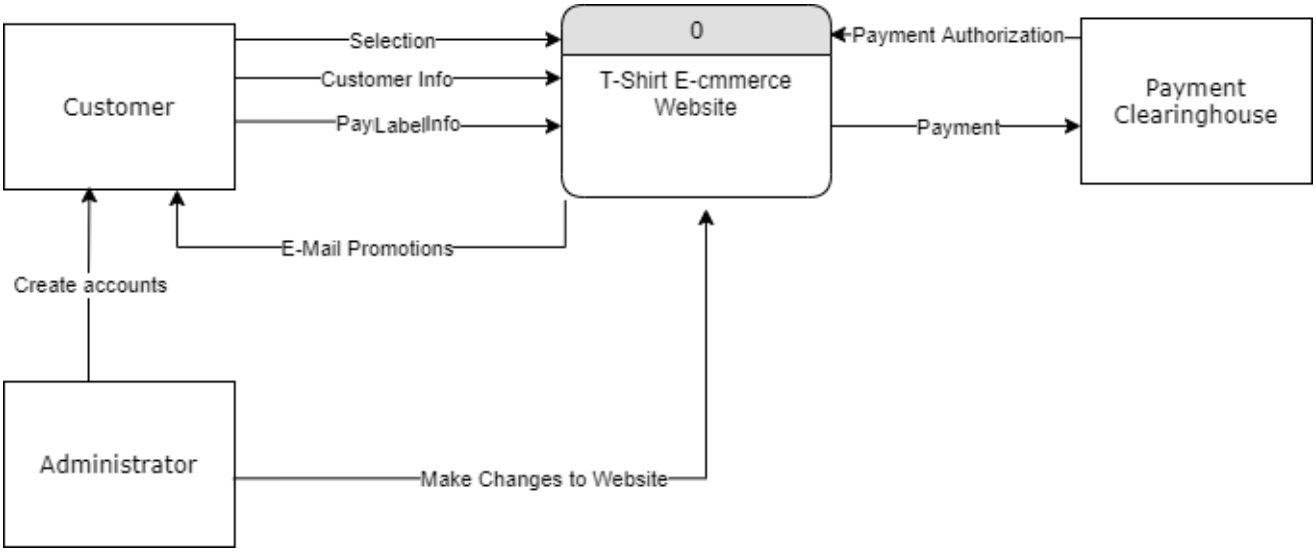
1. As an employee I can create an account so that I can work within the website.
2. As an employee I can manage customer accounts so that I can address any account issues customers face.
3. As an employee I can manage promo codes within the mailing list so that customers will have more reason to shop.
4. As an employee I can find customer data so that I can track shipping and orders.
5. As an employee I can manage inventory so that I can reflect incoming and outgoing orders on the website.
6. As an employee I can adjust pricing on items so that the store reflects current market prices.

Customer

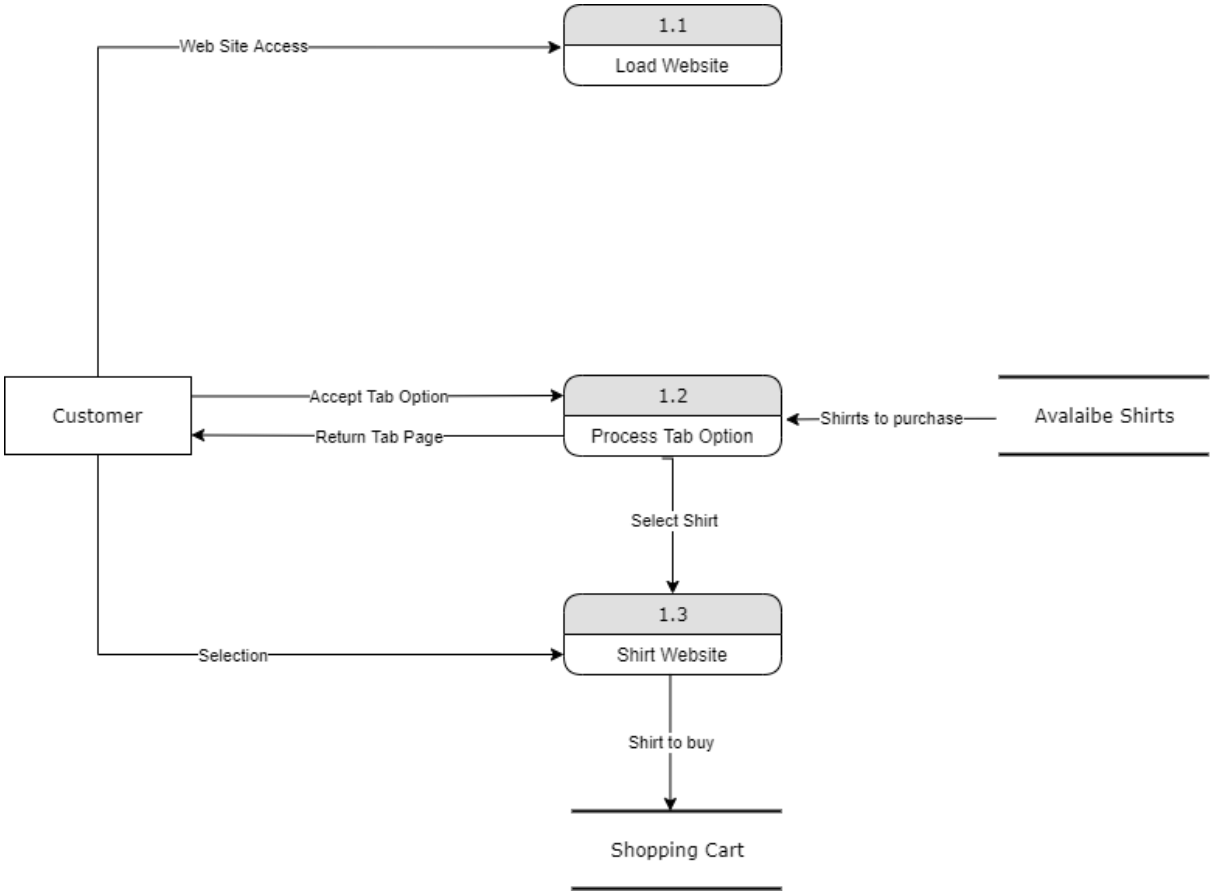
1. As a customer I can create an account so that my data is saved on the website.
2. As a customer I can navigate the site easily so that I can find items I want to purchase.
3. As a customer I can input requests so that I can return items that I purchased.
4. As a customer I can view my orders so that I can track shipping.
5. As a customer I can interact with items so that I can make purchases.
6. As a customer I can interact with items so that I can view more detailed information on an item.
7. As a customer I can add reviews on items so that I can share my experience with others.
8. As a customer I can read reviews from others so that I can see what other people's experiences have been with an item.
9. As a customer I can see discounts so that I can get the best deal on my purchases and see how much I saved.
10. As a customer I can view my cart so that I can save items to purchase together.
11. As a customer I can manage my cart so that I can remove unwanted items.
12. As a customer I can input promo codes so that I get reduced prices on items.
13. As a customer I can pay via card so that I can make an online purchase.
14. As a customer I receive emails from the company so that I can get confirmation emails, order information, and promotions.
15. As a customer I can unsubscribe from the mailing list so that I don't receive unwanted emails.
16. As a customer I can see recommendations so that I can see other items that I might be interested in.

Data Flow Diagrams

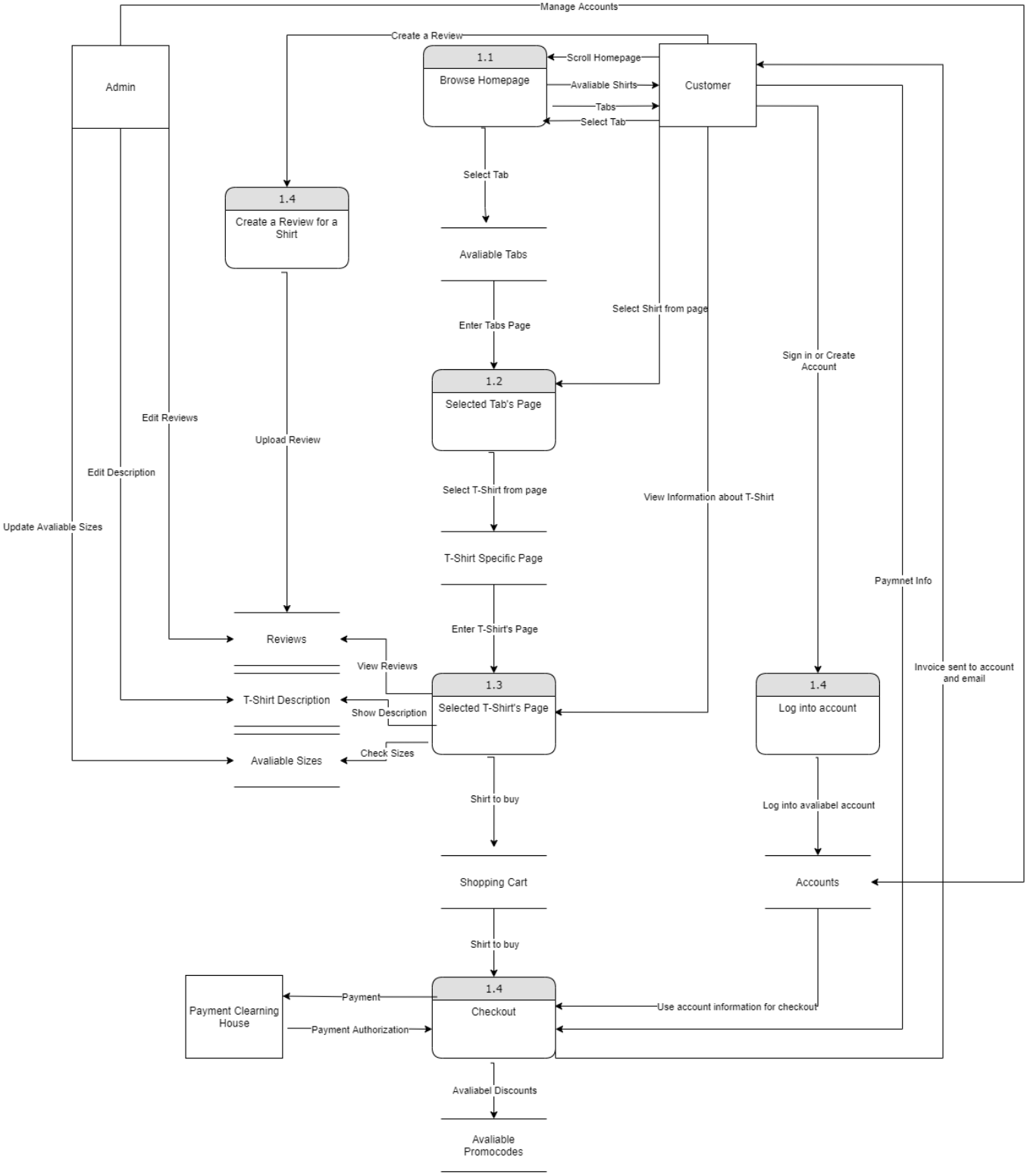
Conceptual Level Diagram



Level 1 Diagram



Level 1 Dataflow Diagram



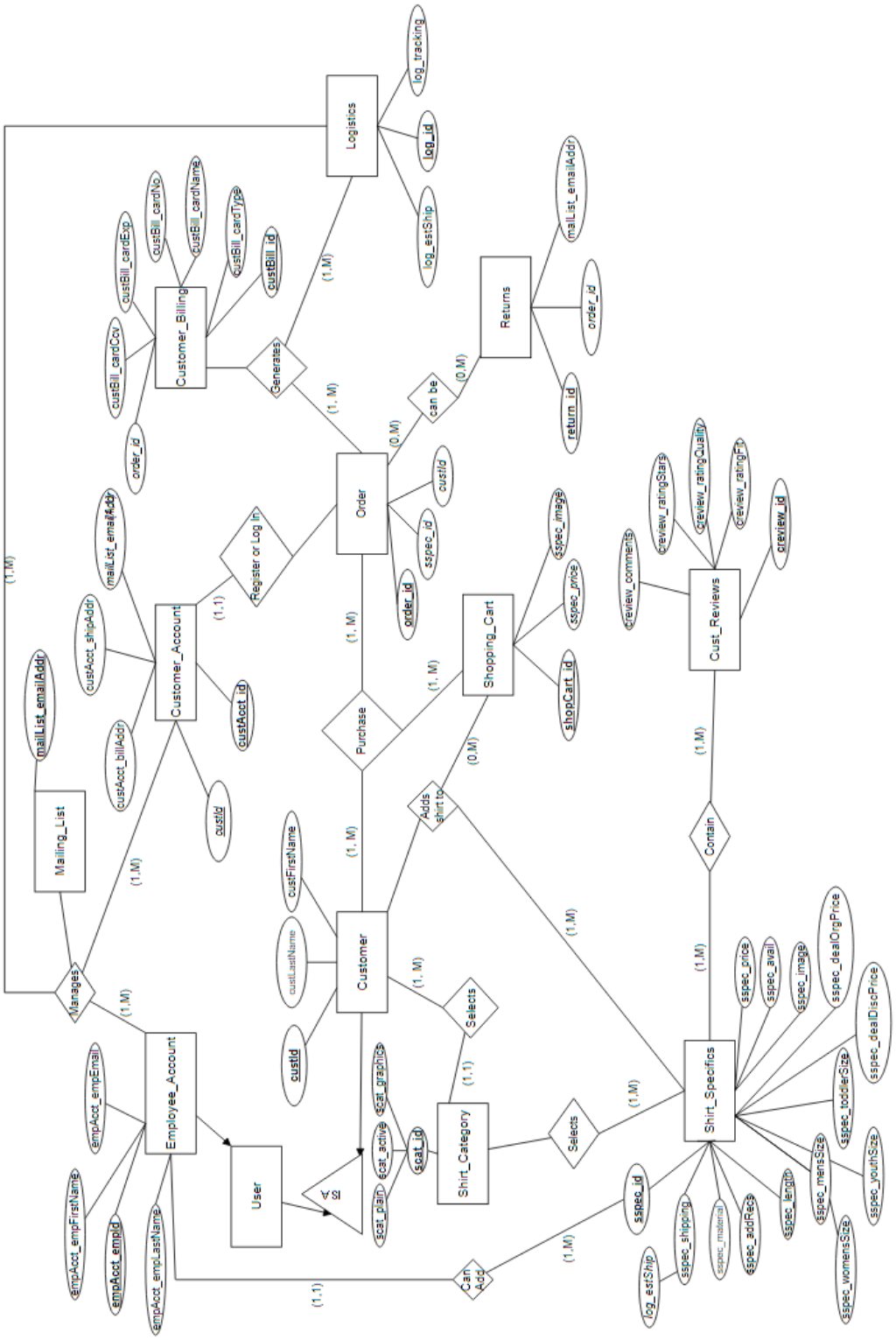
Data Dictionary

Entity	Value Name	Description	Data Type	Character Length	Acceptable Values	Required?	Accept Nulls?
Employee_Account	**empAcct_EmpId**	ID of employee	Autoincrement	-	>= 0	Y	N
	empAcct_EmpFirstName	First name of employee	Varchar2	20		Y	N
	empAcct_EmpLastName	Last name of employee	Varchar2	20		Y	N
	empAcct_EmpEmail	Email address of employee	Varchar2	30		Y	N
Customer	**custId**	ID of customer browsing	Autoincrement	-	>= 0	Y	N
	custLastName	Last name of customer	Varchar2	20		Y	N
	custFirstName	First name of customer	Varchar2	20		Y	N
Customer_Account	**custAcct_Id**	IDof customer account	Autoincrement	-	>= 0	Y	N
	custAcct_BillAddr	Billing address of customer	Varchar2	30			
	custAcct_ShipAddr	Shipping address of customer	Varchar2	30			
	mailList_EmailAddr	Foreign key linking to Mailing_List	Varchar2	30			
Customer_Billing	**custBill_Id**	Billing ID for customer	Autoincrement	-	>= 0	Y	N
	custBill_CardType	Type of card	Varchar2	10			
	custBill_CardName	Name as appears on card	Varchar2	50			
	custBill_CardNo	Customer card number	Number	16			
	custBill_CardExp	Expiration date of customer card	Number	4			
	custBill_CardCcv	CCV of customer card	Number	3			
Mailing_List	**mailList_EmailAddr**	Email addresses of subscribed users	Varchar2	30		Y	N
Order	**order_id**	ID of order once it is placed	Autoincrement	-	>= 0	Y	N
	sspec_Id	Foreign key linking to Shirt_Specifics	Autoincrement	-			
	custId	Foreign key linking to Customer	Autoincrement	-			
Returns	**return_Id**	Id to track returns	Autoincrement	-	>= 0	Y	N
	order_id	Foreign key linking to Order	Autoincrement	-			
	mailList_EmailAddr	Foreign key linking to Customer_Account	Varchar2	30			

Logistics	**log_Id**	ID for logistics	Autoincrement	-	>= 0	Y	N
	log_EstShip	Estimated shipping for item	Date	-			
	log_Tracking	Tracking number from logistics	Varchar2	30			
Shopping_Cart	**shopCart_id**	ID when items placed in cart	Autoincrement	-	>= 0	Y	N
	sspec_Price	Foreign key linking to Shirt_Specifics	Number	15			
	sspec_Image	Foreign key linking to Shirt_Specifics	-	-			
	custId	Foreign key linkin to Customer	Autoincrement	-			
Cust_Reviews	**creview_Id**	ID to track customer reviews	Autoincrement	-	>= 0	Y	N
	creview_Comments	Comments from customers	Varchar2	256			
	creview_RatingStars	1-5 star ratings of purchase	Number	1			
	creview_RatingFit	Customer rating fit of purchase	Number	1			
	creview_RatingQuality	Customer rating quality of purchase	Number	1			
Shirt_Specifics	**sspec_Id**	ID to specify specs of shirts	Autoincrement	-	>= 0	Y	N
	sspec_Shipping	Shows estimated shipping to customer	Date	-			
	log_Id	Foreign key linking to Logistics	Autoincrement	-			
	sspec_Material	Material information	Varchar2	15			
	sspec_AddRecs	Holder of recommendations view	-	-			
	sspec_Length	Length of shirt	Number	2			
	sspec_MenSize	Shirt sizes - Men	Varchar2	15	{XS, S, M, L, XL, XXL}		
	sspec_WomenSize	Shirt sizes - Women	Varchar2	15	{XS, S, M, L, XL, XXL}		
	sspec_YouthSize	Shirt sizes - Youth	Varchar2	15	{XS, S, M, L, XL, XXL}		
	sspec_ToddlerSize	Shirt sizes - Toddler	Varchar2	15	{1T, 2T, 3T, 4T, 5T}		
	sspec_DealsOrgPrice	Displays original price of item to customer	Number	15			

	sspec_DealsDiscPrice	Displays discount price (red slash through original price)	Number	15			
	sspec_Image	Displays image of shirt to customer	-	-			
	sspec_Availability	Checks availability of inventory	Varchar2	15			
	sspec_Price	Displays item price	Number	15			
Shirt_Category	**scat_Id**	ID of category	Autoincrement	-	>= 0	Y	N
	scat_Plain	Category of shirts that are 'plain'	Varchar2	15			
	scat_Active	Cateogry of shirts that are 'active'	Varchar2	15			
	scat_Graphics	Cateogry of shirts that display 'graphics'	Varchar2	15			

Entity-Relationship Diagram



DESIGN

The following design report contains the project design narrative and a list of necessary technologies to complete the project as well as physical DFD and physical ERD.

Design Narrative

Designing the website will start with organizing the user stories by what needs to be completed first. Website functionality is already being pre-determined (within the user stories), so they need to be laid out in a fashion that suits how each page would be accessed. This will be done for ease of comprehension of where we are in totality on the project and for testing purposes. With some user stories being defined as having a page for types of shirts (a page holding many different shirts within a specified category) and the user, from there, choosing a shirt. Once choosing a shirt the user is directed to that shirt's own page. By laying out user stories in a sequential fashion of how they would be accessed, integration testing should be easier.

Each of the necessary user stories will be comprised of all the navigation mechanisms menus, buttons, etc. This will then be used to create a wireframe for the webpages. Having the wireframes will help establish the general layout and functionality of the website. The wireframes will be constructed with the aid of the dataflow diagrams, both physical and logical, and the ERDs, both physical and logical.

After the overall layout of the website has been established with the wireframe diagrams, they will be employed into making HTML prototypes. We will create all the webpages and link them together. Button and data entry interfaces will also be built. The goal of the prototype is to allow us to test and evaluate the functionality of the site.

Using the wireframe diagram, we will walk through the planned user experience and make sure everything is setup and working the way the user wants. The experience the user interacts with on their specified user stories will follow strict modern design principles. This also entails a consistent design language throughout the website. Since there is a range of pages that hold different information, it is important that the design language is consistent throughout all pages of the website for accessibility and readability.

Once everything is working properly, we will move into the evaluation phase. For our project we will implement an interactive evaluation. An interactive evaluation is preferable in our scenario as it gives us the ability to see how a user would interact with the website in a normal situation. Since the website would be accessible to anyone, it should be able to be interacted with by anyone. It also can help with the identification of fringe scenarios that either go outside the boundaries of the user stories or outside of our predicted user attempts.

The database will be a relational database using the software MySQl. Designing the database started with evaluation of our user stories and business requirements to turn them into a logical ERD. The logical ERD was then turned into a physical ERD so implementation of the system is clearer to our team. Using the physical ERD, optimization of the data storage will then be performed. Since we know that our user wants less than three seconds load time, optimizing access speed will be critical. To accomplish this, indexes and clustering will be implemented where necessary. Finally, to make sure our database will not perform poorly, volumetrics will be performed for each table in our database to be sure that the system can handle the volume our

website could possibly see. Now that we have a basic idea of how the database will look and function, the database will then be built using MySQL. Once the database is built, it will be remotely connected to our webhost Hostinger. From here, our team can load arbitrary data into the system to make sure the database is functioning properly with the client side. Once we know everything is running smoothly, the database can finally be connected to the front-end server to be hosted.

Functionality Breakdown:

Must-Haves

- DBA: Mailing_List, Customer_Account, Customer, Order, Shopping_Cart, Shirt_Category, Shirt_Specifics, Customer_Billing
- Web Developer*:* Administrative controls over other accounts, functional login and account management, secure payment processing, order confirmation
- UI/UX: Tabulated homepage, 5 shirts per page- show primary picture of shirt, shirt size select, shirt information, carrousel of product photos, quantity control option

Nice-to-Haves

- DBA: Employee account, logistics, returns
- Web Developer: Customer reviews, order tracking
- UI/UX: Shirt recommendations, mailing letter

The “must-haves” and “nice-to-haves” may be refined as team member continueto analyze risks and project progress.

Technology To Be Used

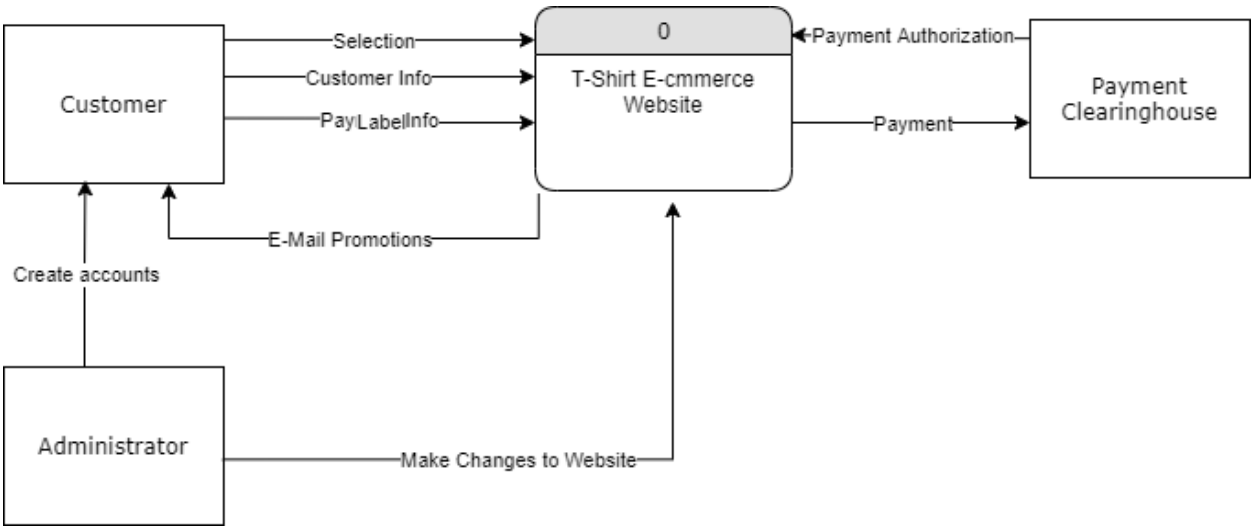
Data Storage: The project will use a client-server architecture where the client computer will handle the presentation logic, and the server handles data storage and access logic. The project itself will consist of the main website and a MySQL database that stores customer, employee, and inventory data. These will both be stored on a web hosted server through Hostinger. This service will provide the website domain, SSD storage, and other management over the server itself. This should allow the non-functional requirement needs of having sub 3 second load times and a secure connection between the client and the server.

Data Access and Application Logic: Since we will be using a MySQL database, we will use SQL to query the database and PHP to tie everything into the rest of the website. PHP will also be used to develop more of the application logic such as managing user access and shuttle information to and from the database and client.

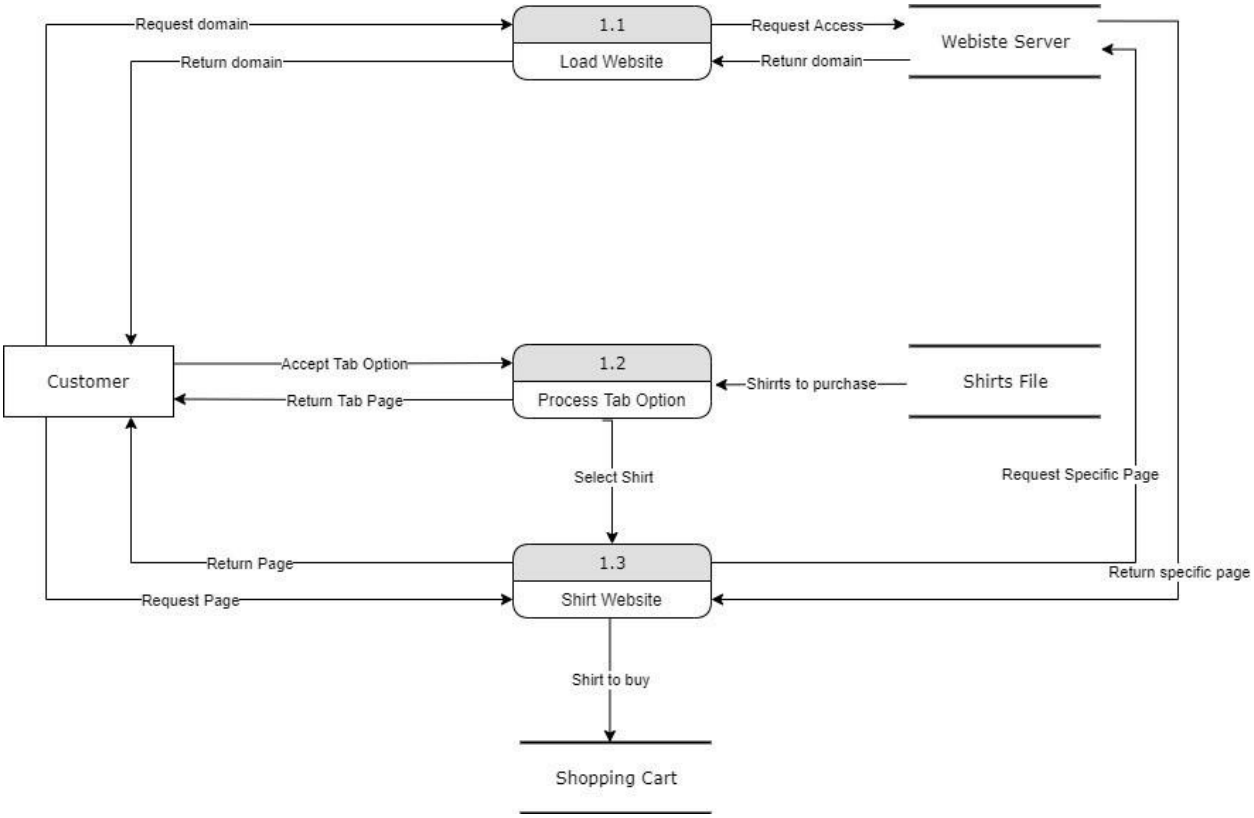
Presentation Logic: Like most websites, the client side of the website will be made by HTML and CSS code. This will handle the webpage layout style, coloring, and other elements of the user interface. Javascript will also be used to interact with the user and allow the user to navigate the site.

Physical Data Flow Diagrams (DFDs)

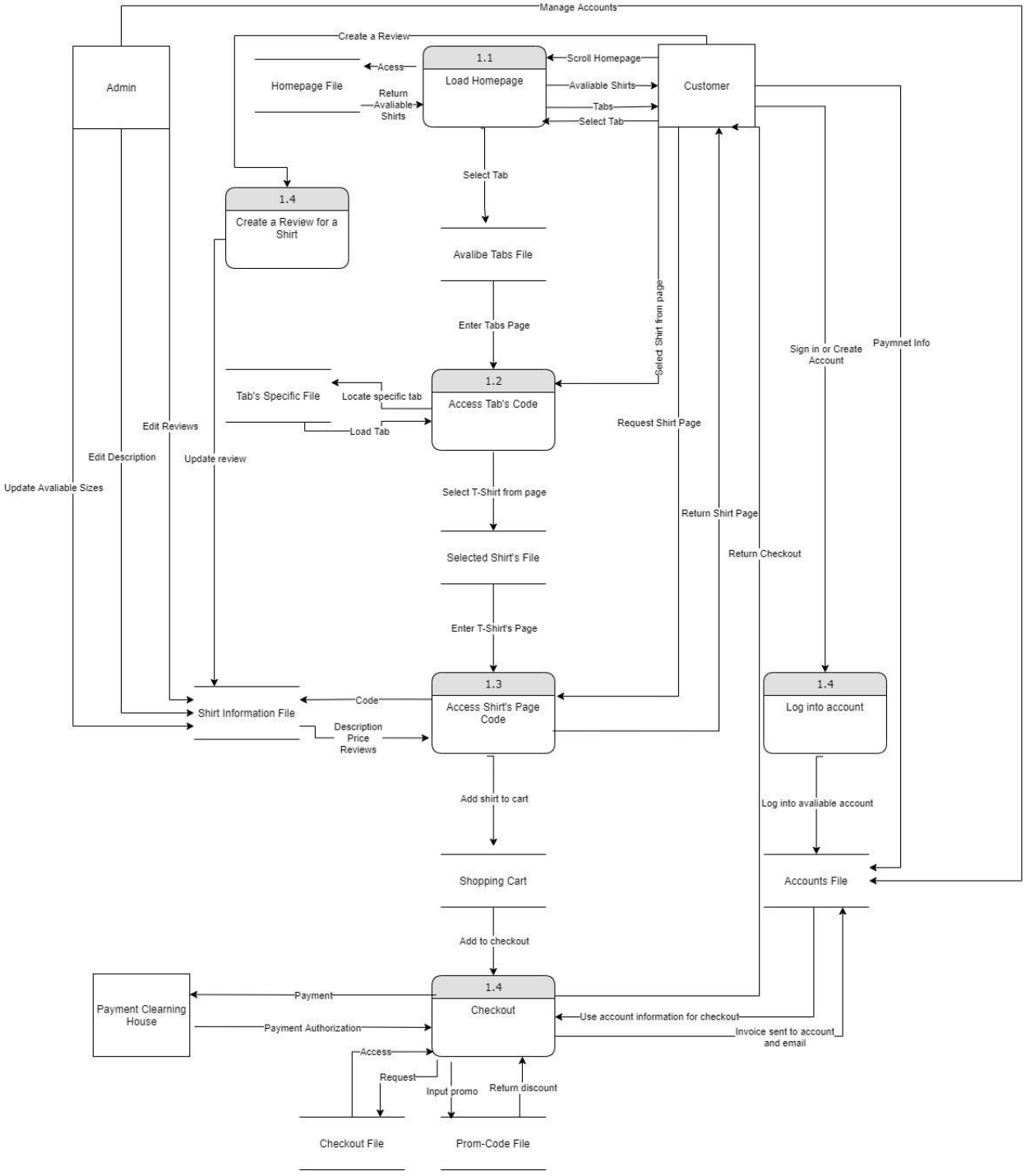
Level 0 DFD



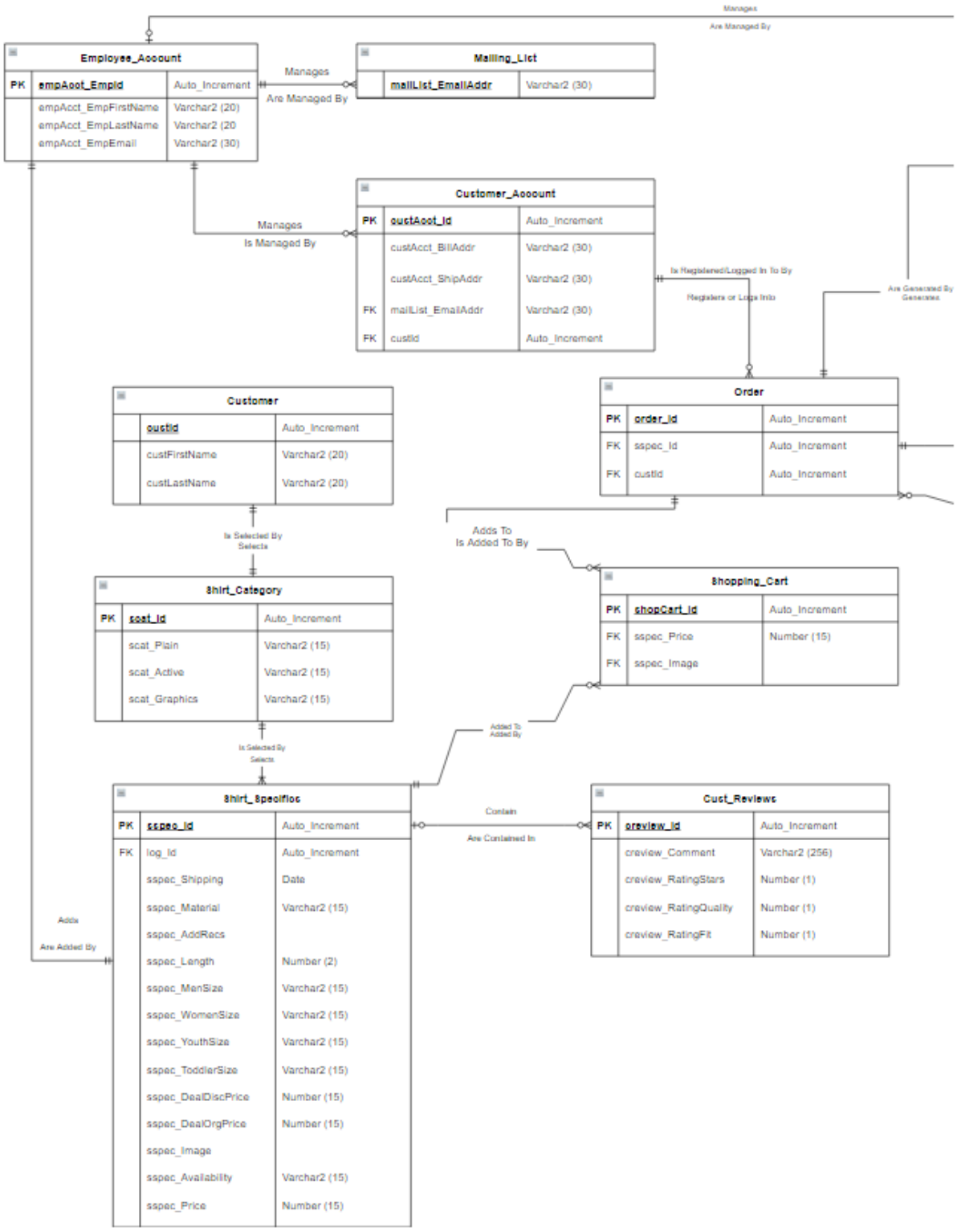
Level 1 DFD

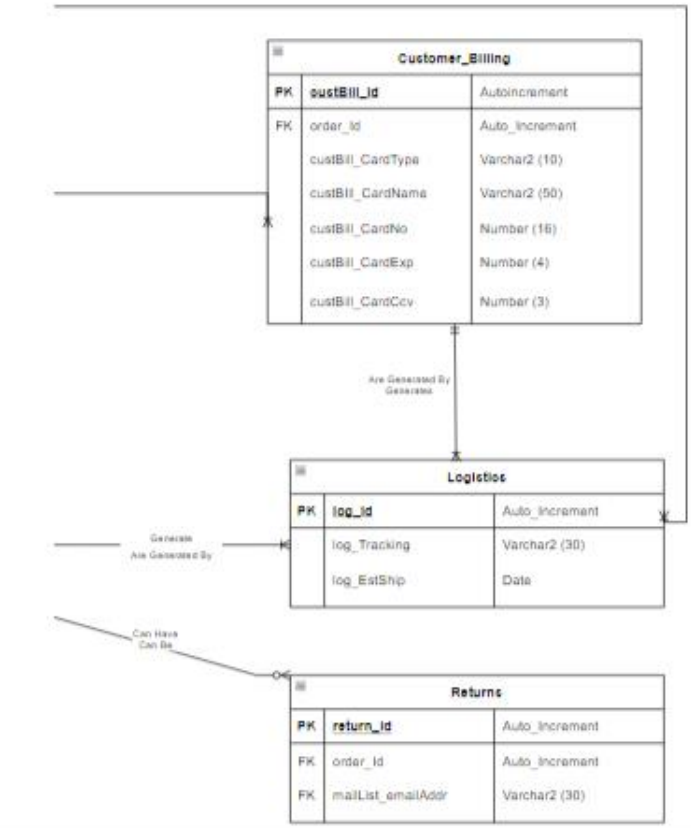


Level 1 DFD


Manage Accounts
Create a Review
Admin
1.1
Load Homepage
Scroll Homepage
Acess
Homepage File
Return Avaliable Shirts
Avaliable Shirts
Tabs
Select Tab
Customer
Select Tab
1.4
Create a Review for a Shirt
Avalibe Tabs File
Enter Tabs Page
Select Shirt from page
Sign in or Create Account
Paymnet Info
Tab's Specific File
Locate specific tab
Load Tab
1.2
Access Tab's Code
Request Shirt Page
Edit Reviews
Edit Description
Update review
Update Avaliable Sizes
Select T-Shirt from page
Return Shirt Page
Return Checkout
Selected Shirt's File
Enter T-Shirt's Page
Code
Shirt Information File
Description
Price
Reviews
1.3
Access Shirt's Page Code
1.4
Log into account
Add shirt to cart
Log into avaliable account
Shopping Cart
Accounts File
Add to checkout
Payment Clearning House
Payment
Payment Authorization
1.4
Checkout
Use account information for checkout
Invoice sent to account and email
Access
Request
Input promo
Return discount
Checkout File
Prom-Code File

Physical Entity-Relationship Diagram (ERD)





IMPLEMENTATION

Source Control

Project team plans to utilize GitHub to store, manage, and track code changes. All of Group 4's team members have established GitHub accounts. Austin Sneddon has created the repository for the Spring 2022 Senior Project. Link is below:

Group 4 Repository: https://github.com/AustinSneddon/Group4.git

Work Assignments

As the project manager, Taylor Slinkard will be responsible for assigning work to team members. Currently, the team utilizes Microsoft Teams as their primary form of communication, so Taylor will utilize the tools in the team's channel to assign and track work (Teams Buckets/Tasks tab, excel sheet). See high-level tasks for each team member on the following page.

Austin Sneddon

- Create layout of homepage, tab pages, and individual shirt pages.
- Assist Josh in the translation of Data Flow Diagrams into the database.
- Assist Conner in the development of the website to follow the dataflow diagram.
- Write and maintain documentation.
- Test the developed UI across different demographics and adjust accordingly.
- User experience wireframes, storyboards, and sitemaps.
- Test target links to landing page

Conner John

- Create a functional prototype with HTML, CSS and Javascript from UI/UX designer's layout
- Test and troubleshoot website prototype
- Based on the prototype, insert all designs and shirt images into website
- Add payment processing and mailing list
- Upload the site to webhosted server
- Connect website to database
- Write and maintain documentation

Josh Martinez

- Take physical ERD and implement into MYSQL database.
- Develop user views
- Writing and maintaining documentation
- Enforce security and privacy standards
- Develop operating procedures
- Create backup and recovery strategies
- Run and report queries during testing phase
- Monitor performance of database
- Migrate database into ecommerce website

Taylor Slinkard

- Assign weekly tasks to be completed
- Monitor weekly progress
- Communicate with each team member to determine if team member is on track and if not, what is needed to get on track
- Identify potential areas of concern (risks) and determine how to mitigate risk
- Optimize critical path (watch for scope creep)
- Communicate with professor (Matt) any concerns or questions
- Create and distribute weekly status report to team members and professor
- Make any necessary updates to project schedule
- Determine tasks for following week

Testing

This project will require the use of multiple different types of tests to fully realize the final product. The first type of testing that will be necessary will be unit tests on a functional level. After completion of each user story, the test will help to determine and address edge cases. Once more of the system is realized after the unit testing and the potential issues are fixed, integration tests will be performed.

The Integration test is there to ensure the many different elements are working coherently. With the multiple sides of this project (databases, purchases, customer and admin views, etc.), these will be the most important tests we run to ensure that the final product is something that *can* work in union for an experience that is not noticed on the front end.

The final testing that will need to be employed is systems testing. The previous test was to make sure the elements can work together, but now it is necessary to test using live data to make sure things *will* work together. Additionally, systems testing will allow the team to test the documentation of the system and identify any errors, discrepancies, or unclear details. Having passed all the tests to this point, the final test will be conducted: acceptance testing. The final steps are simply to make sure all the tasks work in the way the customer specified.

Documentation

Documentation will be produced in the form of a “Reference Document”. The reference document was determined to be the most viable fit for our case in one major place: ease of use. In the case of a website, it should not take a manual to learn how to utilize the website prior to actual use. The website should be designed for ease of use across the board. The website has two main fronts, the consumer side and the administrator side, so it should be easy to use on both fronts. However, when creating a product, it can be assumed that the developers will make some implementation choices that create procedure not inherent to the user. We can also keep track of how many times a test subject using the website needs to refer to the manual and determine if those areas are referenced frequently and need retooling. This documentation will address the variety of tasks that users (customers, employees, and company owners) want to accomplish with the website.

Each member of the Tech Team will write their own documentation as they work. This implementation allows for there to be less confusion between what the creator of the performable task intends, and the author of the document writes.