University of North Alabama

Final Paper

ciSalon App

Jasmine Morgan, Bryce Pittman, Van Hamlin, Dylan Goodwin

CIS 330: Systems Analysis and Design

Dr. Davis

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Final Paper

Salons in their beginning start off small, where simple or no booking platforms are needed to effectively book their clients. As salons grow, booking, scheduling, and displaying their portfolios become a recurring issue. As the salons grew, so did their need to manage clients more efficiently. Early scheduling methods utilize word-of-mouth or physical scheduling using books because it's the cheapest. This lack of effective scheduling could lead to frustrations such as long wait times or missed appointments. Salons still face struggles related to maintaining consistent client flow, cancellations, and pressure to build their brand and showcase their work. With the rise of digital portfolios, salons now grapple with the need to constantly update content, which can become overwhelming, especially when managing day-to-day operations. As a result, creating and maintaining a balance between efficient scheduling, client management, and a compelling portfolio remains an ongoing challenge for many salons.

Most salons use personal apps to schedule appointments or none at all. Customers struggle to efficiently tell if the salon is good because generally, there are no reviews or service photos on the salon being used. Booking for beginning salons can use word-of-mouth or paper booking, which can be frustrating, inefficient, and unreliable. Most local salons struggle to make appointments with consumers with a scheduling system that has an affordable cost. Local salons in our area face challenges with scheduling due to the high cost and limited functionality of existing scheduling platforms, which fail to meet their specific business needs. This creates inefficiencies and frustrations for salon owners and their clients.

With a web-based design, dynamic pricing is possible by optionally including ads to get a reduced monthly price. Encouraging online booking with loyalty rewards for consistently booking online to turn into deals, product rewards, or other prizes. Customer data is another

valuable asset for a working salon, with an effective way to remember which customers are loyal and consistent. Data relating to when most customers would want to book to surround employees and the salon open schedule around when it is the busiest to prevent downtime. Finally, a referral program to increase customer traffic and encourage web-based booking with referral deals.

Technically, we will implement review feedback into the new system so that salon owners can receive customer reviews that will help them improve their current system. We'll also implement stylist profiles that'll help stylists earn bonuses based on how well of a job they accomplish. This can be based on the review feedback as well to determine how good of a job the stylists accomplish.

Concerning legal considerations, determining employment guidelines is important regarding legal disputes. With that being said, including a Term of Services and Privacy Policy is important when it comes to customers. Having a Liability section is also important for protection if something happens in the salon. Health and safety regulations will also be important when it comes to customers and the staff, if something happens. Finally, having payment processing and data breach protection will help protect the users accessing our website.

The operational side will include automated reminders and confirmations to reduce no-shows and cancellations, along with quick rescheduling capabilities. It features smart scheduling for employees to optimize shifts and ensure efficiency. Inventory tracking helps maintain proper stock levels, while integrated payments and in-app transactions streamline the payment process for a seamless experience.

Our site will include a quick check-in for the users to access on the web. We will also include a discount during slower times and seasonal promotions, and will have an upscale on certain products at certain months to keep customers wanting to come back. Appointment

reminders will also be used so that customers will be reminded of what time their appointment is. We will also have peak time notifications that will allow customers to come in if nobody comes in. Lastly, customers will have a varying minute grace period during busy hours, and if they don't come in, we will exclude them from the list of whoever is next in line.

The goal of this project is to design and develop an affordable, user-friendly solution that helps salons manage booking and scheduling, build their brands, display haircut deals, and showcase their work. This all-in-one platform will be tailored specifically for small to mid-sized salons that may not have the resources to invest in expensive software or extensive marketing strategies. This affordable solution will empower salons to build their brand without breaking the bank, offer transparent and user-friendly booking options available to the public, and create an online presence that highlights the talent and work of the artist. With this tool, salons can focus more on their craft and less on administrative tasks, ultimately driving more customers and improving client relations.

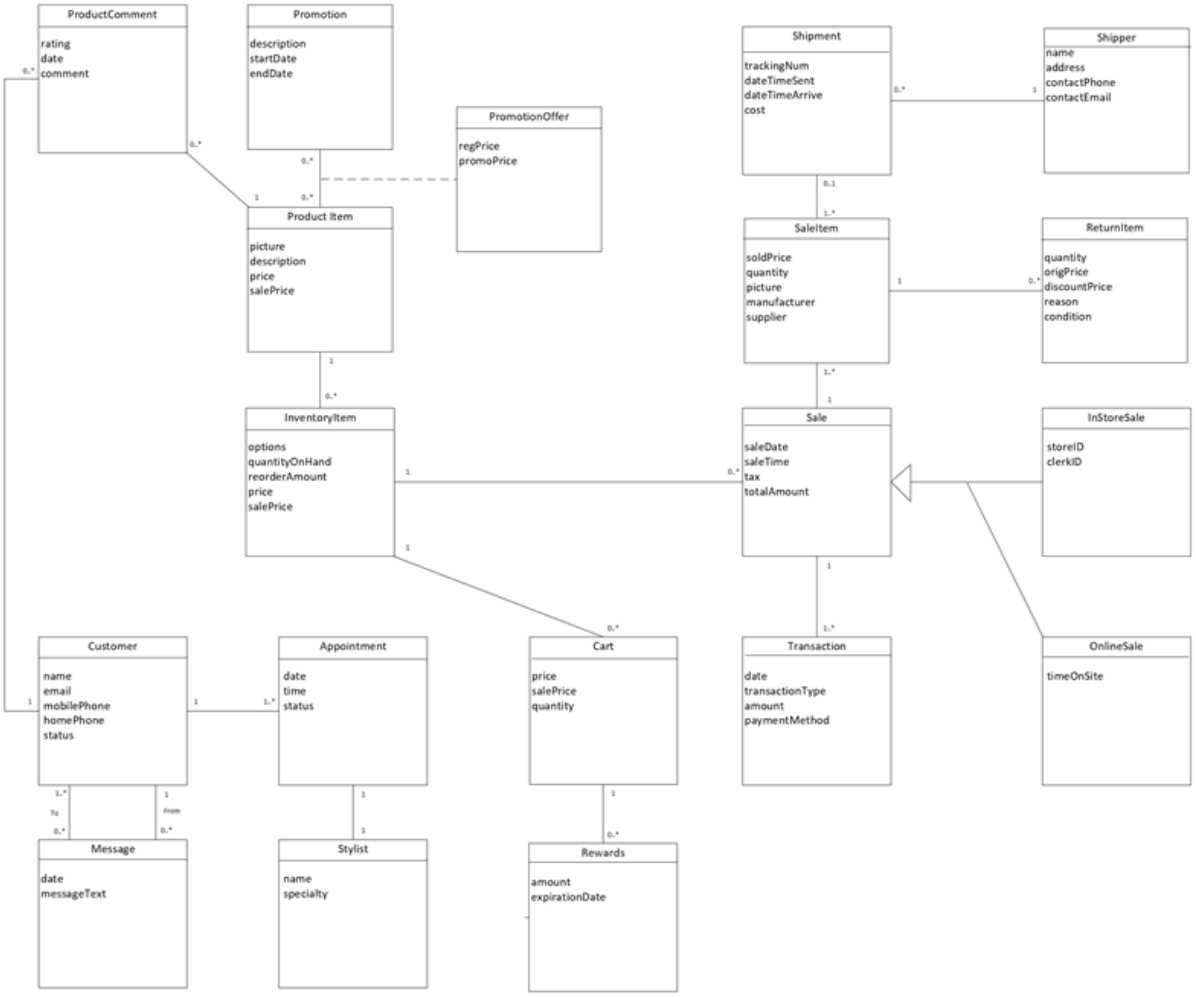


Figure 1. Domain Model Class Diagram

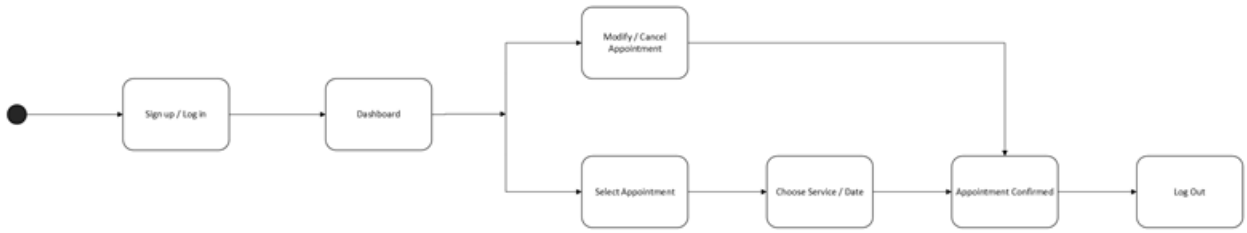


Figure 2. State Machine Diagram

Use Case Name:	Create customer account.	
Scenario:	Create online customer account.	
Triggering Event:	New customer wants to set up account online.	
Brief Description:	Online customer creates customer account by entering basic information such as name, phone, and email.	
Actors:	Customer	
Related Use Cases:	May be invoked with a QR code	
Stakeholders:	Salon owner and employees	
Preconditions:	Customer account subsystem must be available.	
Postconditions:	Customer must be created and saved Email/Phone must be confirmed	
Flow of Activities:	Actor	System
	1.Customer accepts prompt to create user account.	1.1 System creates a new customer. 1.2 System prompts user for information.
	2.Customer enters phone number.	2.1 System creates phone number. 2.2 System offers confirmation text. 2.3 System prompts for confirmation number. 2.4 System prompts email.
	3.Customer enters email.	3.1 System creates email. 3.2 System sends confirmation email. 3.3 System stores email.
Exception Conditions:	1.1 Basic customer data isn't complete. 2.1 Phone number isn't valid. 3.1 Email given from user isn't verified.	

Figure 3. Fully Developed Use Case Description

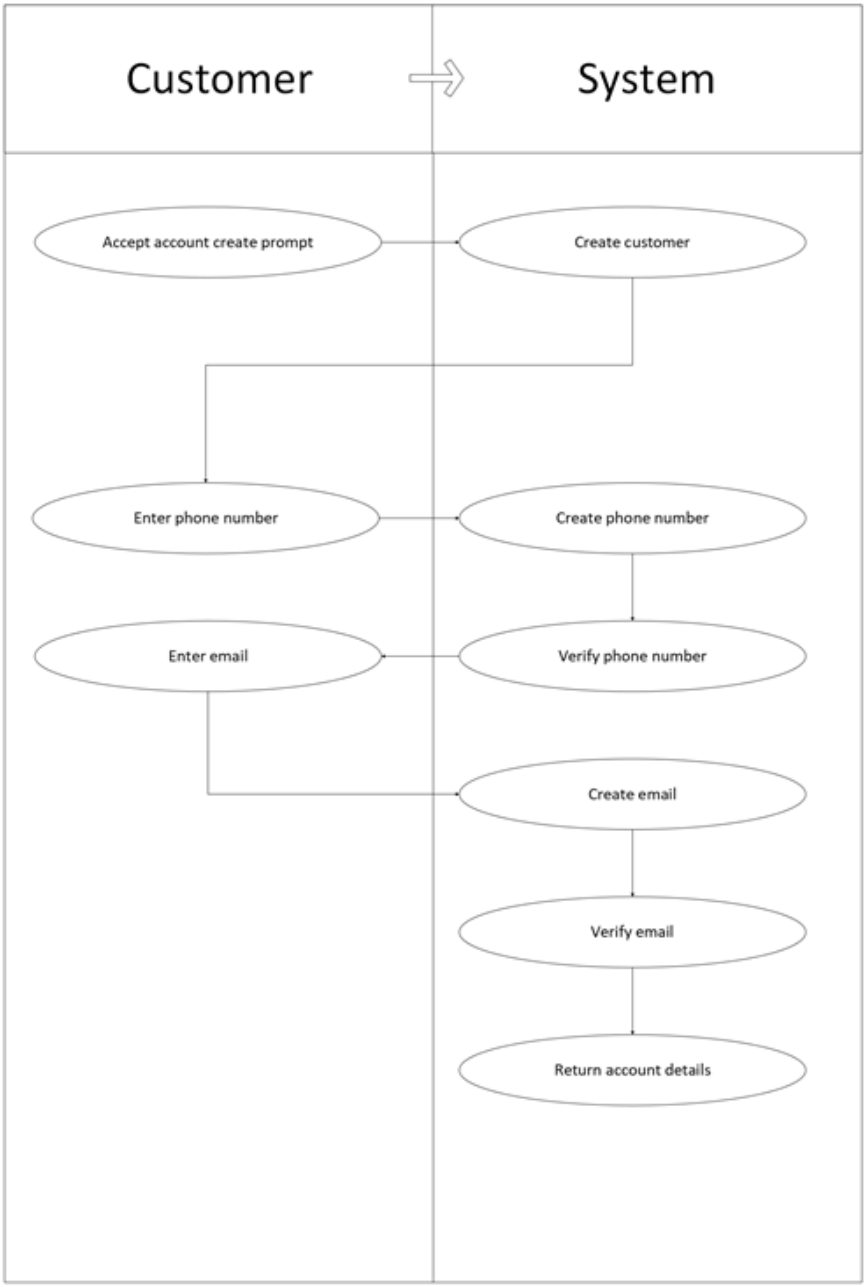


Figure 4. UML Activity Diagram

Entity/Domain	CRUD	Verified use case
Customer	Create	Create user account
	Read/Report	Look up customer
	Update	Process account adjustment
	Delete	Update customer account(to archive)

Figure 5. CRUD Diagram

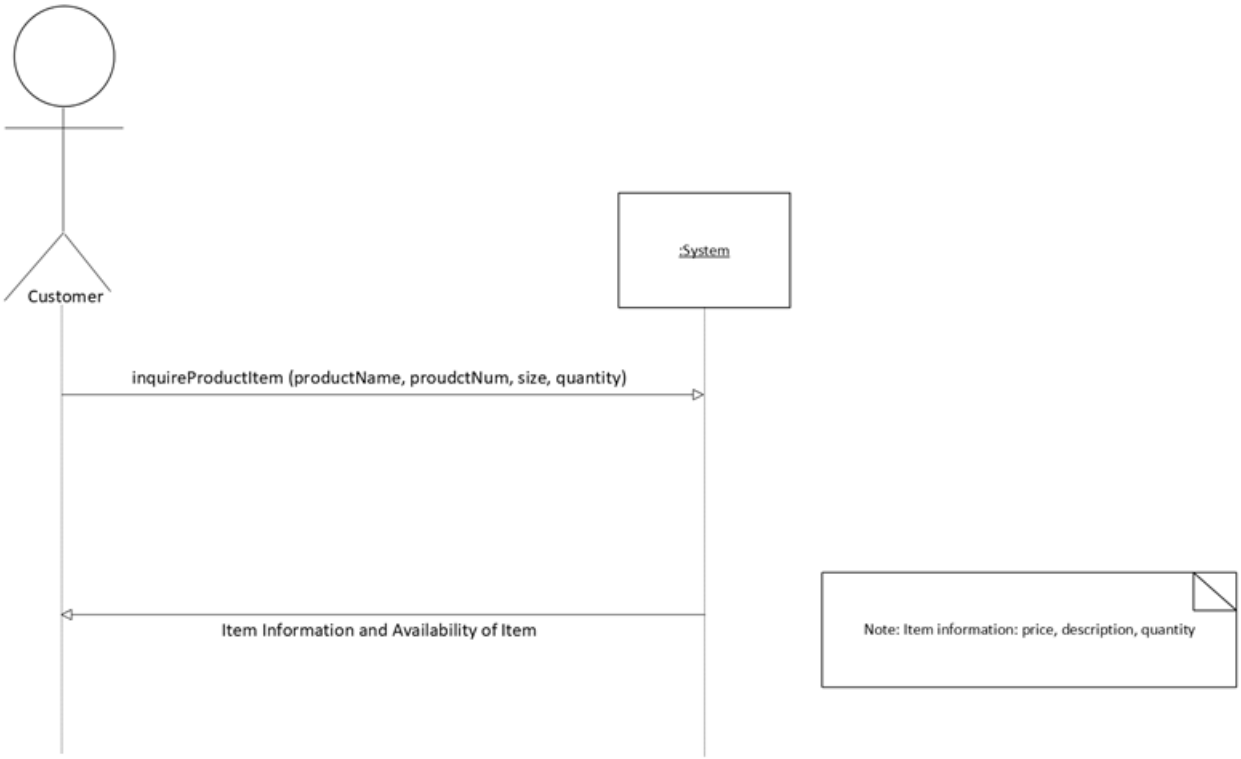


Figure 6. System Sequence Diagram

Use case vs. entity domain class	Customer	Account	Sale	Adjustment
Create customer account	C	C		
Look up customer	R	R		
Customer usage report	R	R	R	
Account adjustment	R	U	R	C
Update customer account	Archive	Archive		

Figure 7. CRUD Matrix

Appointment Booking/Customer Interaction	
Use case	Description
Create Customer Account	User/actor enters their phone number or email, system assigns an account number, customer record, and creates their account record.
Customer Account Confirmation	User/actor will need to interact with a link the system sends the user/actor via their signup choice, valid within 24 hours.
Customer Appointment Scheduling	User/actor will be allowed by the system to schedule an appointment in advance, as well as a specific stylist of the user/actor choosing.
Customer Appointment Cancellations	User/actor will be allowed by the system to cancel their latest appointment made within a 24 hour advance.
Customer Appointment Rescheduling	User/actor will be allowed by the system to reschedule their latest appointment.
	Technical
Use case	Description
Customer Reviews	User/actor will be allowed by the system, once verified by the system, to give a review to the salon establishment as well as the systlist.
	Operations
Use case	Description
Customer Reminders	User/actor will be notified by the system twicer about their appointment, 24 hour and a 2 hour reminder

Figure 8. Use Case and Brief Description

Throughout development, we considered what exactly we needed from the system that we were designing. CRUD (Create, Read, Update, Delete / Archive) was featured twice because we found the diagram for it very useful. Furthermore, we listed what the system shall or should do. Everything the system shall do will have to be included, and it is very important to the product we are producing. Anything the system should do would be nice to include, but it is not crucial to the project itself.

Figure 4 depicts a UML activity diagram, where UML means “Unified Modeling Language.” Simply put, UML is a standard for developers to communicate the design and functionality of the system. This figure specifically represents the way the user and computer will interact with each other while navigating the system. The most useful functionality of this diagram is to help present to developers the processes and interactions between the computer, but most importantly, the user.

Figure 1 showcases our Domain Model Class Diagram, which represents all of the objects in our domain and their structure and relationships to each other. Some objects can relate to each other in a strictly one-to-one way, such as only one stylist for each appointment. Other objects may relate one to many, such as one customer may place one or many appointments. Each object may also hold its attributes, such as how a customer account will hold data such as their name, email, mobile phone number, etc. This diagram is most useful in demonstrating the entire system to our developers so that they can understand this information and utilize it within our system. It provides an excellent roadmap for how objects should interact or relate to each other, and in what ways.

System Shall and Should

System Requirements for the Appointment Booking and Customer Interaction Subsystem.

1. The subsystem shall make bookings to allow customers to make an appointment.
2. The subsystem shall allow scaling with the number of clients.
3. The subsystem shall allow bonuses if the barber gets good reviews from customers.
4. The subsystem shall be able to segment between cancellations, bookings, and missed appointments.
5. The subsystem shall allow users to reschedule appointments.
6. The subsystem should allow a chat within the app to allow customers to talk directly to their stylists and vice versa, making it easier to be all in one.
7. The subsystem shall not allow a full refund within 30 minutes of the appointment time.
8. The subsystem should allow a tier loyalty list to allow customers to get prizes, free haircuts, and 10% off products.
9. The subsystem shall allow customers to sign up with a phone number and email, which can be optional.
10. The subsystem shall send a confirmation via text/email to the user.
11. The subsystem shall allow booking with the intended stylist.

Technical

1. The subsystem shall allow customer reviews for the salon and stylists to gain more credibility.
2. The subsystem shall verify customer reviews and their authenticity.
3. The subsystem should not allow fake or fraudulent reviews to be submitted. It should allow measures to detect and flag suspicious activity, it should also prevent reviews before an appointment has been concluded.
4. The subsystem should allow salon owners to respond to customer reviews, creating a more dynamic feedback loop that includes communication and improvement.
5. The subsystem shall create an average review based on the total reviews from the users.
6. The subsystem should prompt customers to leave a review after their appointment via notification.

Legal

1. The subsystem shall include a Terms of Service & Privacy Policy.
2. The subsystem shall have a liability section to protect individuals if something were to occur within the salon.

Operations

1. The subsystem shall include a 24-hour reminder and an additional 2-hour notice.
2. The subsystem should include the ability for users to check in for their scheduled appointment when they arrive at the salon.
3. The subsystem should give the user an estimated wait time once the user has checked in to the salon.
4. The subsystem should notify salon staff when a user checks in for their appointment and when the user is approaching the scheduled time.
5. The subsystem shall allow users to be notified if their appointment has been delayed or rescheduled.
6. The subsystem shall allow users to view past appointments, including services provided.
7. The subsystem should allow salon owners to set and update business hours and stylists' availability during time slots.
8. The subsystem shall hold data for a month, and if user inactivity is detected, their data will be deleted from the subsystem.

The system's shalls and shoulds are one of the most important steps while designing a system. Shall means that something is mandatory within the system, and it is most useful when it's being tied to legal relations or business rules. If the system doesn't fulfill the purpose described in the shawls, then it won't make it past acceptance testing. While the shalls are crucial, the shoulds are not. These features would be nice if they were implemented, but they are not crucial for the system's structure. An example of this can be remembering the user's last login location.

The system shalls and should help with prioritization while designing the system, where developers can focus on what is absolutely necessary first and maintain consistency. It provides clarity to all parties involved through its presentation, such as the developers, owners, testers, and clients. As with most projects, it can also help with estimating the required budget as well.

After our modeling came the preliminary design phase. Our preliminary and detailed design phases blurred into each other, yet there are still significant improvements from one to the next. Our final preliminary design showcased the chain of events that would occur as the user navigated the web system. It showcased security features, dashboards, and methods for booking appointments. As we neared our deadline for the project, we saw the flaws in our current system, and we fully developed its image in the preliminary design. This is the flow our detailed design will follow and will be fully realized in our prototype.

The Welcome, Sign Up, and Sign In pages of the ciSalon application serve as the first point of interaction for users. The Welcome page displays a simple message informing users that they have been assigned a default username and password, or prompts them to sign up if they are new to the platform. This page acts as an introduction and onboarding guide for first-time users. The Sign Up page allows new users to create a username and password, enabling them to access the features and services offered by ciSalon. Lastly, the Sign In page provides returning users with a way to log into their personal accounts, where they can manage appointments and interact with the salon's offerings.

A composite booking list for the users to view their past, present, and future bookings will allow for further efficiency and help alleviate any issues that may occur concerning confusion around the booking process. For example, viewing a past booking can help determine when a client had last had color in their hair, which can determine whether or not they're eligible

for more chemicals to be applied. Allowing for quick rebooking can promote the salon and bring further business through ease of access.

Web security is a vital part of our prototype, and we represented this with our sign-in and sign-out pages and verification (2 factor authentication). As we designed our prototype, we considered security from the very beginning to protect user data and maintain the security for the salon. 2 factor authentication will prevent stolen or leaked passwords from being used to access the user's account and create false bookings. Creating a safe environment for the website's users to book with their personal information is crucial for building trust in our system.

Our subject-to-change section includes a page filled with salon products. This does not allow the user to purchase these products, it will only allow the user to view the salon products that are currently in stock at a location. We put this idea into the subject-to-change section because the salon is still deciding what products will be bought and displayed, and we are unsure if we are actually planning to implement this function.

Figure 9: Preliminary Design

Entering into our detailed design phase, we focused primarily on enhancing our initial preliminary design, while also beginning our functioning prototype. We had the general idea of how the flow would work as shown in Figure 9. Our detailed design focused on designing our structure for the dashboard, booking, and other essential features that will be within the website. Due to time constraints, we had to put the cart and product viewing on backorder so we may focus on producing a better quality product to deliver to the user.

One feature we wanted to focus on enhancing was consistency within the website. The design of each page of the website drastically varied from one to the next, going from corporate grey to antique shop brown. We wanted to provide a consistent, casual, yet attractive and functional viewing experience as the user navigated the system.

We also needed to flesh out the functionality of the booking system, as it is one of the most crucial parts of the system. Ensuring that we can consistently and securely place bookings for the salon and knowing the salon receives them without any failures. The testing process was rigid, and we thoroughly used agile design methods to jump back and forth through the development when we struggled most.

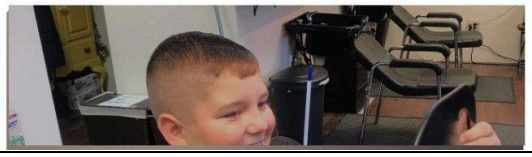
Barbering & Beauty
by Kayla Latrell
(256)394-0838

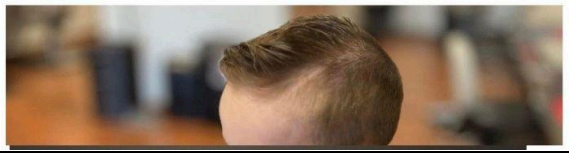
Welcome! I am Kayla Latrell, a cosmotologist located in Florence, AL.

Hours

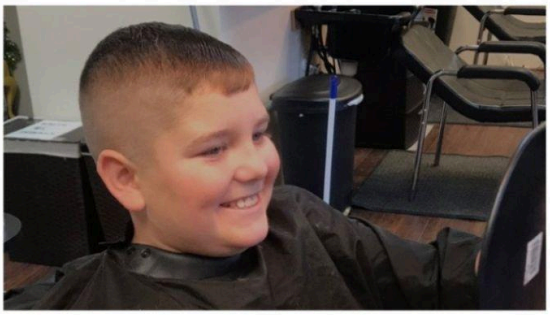
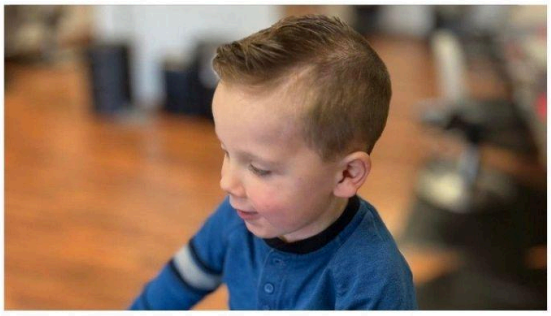
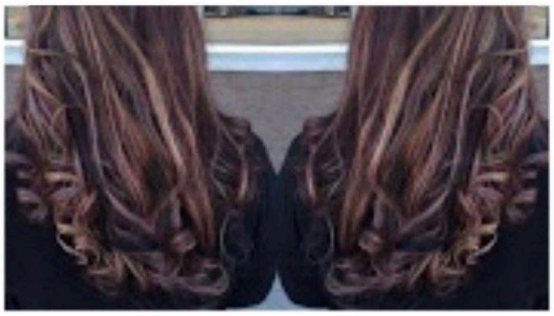
Monday 9:00 a.m. - 5:00 p.m.
Tuesday 9:00 a.m. - 5:00 p.m.
Wednesday 9:00 a.m. - 5:00 p.m.
Thursday 9:00 a.m. - 5:00 p.m.
Friday 9:00 a.m. - 5:00 p.m.
Saturday 9:00 a.m. - 1:00 p.m.
Sunday 12:00 p.m. - 5:00 p.m.

Recent Work





Recent Work



Full Portfolio

Full Portfolio

Get In Touch

Name

Email

Message

Send Message

1517 N wood Ave.
Florence, AL 35630
United States

256-394-0838

barberingandbeautybykaylalatrell@gma

For our final prototype, we decided on a clean, sleek design that is easy for the user to navigate. Using 4 major sections, there is an introduction, hours, portfolio, and booking area. The introduction features a small welcome and basic information, and includes the logo of the salon owner. The hours section has the hours for the salon, but it is too small to navigate to the next section quickly. The portfolio features 6 popular images from the salon's Facebook, along with a view more button to redirect to a larger portfolio. Finally, the last section features the highlight booking prompt, which also has other contact information and the address for the salon.

The small website will make it easier for the user to proceed through the website. Establishing the hours at the beginning of the website allows users who may simply walk into the salon quick access to important information. Strategically placing the booking at the bottom of the website will encourage the user to view the cosmetologist's best works before placing a booking.

	A	B	C	D	E	F	G	H
1				ciSalon	Cost/Benefit		Analysis	
2	**Category**		Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
3	Value of benefits		$0	$0	300	350	400	500
4	Development Costs		-250	-50	50	50	50	50
5	Annual expenses		50	50	300	350	400	450
6	Net benefit/costs		-250	250	350	350	400	450
7	Discount factor		1,000	0.943	0.89	0.839	0.792	0.747
8	Net present value		-250	235.75	267	293.65	316.8	336.15
9	Cumulative NPV		-250	-14.25	252.75	546.4	863.2	
10	Payback period		1 year + (14.25 / 267 = 0.05) → 1 year + 20 days					

Figure 10: Project Management

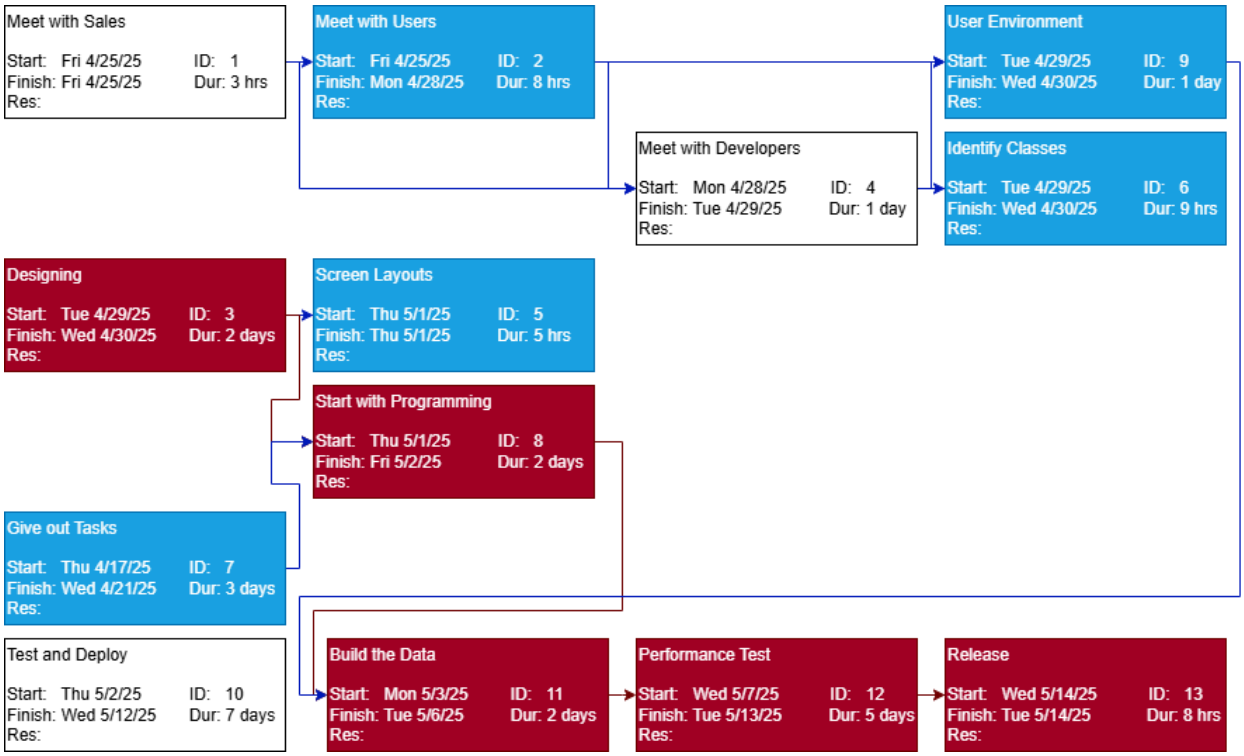


Figure 11: PERT Chart

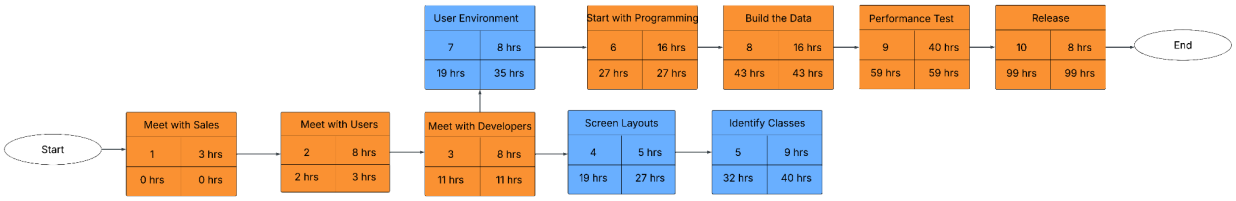


Figure 12: CPM Chart