



9-2 Final Project Submission: System Proposal Document

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Amber Broadwell created this document and the creative assets for an assigned project.

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Fantage

Business Case Proposal and Introduction

Introduction

My firm was hired to conduct a business case proposal for Fantage, an online fashion resale shop, to find the best technology solution for all customers' needs. Ultimately, we aim to enhance the purchasing and reselling process of these products by revamping their website and developing a user-friendly mobile application for Fantage's customers and employees. This proposal will review the background of Fantage, outline the problem statement, and identify the target audience.

Background

In June 2015, Fantage was created by two sisters after discovering the popularity of vintage apparel by reselling their late mother's items on Listy, an online marketplace. The women are committed to buying and reselling well-loved apparel while providing exceptional customer service, guaranteeing that all items are of high quality and that resellers are well compensated. Fantage has made the top ten sellers list on Listy for the past three years. To be included in this list, you must have made a certain number of sales within that year, scored high in customer service, and have an acceptable turnaround time between the purchase of the product and shipping it out. Unfortunately, their systems are not integrated, which has required them to do more work to maintain organization. Customers have also reached out to complain about the difficulty of using different applications for reselling or buying apparel. The Listy app does not give the option to resell, but you will have to look in the "About" tab to get the link to the Fantage website. Although the Fantage site is easy to use, it reveals that it is insecure and not mobile-responsive. There are four different systems in place that they would like to integrate within the mobile application: reselling and selling services, customer service functions, a

shipping API, and a payment methods API. This will help consolidate their client base into a single application while gradually transitioning away from Listy. We will also revise the web application at a later date, but will include a pop-up screen to assist with a call-to-action (CTA) to encourage customers to download the new mobile app.

Our firm will collaborate with its Web Developer, Web Administrator, Operations Manager, and IT Team Lead to provide a comprehensive analysis of the mobile application project, culminating in a presentation to the management team. The project management team will consist of the following people:

- Application Developer
- End-User Analyst
- IT Business Analyst
- Operations Manager
- System Support Analyst
- Technical Project Manager
- User Experience Designer

Problem Statement

Fantage has recently seen a drop in customers wanting to resell their items due to missing the “About” tab in Listy, which explains where and how to sell their items to Fantage, or the fact that the web application is not responsive to the user’s screen size. Customers are also disappointed that a check is mailed rather than an online payment platform that can be used to send their credit to them electronically. Next, customers complain that they should not have to use different applications to get the whole Fantage

experience. Lastly, when using Listy, there are recurring fees, including the listing fee and a transaction fee of 7.5% of the listing price, as well as other fees that accumulate each month. Listy also does not have fulfillment services, so Fantage partnered with a fulfillment center to assist in receiving, storing, and shipping items. The process with the center has been slow, though, since Fantage is not integrated with their shipping API. They send over a report on Tuesdays and Thursdays to advise them of the products that need to be shipped, while the center sends back a report of what has been received.

Audience

The management team will be the audience to whom we will use presentations, adding the team to the project management tool, and an open invitation to attend our open meetings that will be held once a week to communicate how building a mobile application and updating the web application would improve their bottom line and increase customer happiness. We will also review implementation costs, timeline, risks, the application process, QA testing, and strategies for marketing the new app and website. Lastly, we will interview other team members who are not managers to provide an overview of the processes (Tilley & Rosenblatt, 2016), while also understanding how the mobile application can benefit them.

Our second audience will be a focus group of “power users.” The “power users” are the top six customers who have used Fantage since its creation. We will email them to explain the opportunity to collaborate with our team and then send a Zoom invitation if they are interested in participating. This will enable us to identify their pain points and present a customer-friendly introduction to the mobile application idea. The project

management team hopes to interview and present the new app to this small group of customers, which can give us an idea of how to better assist them and Fantage.

Fantage

Project Plan

Background

Fantage is an online-only vintage clothes buyer and reseller that utilizes Listy, a popular online marketplace, to resell products and offers a website for users to sell their own products. Unfortunately, Fantage has encountered several issues recently, including the fees for using Listy, missing integrations for shipping and quick payment methods for resellers, and customer complaints about the need to use multiple applications to optimize their Fantage experience. Due to the above issues, Fantage has faced a decline in revenue, a loss of customers, and a reduction in hours spent ensuring that fulfillment and payment to resellers are accurate. The project plan includes the Cost Table, Gantt Chart, and Resource Chart, as well as a review of the Work Breakdown Structure (WBS), Project Monitoring, Control Plan, and Timeline, which will be thoroughly explained in this document.

Project Plan

The project plan for Fantage has been discussed among Fantage leadership and our project team to not only develop an all-in-one app for customers but also to refresh the website at a later date and establish a plan to move away from Listy gradually. While the project team develops the new app, the Web Developer, User Experience (UX) Designer, Web Administrator, and Fantages' Marketing team will work together to create messaging that encourages customers to download the new mobile app. The estimated cost for this project is **\$34,350.93**, shown in [Figure 1.1](#) below.

Figure 1.1 – Cost Table

	Task Name ▼	Fixed Cost ▼	Fixed Cost Accrual ▼	Total Cost ▼	Baseline ▼	Variance ▼
1	▲ Project - Fantage App	\$0.00	Prorated	\$34,350.93	\$0.00	\$34,350.93
2	▲ Initiation	\$0.00	Prorated	\$4,560.00	\$0.00	\$4,560.00
3	Review Project Notes	\$0.00	Prorated	\$1,200.00	\$0.00	\$1,200.00
4	Create Business Case Document	\$0.00	Prorated	\$2,760.00	\$0.00	\$2,760.00
5	Create Schedule	\$0.00	Prorated	\$600.00	\$0.00	\$600.00
6	Obtain User Signoff to Proceed	\$0.00	Prorated	\$0.00	\$0.00	\$0.00
7	▲ Requirements	\$0.00	Prorated	\$6,300.00	\$0.00	\$6,300.00
8	Fact Find	\$0.00	Prorated	\$2,940.00	\$0.00	\$2,940.00
9	Review Existing System	\$0.00	Prorated	\$3,360.00	\$0.00	\$3,360.00
10	▲ Design	\$0.00	Prorated	\$4,583.93	\$0.00	\$4,583.93
11	Design A/B User Interface	\$0.00	Prorated	\$1,840.00	\$0.00	\$1,840.00
12	Design Data Flow	\$0.00	Prorated	\$1,598.92	\$0.00	\$1,598.92
13	Design User Processes	\$0.00	Prorated	\$1,145.01	\$0.00	\$1,145.01
14	▲ Prototype	\$0.00	Prorated	\$9,920.00	\$0.00	\$9,920.00
15	Create A/B Android Prototype	\$0.00	Prorated	\$4,960.00	\$0.00	\$4,960.00
16	Create A/B iOS Prototype	\$0.00	Prorated	\$4,960.00	\$0.00	\$4,960.00
17	▲ Verification	\$0.00	Prorated	\$3,947.00	\$0.00	\$3,947.00
18	Review Solution Architecture	\$0.00	Prorated	\$2,018.00	\$0.00	\$2,018.00
19	Validate Prototype	\$0.00	Prorated	\$1,929.00	\$0.00	\$1,929.00
20	▲ Finalize	\$0.00	Prorated	\$5,040.00	\$0.00	\$5,040.00
21	Determine Recommendation	\$0.00	Prorated	\$1,820.00	\$0.00	\$1,820.00
22	Create Executive Presentation	\$0.00	Prorated	\$3,220.00	\$0.00	\$3,220.00

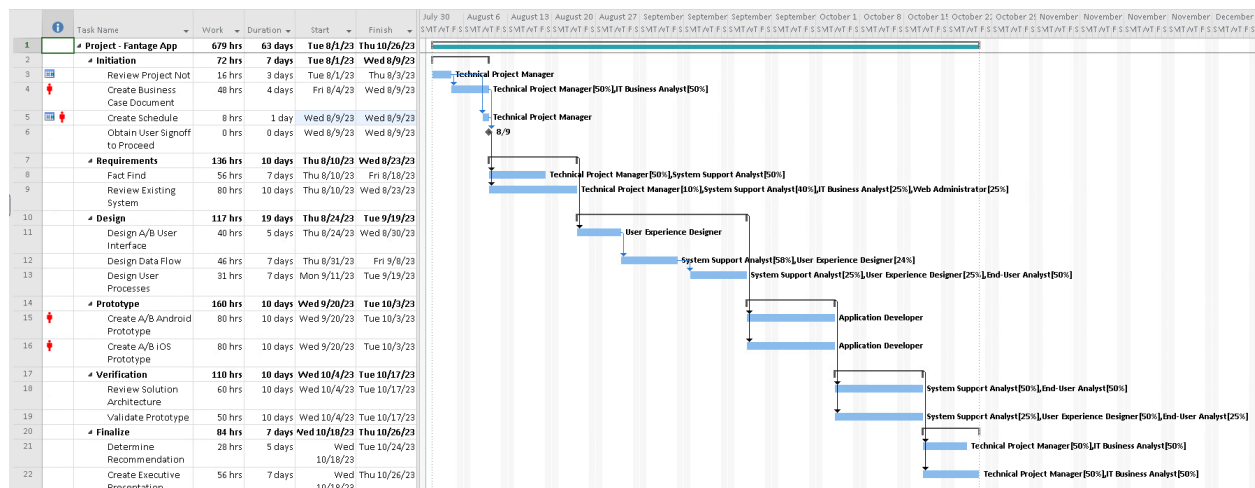
The cost chart breaks down the costs of each task assigned to a resource by referencing the “Resource Sheet,” which includes the standard and overtime rates for each person on the project management team.

Work Breakdown Structure

The Technical Project Manager will review the project notes to ensure they understand the project's scope, including its goals, deadlines, and deliverables, while setting a start and due date. Once the notes have been reviewed, the Technical Project Manager will create a “Business Case Document” with the IT Business Analyst and

develop the project schedule, which will need to be signed off by Fantage’s leadership. After signoff is completed, the project will proceed with fact-finding and a review of existing systems by the Technical Project Manager, System Support Analyst, IT Business Analyst, and Web Administrator. This review will also include an assessment of a survey completed by power users (end-users). Next, the User Experience Designer will primarily design the A/B user interface, with assistance from the System Support Analysis and End-User Analyst. After the design has been completed and approved, the Application Developer will create an A/B prototype for Android and iOS users, which will be reviewed by the System Support Analyst, End User Analyst, User Experience Designer, and select power users. Lastly, the Technical Project Manager and IT Business Analyst will determine recommendations and create the Executive Presentation stack. [Figure 2.1](#) below illustrates the breakdown of work hours, duration, and start/finish times for each task. It also shows the Gantt Chart to the right.

Figure 2.1 – Gantt Chart



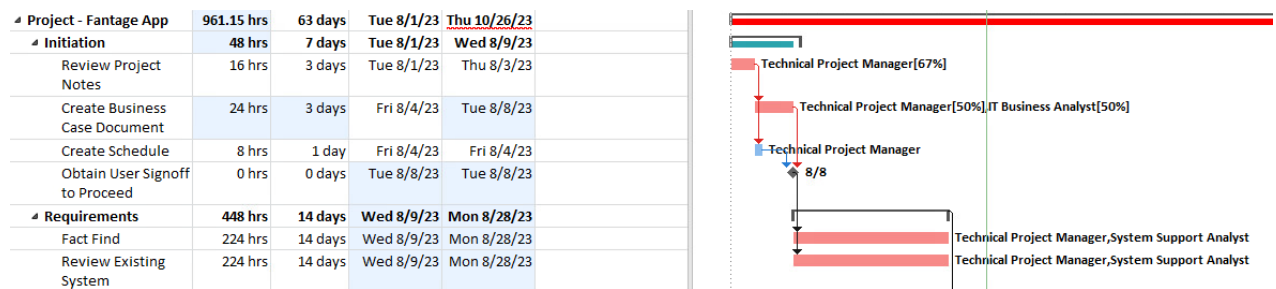
Project Monitoring and Control Plan

The Technical Project Manager, in collaboration with the IT Business Analyst, will oversee and manage multiple areas of the Fantage project simultaneously, ensuring that stakeholders are kept informed about the project's progress. This means ensuring that the discovery has been completed, the project scope is clear, and the project stays within budget using the cost table, while also staying on schedule to be completed on time by monitoring the critical path located within the Gantt Chart. The critical path includes the Initiation and Design ([See Figure 2.2](#)) sections:

Initiation Tasks

- Review Project Notes
- Create Business Case Document
- Create Schedule
- Obtain User Signoff to Proceed

Figure 2.2 Initiation Tasks and Requirements

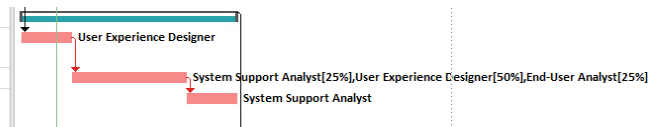


Design Tasks ([See Figure 2.3 Design Tasks](#))

- Design A/B User Interface
- Design Data Flow
- Design User Processes

Figure 2.3 Design Tasks

Design	121.15 hrs	22 days	Tue 8/29/23	Wed 9/27/23
Design A/B User Interface	40 hrs	5 days	Tue 8/29/23	Mon 9/4/23
Design Data Flow	41.15 hrs	12 days	Tue 9/5/23	Wed 9/20/23
Design User Processes	40 hrs	5 days	Thu 9/21/23	Wed 9/27/23

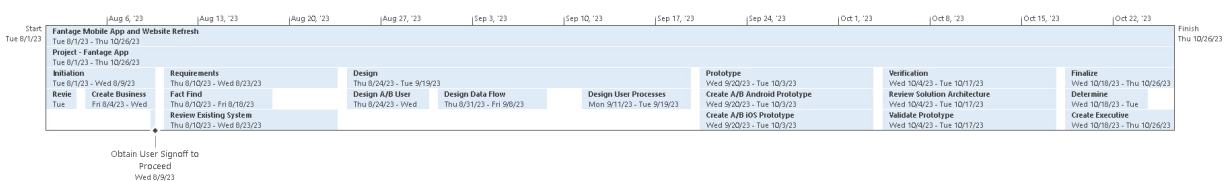


If the critical paths are not started on time, this means that other tasks may be delayed due to not receiving signoff or having the design completed. The Technical Project Manager will accomplish this by holding 30-minute afternoon stand-up meetings daily with the project team to check in, ensure there are no issues, and address any questions that may arise.

Timeline

The implementation of the project will require 679 hours, with an overall duration of 63 days. The start date is August 1, 2023, and it is estimated to finish on October 26, 2023, for a Halloween Day launch. The timeline below ([See Figure 3.1](#)) provides a detailed breakdown of the Gantt Chart's structure ([See Figure 2.1](#)), highlighting tasks with their corresponding subtasks and the dates for completion.

Figure 3.1 – Timeline



Fantage

System Requirements

Background

Fantage is an online-only buyer and reseller of vintage clothes that utilizes the e-commerce platform Listy to resell products purchased from users through the Fantage website. This system was satisfactory when Fantage first started, but it has since grown to the point where the owners have hired over 45% more staff in the last year to keep up with the demand. The current business model has become a problem for Fantage and its users, as two different platforms are used to access Fantage's service, resulting in delayed orders, lost resellers' products, and revenue loss. Fantage hired our team to solve this problem by creating an all-in-one mobile application that allows users to resell and buy gently used items. Fantage employees will only have to use one system to handle operations. The personal website will be updated later, but will include a call to action to download the new app while the site is under construction.

Requirements Models

Output

- The system will produce a list of available and unavailable inventory for the Operations and Warehouse team.
- Available inventory needs to be available on the front end for users to view.
- Once the user has placed an order or reseller products are purchased by Fantage, a confirmation will be sent from the system to the end-user with pertinent details.
 - Next, when the order has shipped, the shipping integration will email the end user with tracking information, or the reseller will receive a free label to ship products to Fantage.
- Account Information and Historical Data will be available to view by the end user.

- Users can enter payment information securely.
 - Resellers enter their payment information to be paid by Fantage.
 - Buyers enter their credit card, their online payment system information, or apply for a short-term financing option that our partner offers.

Input

- There will be a choice of “Other” with a text box to appear for resellers to describe the product in detail if it does not fit the other selections (Apparel, Hats, and Jewelry).
- The system will allow the reseller to enter more than one product at a time by giving them the option before submitting their information. It will also allow them to upload photos of the products.
- Warehouse staff should be able to enter shipping information, such as tracking, into the integration.
- Operations enter how much each product is worth so that the reseller can approve or decline each offer separately.

Processes

- Resellers will be able to enter their products on the app; a label is created for the reseller to mail items, and it will be reviewed by our Operations Team once received.
- There are two options for the Reseller:
 - If the reseller approves the offer, the Operations Team ensures that payment is sent, or store credit is offered if that is what the reseller would like.

- If the reseller rejects the offer, the Operations Team must mail the product back to where the offer was rejected.
- Buyers can securely browse each category and make purchases on the app. Once purchases have been made, an order confirmation and then tracking are emailed.
- The app will be updated by Operations regularly with new and featured products, while the Warehouse will update the inventory to reflect the correct products.

Performance

- The app should be functional for 24 hours without errors.
- Our team will provide the initial training for the app to Fantage employees.
Fantage will appoint a person to the “Learning and Development” liaison to train new employees moving forward.
 - Training will be department-appropriate, with managers learning all functions, while employees will have training that pertains to them.
- The response time from when the reseller sells products or the buyer makes a purchase will be quick and user-friendly.

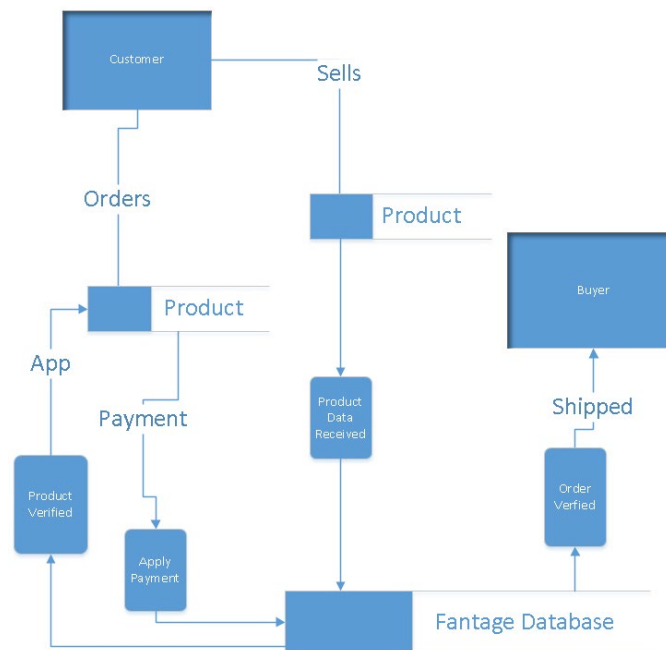
Controls

- The app will have the end user create a strong password with a unique word or phrase and use multi-factor authentication to log in.
- All payment information will be encrypted when entered into the app. Only the accounting department will have access to our payment processor integration.
- Depending on the authority level of the employee, the team will determine the authorized access to end-user information, such as historical data.

Business Process Model

The data process model contains the business logic, also known as business rules, which can modify the data and process the required outcome (Tilley & Rosenblatt, 2016, p. 143). [Figure 4.1](#) displays the input and output of data for both the seller and buyer of Fantage.

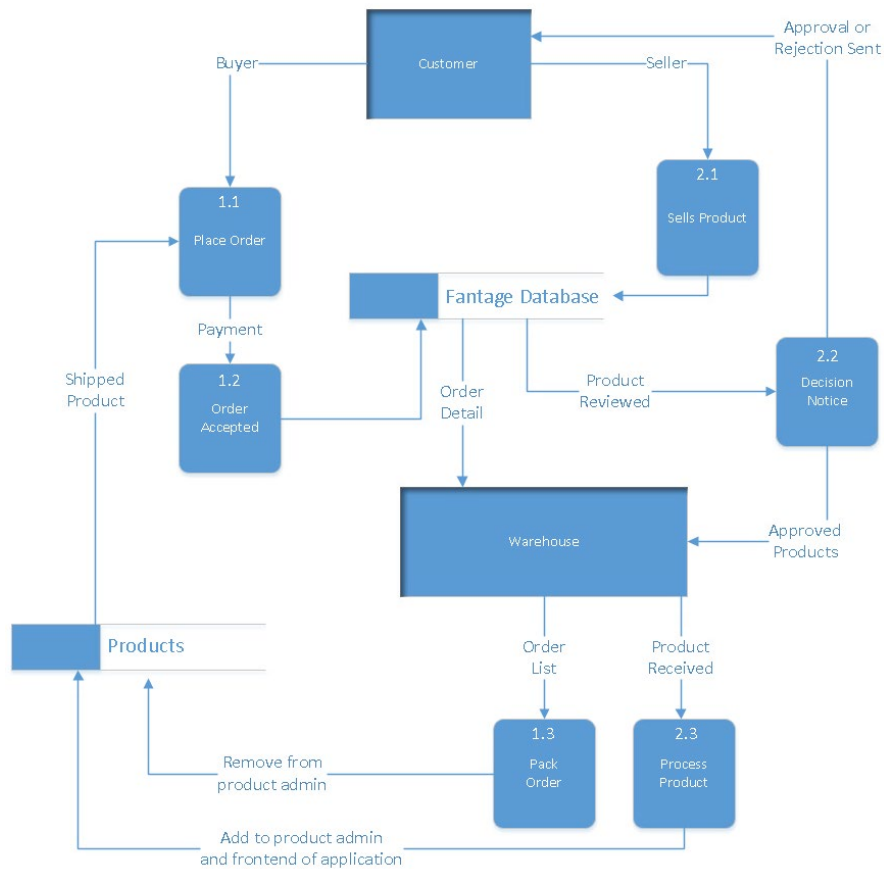
Figure 4.1 Business Process Model



Data Flow Diagram

According to Tilley and Rosenblatt (2016, p. 144), a data flow diagram (DFD) illustrates how data flows through an information system, but it does not include logic or processing steps. This means this shows what, but not how. [Figure 4.2](#) displays the Buyer and Seller process.

Figure 4.2: Data Flow Diagram



Each side has three processes, numbered to facilitate integration and identification of the DFDs (Tilley & Rosenblatt, 2016, p. 156).

Data Dictionary

The data dictionary, also referred to as the data repository, stores all information related to the system's data. It collects, documents, and organizes specific facts about the system, including entities, processes, data flows, and data stores (Tilley & Rosenblatt, 2016, p. 160). [Figure 4.3](#) displays the Data Dictionary, which contains all information stored in the database. The Data Dictionary for the Fantage Application includes the entity type, field name, data type, description, format, required, and validation rules.

Figure 4.3: Data Dictionary

Entity	Field Name	Data Type	Description	Format	Required (T/F)	Validation Rules
Account	Name	Text	Customer's Name	LASTNAME, FIRSTNAME	T	Allows for only A-Z and special characters (- ~). Max Character Length: 250.
Account	Street1	VarChar2	Customer's Street Address 1	1234 ABCD STREET	T	Number followed by text
Account	Street2	VarChar3	Customer's Street Address 2	APT-123	F	Number followed by text
Account	City	Text	Customer's City	CityName	T	Allows for only A-Z and special characters (- ~). Max Character Length: 30.
Account	State	Text	Customer's State	StateName	T	Allows for only A-Z and special characters (- ~). Max Character Length: 30.
Account	ZipCode	Numerical	Customer's 5 Digit Zip Code	12345	T	Max Character Length: 5. Allows for numbers only.
Account	Email	String	Email Address	jane.doe@domain.com	T	Allows for different charaters
Account	Phone	Numerical	Customer's Phone Number	X XXX-XXXX	F	Allows for numbers only. Max Character Length: 10. Must include Country's Code.
Account	Type	Array	Account Type	RESELLER BUYER BOTH	T	Must select Account Type
Account	Username	VarChar2	Customer's Username	USERNAME	T	Allows for different characters. Max Character Length: 50. Username Available: T/F
Account	Password	VarChar2	Customer's Password	PASSWORD123!	T	Allows for different characters. Max Character Length: 50. Password Strong: T/F

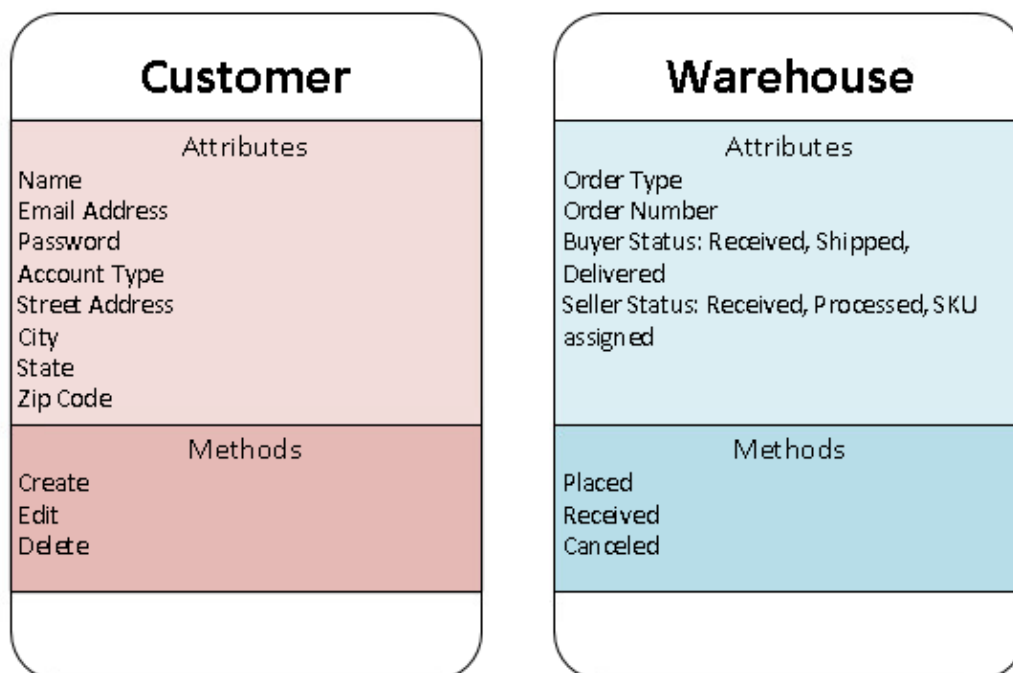
Object Model

An Object Model is a visual representation of a system's attributes, methods, objects, and relationships (Nduati, n.d.). [Figure 4.4](#) illustrates the two objects, Customer and Fantage Warehouse, along with their attributes and methods.

Examples:

- 1) The customer receives a message to **"Sign in or Register for an Account"** after downloading the application for the first time, which tells the customer to create an account or use established credentials.
- 2) A customer places an order, and the warehouse shipping API receives it. However, before the shipping API receives the order, the message indicates that the status is 'order placed by buyer' and to proceed with picking, packing, and shipping the order.

Figure 4.4 Fantage Object Model



Use Case Diagram

The use case diagram ([see Figure 4.5](#)) is a visual outline of various related use cases surrounding a system or subsystem (Tilley & Rosenblatt, 2016, p. 188).

Figure 4.5 Fantage Use Case Model

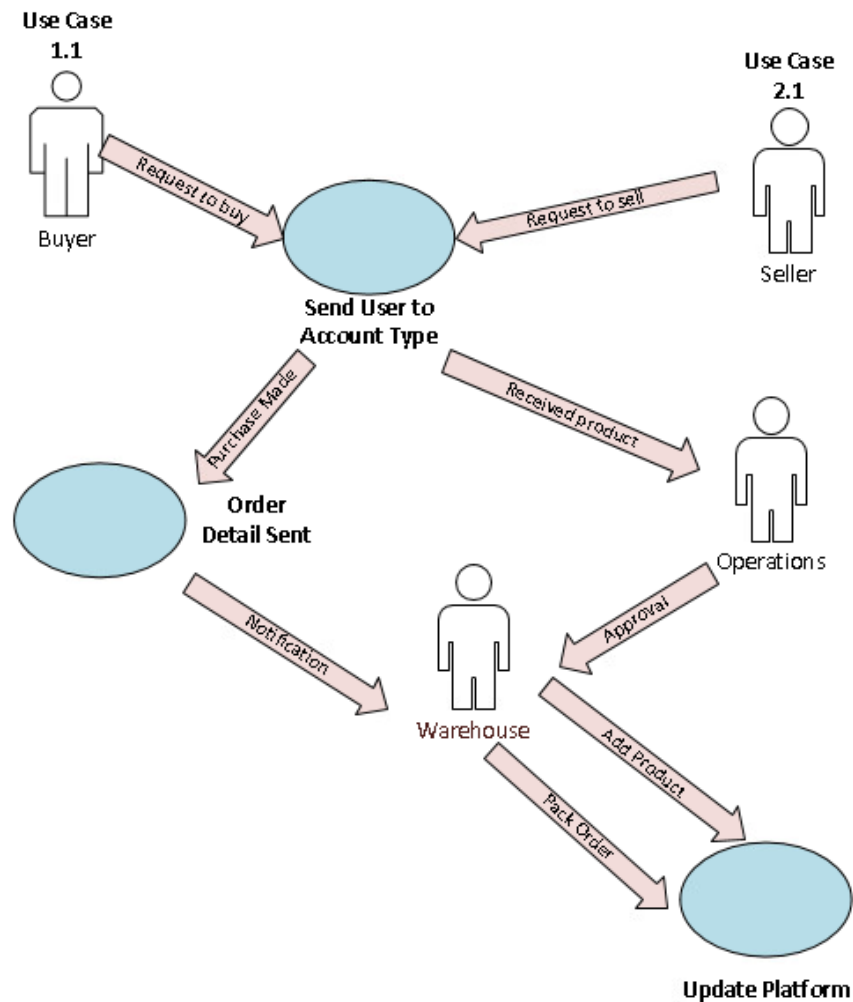


Figure 4.5 Use Cases 1.1 and 2.1

Use Case 1.1: The user requests to buy, makes a purchase, and the Warehouse receives an order detail notification through their shipping integration. The warehouse packs the order, and the tracking information is updated on the platform.

Use Case 2.1: The user requests to sell a product. Operations then receives the product, sends product approval to the Warehouse, and updates the platform with the approved product.

Fantage

System Design

Background and System Design Abstract

Our firm was hired to assist in creating a mobile application for Fantage, an online-only buyer and seller established in 2015 by sisters who started listing vintage apparel on the popular online marketplace Listy. After our first meeting with the Fantage management, we reviewed the positives and the pain points they are currently facing, while also expressing what was needed to succeed. This is what we need to accomplish within the 63 days that were estimated to finish this project:

- Implement a new app for buying and selling in one place.
- Integrate shipping API with their warehouse.
- Integrate a payment method API.
 - CFO and Accounting Management
 - Safe and Secure
- Approved customer service functions
- An update to the desktop and mobile website will follow after implementing the mobile application.
 - There will be a pop-up call-to-action (CTA) created by marketing to lead users to download the application.

In our previous findings, we reviewed all the facts, which helped us understand the inputs, outputs, performances, processes, and controls necessary to develop the system requirements for Fantage. In this document, we will review the following:

- Specifications
- Data Designs

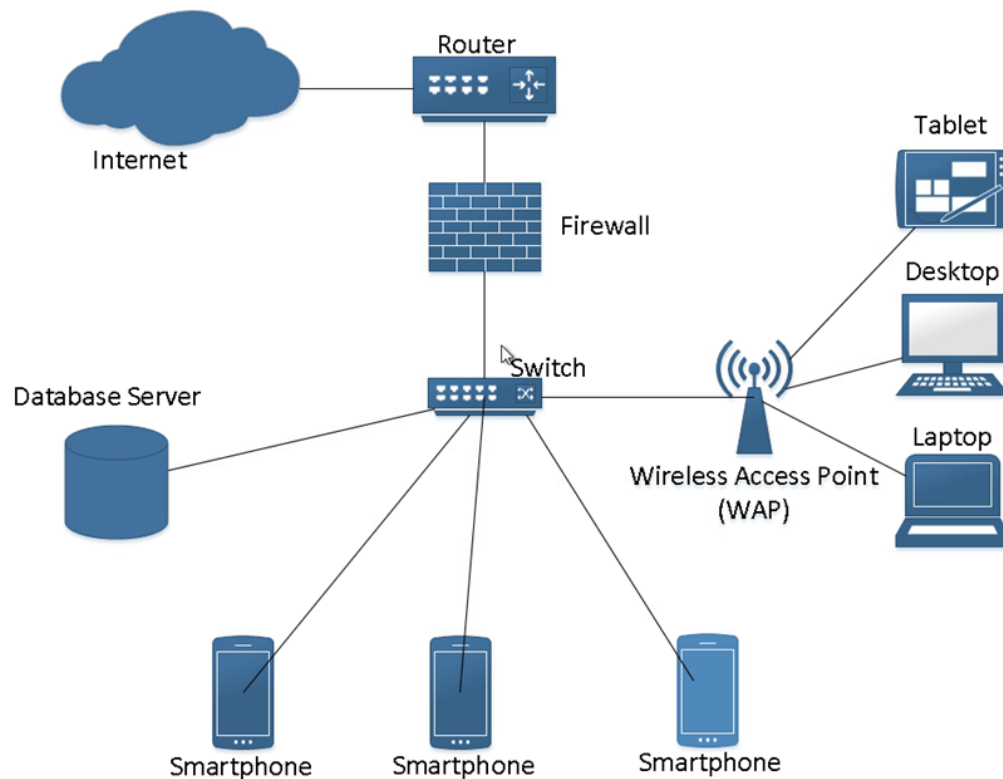
- User Interface (UI) Design
- System Architecture
- Feasibility Analysis

This will thoroughly explain how the customer will interact with the new mobile application.

Specification

[Figure 5.1](#), as shown below, examines the relationship between the customers, Fantage employees, and the warehouse when the customer logs in to interact with the application on their smartphone.

Figure 5.1 - Specification

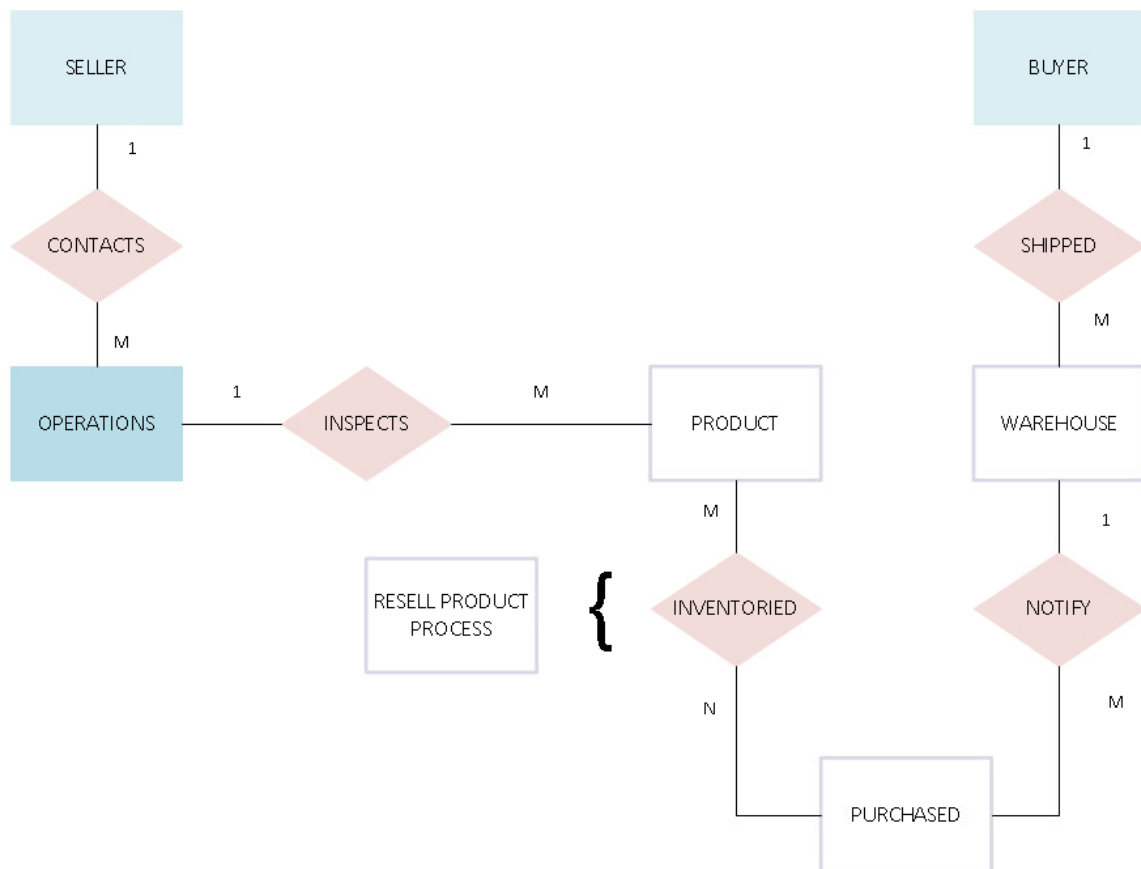


Data Design

Entity-Relationship Diagram

The Entity-Relationship Diagram (ERD) outlines the logical interaction and relationship among system entities (Tilley & Rosenblatt, 2016, p. 287). [Figure 5.2](#) illustrates the cardinality of various entities and relationships in an ERD. The ERD also includes an associative entity named “Resell Product Process,” which connects the resell process with the buyer’s process.

Figure 5.2 – Entity-Relationship Diagram



Standard Notation Format

The 1NF, 2NF, and 3NF diagrams in Figures 5.3, 5.4, 5.5, and 5.6 represent the system's customer, order, and product data, as well as the connections between each figure.

Figure 5.3 – Standard Notation Format Diagram

Order	Date	Product SKU	First Name	Last Name	Email Address	Account Type
3509S	9/15/2023	s200	Jamie	Smith	none@gmail.com	Seller
3509S	9/15/2023	s201	Jamie	Smith	none@gmail.com	Seller
482B	9/15/2023	34567-FAN	Alex	Jones	none@aol.com	Buyer
482B	9/15/2023	61652-FAN	Alex	Jones	none@aol.com	Buyer
482B	9/15/2023	95561-FAN	Alex	Jones	none@aol.com	Buyer
482B	9/15/2023	56310-FAN	Alex	Jones	none@aol.com	Buyer
2529S	9/18/2023	s891	Jane	Alexander	none1@gmail.com	Seller
2529S	9/18/2023	s892	Jane	Alexander	none1@gmail.com	Seller
2529S	9/18/2023	s893	Jane	Alexander	none1@gmail.com	Seller
2529S	9/18/2023	s894	Jane	Alexander	none1@gmail.com	Seller
2529S	9/18/2023	s895	Jane	Alexander	none1@gmail.com	Seller
2529S	9/18/2023	s896	Jane	Alexander	none1@gmail.com	Seller
2529S	9/18/2023	s897	Jane	Alexander	none1@gmail.com	Seller
879B	9/18/2023	10891-FAN	Olivia	Wilson	none3@hotmail.com	Buyer
556B	9/16/2023	35182-FAN	Carol	Williams	none@yahoo.com	Buyer
1053S	9/18/2023	s563	Maxine	Gomez	none@snhu.edu	Seller

Figure 5.4 – Order in 1NF

Order	Product SKU	Order	Date
3509S	s200	3509S	9/15/2023
3509S	s201	3509S	9/15/2023
482B	34567-FAN	482B	9/15/2023
482B	61652-FAN	482B	9/15/2023
482B	95561-FAN	482B	9/15/2023
482B	56310-FAN	482B	9/15/2023
2529S	s891	2529S	9/18/2023
2529S	s892	2529S	9/18/2023
2529S	s893	2529S	9/18/2023
2529S	s894	2529S	9/18/2023
2529S	s895	2529S	9/18/2023
2529S	s896	2529S	9/18/2023
2529S	s897	2529S	9/18/2023
879B	10891-FAN	879B	9/18/2023
556B	35182-FAN	556B	9/16/2023
1053S	s563	1053S	9/18/2023

Figure 5.5 – Order in 2NF, Product in 2NF, and Order Line in 2NF

Product SKU	First Name	Last Name	Email Address	Account Type
s200	Jamie	Smith	none@gmail.com	Seller
s201	Jamie	Smith	none@gmail.com	Seller
34567-FAN	Alex	Jones	none@aol.com	Buyer
61652-FAN	Alex	Jones	none@aol.com	Buyer
95561-FAN	Alex	Jones	none@aol.com	Buyer
56310-FAN	Alex	Jones	none@aol.com	Buyer
s891	Jane	Alexander	none1@gmail.com	Seller
s892	Jane	Alexander	none1@gmail.com	Seller
s893	Jane	Alexander	none1@gmail.com	Seller
s894	Jane	Alexander	none1@gmail.com	Seller
s895	Jane	Alexander	none1@gmail.com	Seller
s896	Jane	Alexander	none1@gmail.com	Seller
s897	Jane	Alexander	none1@gmail.com	Seller
10891-FAN	Olivia	Wilson	none3@hotmail.com	Buyer
35182-FAN	Carol	Williams	none@yahoo.com	Buyer
s563	Maxine	Gomez	none@snhu.edu	Seller

Figure 5.6 – Account Information in 3NF and Product in 3NF

Product SKU	Account Type
s200	Seller
s201	Seller
34567-FAN	Buyer
61652-FAN	Buyer
95561-FAN	Buyer
56310-FAN	Buyer
s891	Seller
s892	Seller
s893	Seller
s894	Seller
s895	Seller
s896	Seller
s897	Seller
10891-FAN	Buyer
35182-FAN	Buyer
s563	Seller

First Name	Last Name	Account Type
Jamie	Smith	Seller
Alex	Jones	Buyer
Jane	Alexander	Seller
Olivia	Wilson	Buyer
Carol	Williams	Buyer
Maxine	Gomez	Seller

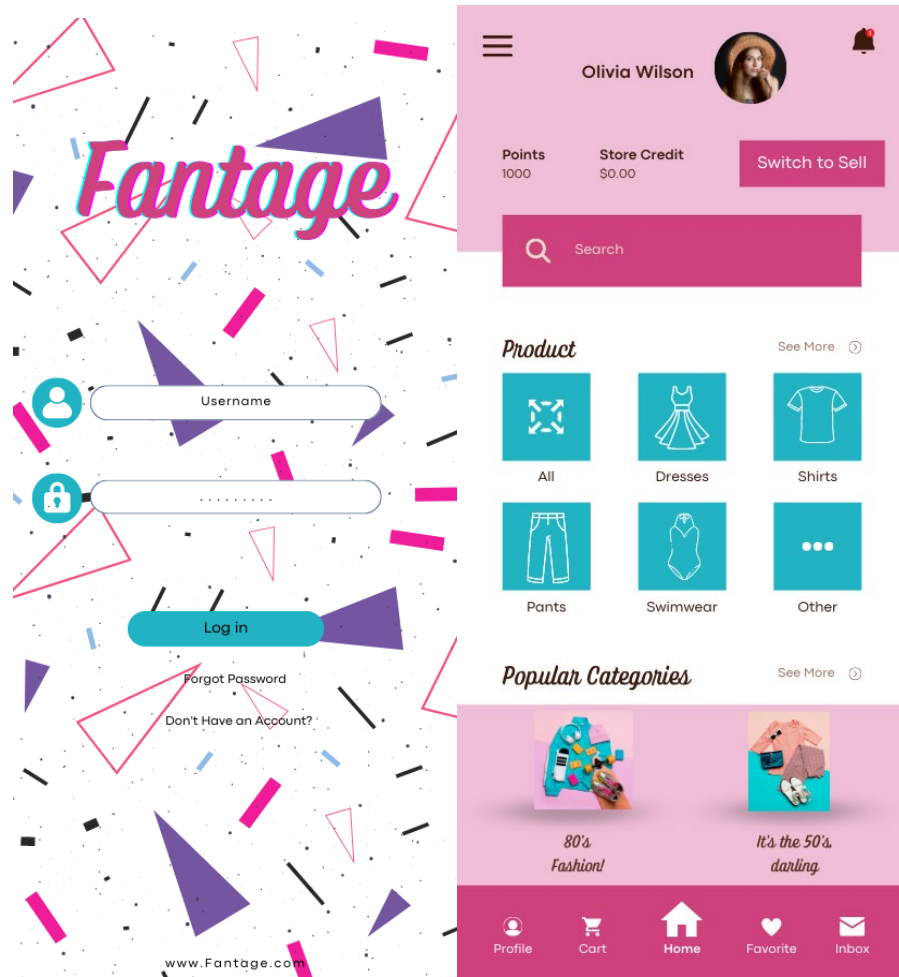
User Interface Design

This section will discuss two components: Human-Computer Interactions (HCIs) and Graphical User Interfaces (GUIs). Per Kanade (2022), “Human-Computer Interaction

(HCI) focuses on optimizing how users and their computers interact by creating interactive interfaces that satisfy the end user's needs." Four key elements of HCI are essential in designing interfaces: the user, the goal-oriented task, the interface, and the context (Kanade, 2022). By using HCI principles to create the Fantage app, we ensure that the interactions are explicit, natural, and precise. The app will clearly indicate how to navigate categories, how to switch from buyer to seller, and be easy to read.

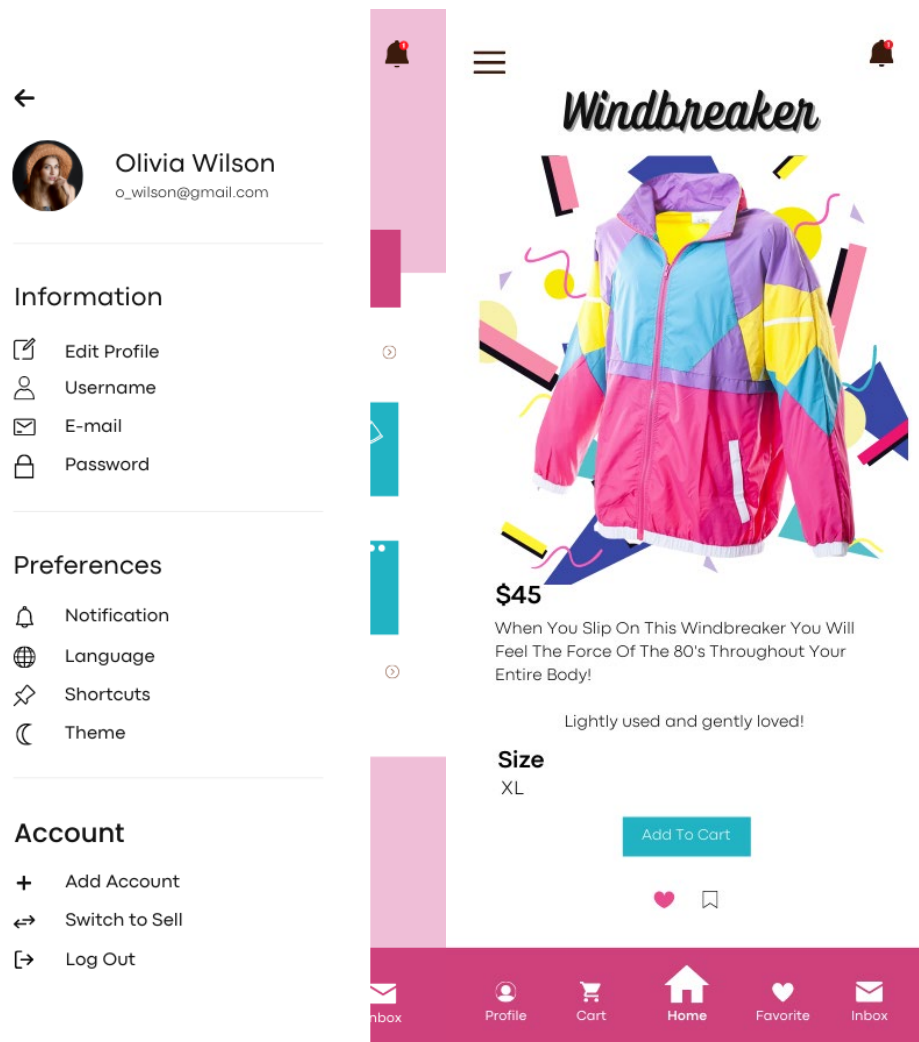
The Graphical User Interface (GUI) is the means by which users interact with a technology's interface through menus, icons, and other visual representations, displaying information graphically (Rouse, 2021). Figures [6.1](#), [6.2](#), [6.3](#), and [6.4](#) below show the proposed mobile design.

Figure 6.1 – Login Page and Figure 6.2 – Homepage with Seller Option



When a user logs in, they are directed to the homepage, which initially displays the buyer's side, as most of Fantage's end users are buyers and do not have the "both" indicator. However, Ms. Wilson (Super User) acts as both a buyer and a seller in this example.

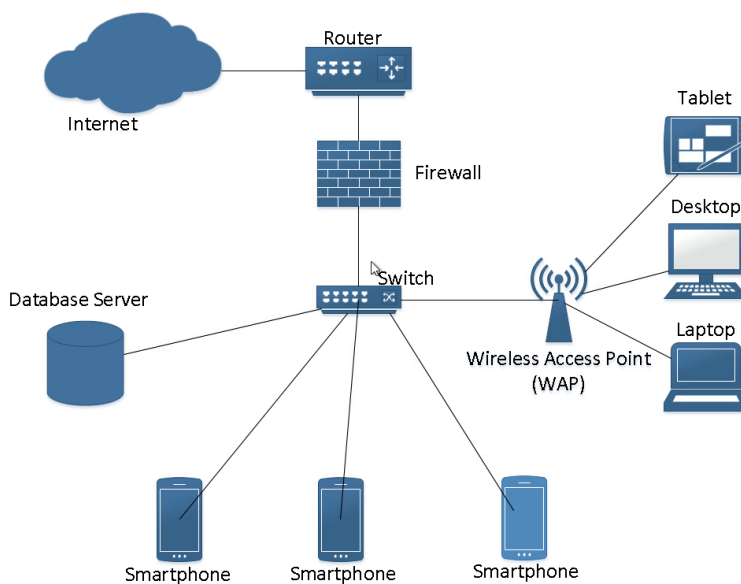
Figure 6.3 – Settings Navigation and Figure 6.4 – Product Detail page



System Architecture

Fantage's system architecture is a unique system created by our technology team, which includes the User Experience (UX) designer, Application Developer, System Support Analyst, and End-User Analyst. This team followed the approved plan in Microsoft Project to ensure that goals were acknowledged at each milestone, conducted interviews with employees, and created a custom-designed mobile application to maintain the fun, vintage culture for which Fantage is known. The System Support Analyst also recommended a new router and a more extensive database server to support the new application. [Figure 7.1](#) illustrates the System Architecture for Fantage, which features a larger database server and a newer router, replacing the old router.

Figure 7.1 – System Architecture for Fantage



Corporate Organization and Culture

Fantage has consistently emphasized throughout the project that it is a family-owned business with a primary goal of ensuring that both customers and employees feel

at the center of its operations. It is critical that Fantage provides the end-user with a quality experience in buying or selling, while also ensuring that employees are treated with respect and have the necessary tools to assist customers.

Enterprise Resource Planning

Enterprise Resource Planning (ERP) refers to software used by organizations to manage various business activities, including accounting, project management, operations, and procurement (Oracle, n.d.). At Fantage, the ERP software provides employees with access to review and approve or reject products (Operations), make purchases (Accounting), and assist the warehouse in organizing products that come in and out of the fulfillment center. However, there is an Administrator access level that only the Executive Team and Owners can view, which helps track profits, identify pain points, and monitor employee productivity.

Total Cost of Ownership

The Total Cost of Ownership (TCO) is the total cost of a service or product throughout its life cycle, and the calculation of the TCO considers both direct and indirect costs (Manutan, n.d.). [Figure 8.1](#) illustrates the total project cost, which amounts to **\$34,350.93**.

Figure 8.1 – Fantage Cost Table

	Task Name ▼	Fixed Cost ▼	Fixed Cost Accrual ▼	Total Cost ▼	Baseline ▼	Variance ▼
1	▲ Project - Fantage App	\$0.00	Prorated	\$34,350.93	\$0.00	\$34,350.93
2	▲ Initiation	\$0.00	Prorated	\$4,560.00	\$0.00	\$4,560.00
3	Review Project Notes	\$0.00	Prorated	\$1,200.00	\$0.00	\$1,200.00
4	Create Business Case Document	\$0.00	Prorated	\$2,760.00	\$0.00	\$2,760.00
5	Create Schedule	\$0.00	Prorated	\$600.00	\$0.00	\$600.00
6	Obtain User Signoff to Proceed	\$0.00	Prorated	\$0.00	\$0.00	\$0.00
7	▲ Requirements	\$0.00	Prorated	\$6,300.00	\$0.00	\$6,300.00
8	Fact Find	\$0.00	Prorated	\$2,940.00	\$0.00	\$2,940.00
9	Review Existing System	\$0.00	Prorated	\$3,360.00	\$0.00	\$3,360.00
10	▲ Design	\$0.00	Prorated	\$4,583.93	\$0.00	\$4,583.93
11	Design A/B User Interface	\$0.00	Prorated	\$1,840.00	\$0.00	\$1,840.00
12	Design Data Flow	\$0.00	Prorated	\$1,598.92	\$0.00	\$1,598.92
13	Design User Processes	\$0.00	Prorated	\$1,145.01	\$0.00	\$1,145.01
14	▲ Prototype	\$0.00	Prorated	\$9,920.00	\$0.00	\$9,920.00
15	Create A/B Android Prototype	\$0.00	Prorated	\$4,960.00	\$0.00	\$4,960.00
16	Create A/B IOS Prototype	\$0.00	Prorated	\$4,960.00	\$0.00	\$4,960.00
17	▲ Verification	\$0.00	Prorated	\$3,947.00	\$0.00	\$3,947.00
18	Review Solution Architecture	\$0.00	Prorated	\$2,018.00	\$0.00	\$2,018.00
19	Validate Prototype	\$0.00	Prorated	\$1,929.00	\$0.00	\$1,929.00
20	▲ Finalize	\$0.00	Prorated	\$5,040.00	\$0.00	\$5,040.00
21	Determine Recommendation	\$0.00	Prorated	\$1,820.00	\$0.00	\$1,820.00
22	Create Executive Presentation	\$0.00	Prorated	\$3,220.00	\$0.00	\$3,220.00

Scalability

Scalability is an application's ability to continue functioning when its context size or volume is changed to meet the user's needs, typically to a larger size (Contributor, 2021). Fantage's new application will be able to scale to a larger size on mobile phones, but not yet on tablets. Additionally, creating a scalable application for mobile phones will facilitate quicker download speeds.

Integration and Interface Requirement

The new mobile application will be integrated with a payment and shipping API, but there will be limited integration with the website until it is upgraded in the second phase. The user interface enables users to switch between buyer and seller roles, if applicable, purchase products, sell products, view account history, and contact our customer service team.

Security

The application will require the user to create a strong password that must be at least eight characters long and include a mixture of letters, numbers, and avoid ambiguous characters. Additionally, the user will have the option to set up Face ID, fingerprint, or a PIN, depending on the mobile phone operating system. The username and password will be attached to a verified email address, phone number, and two-factor authentication (2FA). Also, suppose the password is forgotten and two-factor authentication (2FA) is not enabled, a one-time code will be sent to the mobile number or email address associated with the account. Lastly, the payment system will be TLS-certified through the SSL Extended Validation (EV) process, and our IT Business Analyst will ensure that the chosen payment processor has been completed.

Feasibility

Ultimately, to ensure feasibility, we must be able to justify the project's operational, economic, scheduling, and technical aspects.

Operational Feasibility

Operational Feasibility refers to solving Fantage's pain points discussed during our discovery meeting. Fantage will work on their end to ensure that the integrations are implemented, enabling the mobile application to succeed, and will create a timeline to transition from Listy to the new app.

Economic Feasibility

Economic Feasibility ensures that the projected benefits outweigh the estimated total cost, such as maintenance and support of the application (Tilley & Rosenblatt, 2016, p. 53). The new mobile application will help attract more customers and support Fantage in transitioning from Listy while recouping costs. When the end-user uses the app, it will keep them on the Fantage platform, allowing them to open it anywhere and browse easily.

Scheduling Feasibility

The project will be implemented in a suitable timeframe of 63 days, from August 1st to October 26th, in time for a Halloween debut. This also means ensuring that our team will consider the interaction between cost and time (Tilley & Rosenblatt, 2016, p. 55).

Technical Feasibility

Per Tilley and Rosenblatt (2016, p. 54), "Technical Feasibility is the technical resources needed to develop, purchase, install, or operate the system." The design plan, assumptions, and system architecture of the Fantage mobile app are technically feasible because it is user-centric and contains all of the requirements outlined by the Fantage team to keep it within the branding and spirit of the company; it is integrated with all

systems and includes a chat feature that will assist with customer service, which needs to be upgraded.

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