

Employee Management System

Final Report

Alyssa Brumm
INFO C451 SP21
System Implementation



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CUSTOMER PROBLEM STATEMENT

PROBLEM STATEMENT

Best Hairstylists Inc. is a growing small salon business that offers a variety of cosmetology services to their customers. Within the salon, there are eight different booths/stations that are assigned to employees of the salon. Due to the nature of the cosmetology industry, there are no employment contracts that require a cosmetologist to remain with the salon for any certain amount of time, which results in consistent turnover and booth re-assignments. This creates unique challenges for employee information management as there is an increasingly large amount of historical employee data that needs to be retained and quickly accessible.

Best Hairstylists Inc. has identified the following core problems that need to be resolved through the implementation of the proposed system:

XV. Employee satisfaction with communications is low

XVI. Paper employee records are increasingly difficult to maintain and keep track of

XVII. Time allotment for taxes each year has increased as the business has grown

XVIII. Employees are not able to change their booth assignments without being physically present in the salon

Frequently there are messages and announcements that need to be sent to all current employees, which are handled manually by the two salon owners using email and text

messages. Due to the constant turnover mentioned above, this requires an extensive amount of time to manage and often results in historical employees receiving messages that are no longer relevant to them and/or current employees not getting all relevant information. This also creates a heavy dependency on the owner's personal devices; in the event a personal device or phone was lost, broken, or stolen, they could potentially lose contact information for both historical and current employees.

Paper records are the core of Best Hairstylists Inc. management systems. As the business has grown, these have gotten increasingly difficult to manage, store, and update. This ends up costing the business during tax season, when they are unable to take clients for an extended period in order to properly produce the paperwork needed by their hired tax professionals. This time allotment is outlined in the table below.

<u>Item</u>	<u>Current Time Allotment (hrs)</u>	<u>Per</u>
Personal Tax Paperwork	16	Year
Business Tax Paperwork	24	Year
Rental Paperwork	1	Employee

As administrators, the salon owners will need to be able to access, add, and edit both current and historical employee data. On rare occasion, they may also need to be able to delete employee records from the system in the event that they were added incorrectly and/or never ended up working at the salon after the account was created. Administrators should be able to

access all employee profile data, add/edit booth management, and add messages to the announcement area in order to meet all of the salons needs.

Historical and current employees currently have no way to update their contact information with the salon owners, other than to reach out to them directly. The salon owners are also cosmetologists who communicate with clients regularly through their personal devices, which results in these types of communications getting frequently missed or forgotten about. Best Hairstylists Inc. would like their employees to be able to be self sufficient in creating accounts, changing passwords, and updating their contact information.

GLOSSARY OF TERMS

Term	Definition
Current Employee	An individual who is currently working at Best Hairstylists Inc.
Historical Employee	An individual who has seen 1+ clients at Best Hairstylists Inc., but is not currently working there
Administrator	User role that is responsible for implementing and maintaining security services, such as adding users, building profiles, or managing general site administration.
User	User role that has basic usability of the system, but is not able to do administrator level tasks
Visitor	An individual accessing the system that does not have a user account
Announcements	A public statement that can be viewed by a visitor or user
Booth	A physical station located within the salon
Booth Assignment	The booth number for which a current employee is assigned
Personal Device	A piece of computer equipment that is owned by an employee
Company Device	A piece of computer equipment that is owned by the company

SYSTEM REQUIREMENTS

FUNCTIONAL REQUIREMENTS

Functional Requirements		
<u>ID</u>	<u>Priority Weight</u>	<u>Description</u>
F-REQ-1	1	Self-Sufficient Account Creation and Management
F-REQ-2	1	Admin/User Authorization Levels
F-REQ-3	1	Employee Profile Management
F-REQ-4	1	Booth Assignment Management
F-REQ-5	1	System should be accessible by any desktop PC on any OS
F-REQ-6	2	Differentiation Between Current and Historical Profiles
F-REQ-7	2	View/Filter Employee Profiles by Admins
F-REQ-8	2	Announcement Creation by Admins

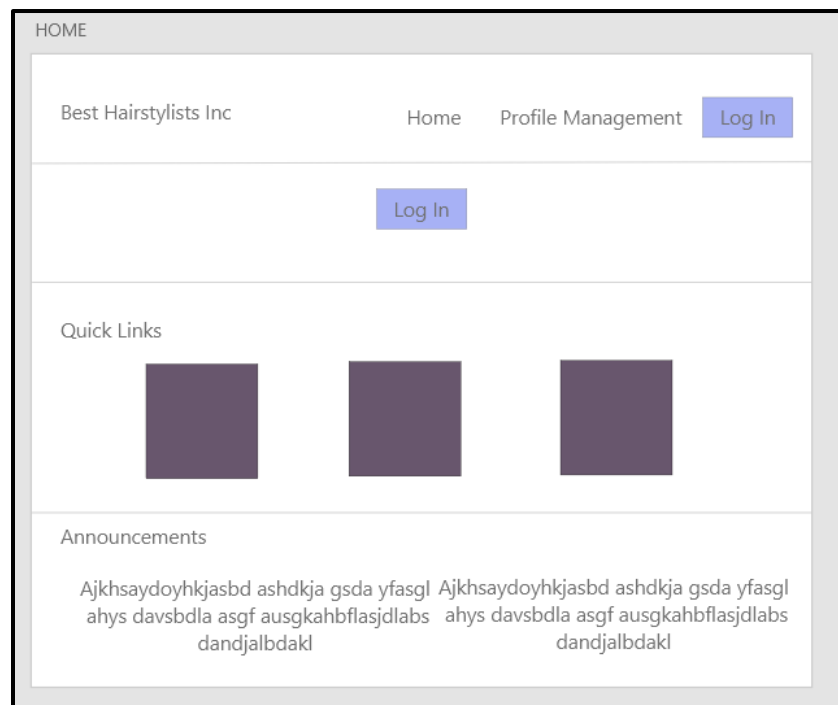
NON-FUNCTIONAL REQUIREMENTS

Non-Functional Requirements		
<u>ID</u>	<u>Priority Weight</u>	<u>Description</u>
NF-REQ-1	1	Users should be able to log in from both a personal or company device
NF-REQ-2	1	New employees should be able to create their own account
NF-REQ-3	1	Users should be able to reset their own passwords
NF-REQ-4	1	Users should be able to view and change their booth assignments without admin assistance
NF-REQ-5	1	Users should be able to modify data in their employee profile without admin assistance
NF-REQ-6	1	Admins should be able to modify all employee profiles, both current and historical
NF-REQ-7	2	Admins should be able to indicate that an employee is no longer working at the business (ie make historical)
NF-REQ-8	2	Admins should be able to post, edit, and delete announcements
NF-REQ-9	2	Users should be able to view announcements, but not post or make edits to them

USER INTERFACE REQUIREMENTS

User Interface Requirements			
<u>ID</u>	<u>Priority Weight</u>	<u>Description</u>	<u>Prototype #</u>
UI-REQ-1	1	Website should have a sleek/professional look with minimal additions to prevent user confusion	1
UI-REQ-2	1	Home Page should provide Log In link and capabilities	1
UI-REQ-3	1	Create Account Page should require basic employee profile data prior to allowing the user to create the account	2
UI-REQ-4	1	Profile Management should be separate from the home page and allow modification/editing of profile(s)	1 & 3
UI-REQ-5	2	Announcements should appear on both the home page and a separate page	1 & 4

PROTOTYPE #1:



PROTOTYPE #2:

CREATE ACCOUNT

Best Hairstylists Inc

Home

Profile Management

Log In

Create Account

User Name

Phone

Password

Email Address

First Name

Booth Assignment

Last Name

PROTOTYPE 3:

PROFILE MANAGEMENT

Best Hairstylists Inc

Home

Profile Management

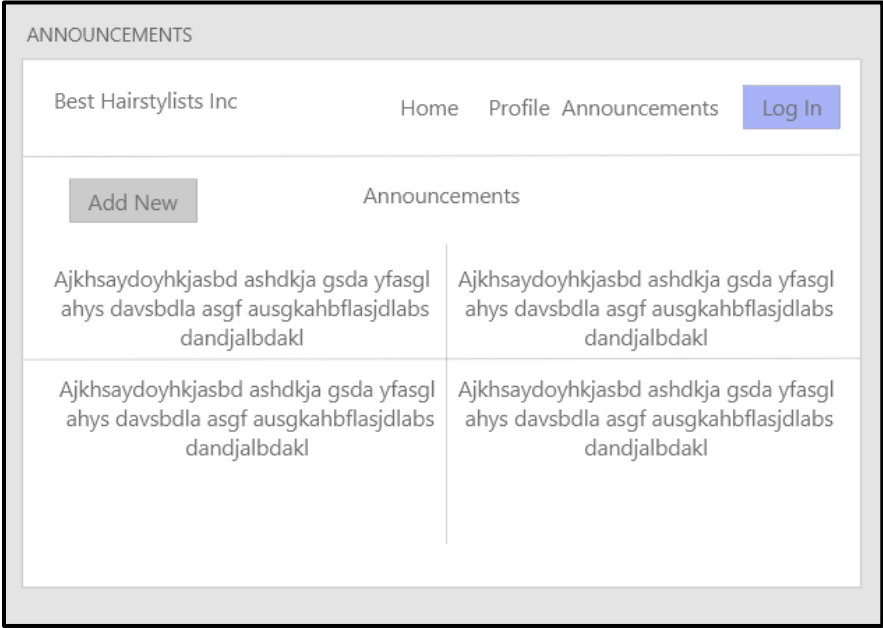
Log In

Create New Account

Modify Existing Account

View All Accounts

PROTOTYPE 4:



FUNCTIONAL REQUIREMENT SPECIFICATION

STAKEHOLDERS

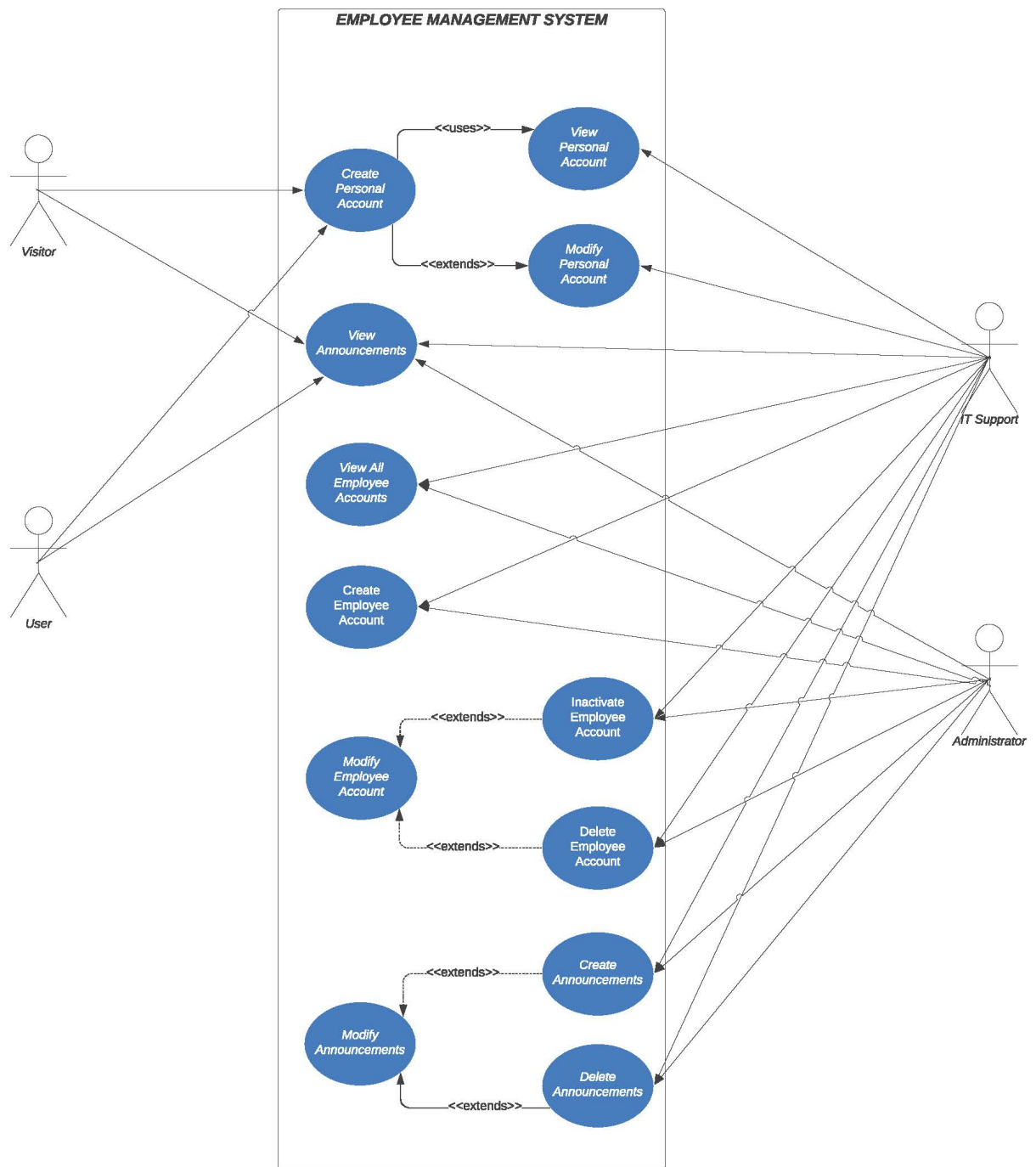
<u>Stakeholder</u>	<u>Role</u>	<u>Estimated Project Importance</u>
Salon Owners	Project Sponsors and Program Owners	HIGH
End Users/Employees	Salon Employees with Basic Usage of Program	MEDIUM
Administrators	Program Administration and Advanced Usage	HIGH
IT Support Consultants	Operational Support of Program Post-Implementation	LOW

ACTORS AND GOALS

Actor	Goal	Type
User	Access Application Create Personal User Account Modify Personal Employee Profile View Announcements	Internal
Administrator	Access Application Create User and Administrative Accounts Inactivate Employee Profiles Delete Employee Profiles Create/Edit/Delete Announcements	Internal
IT Support	Access Application Create User and Administrative Accounts Modify Employee Profiles Delete Employee Profiles Inactivate Employee Profiles Create/Edit/Delete Announcements	External
Visitor	Access Application View Announcements Create Personal User Account	Externail

USE CASES

USE CASE DIAGRAM



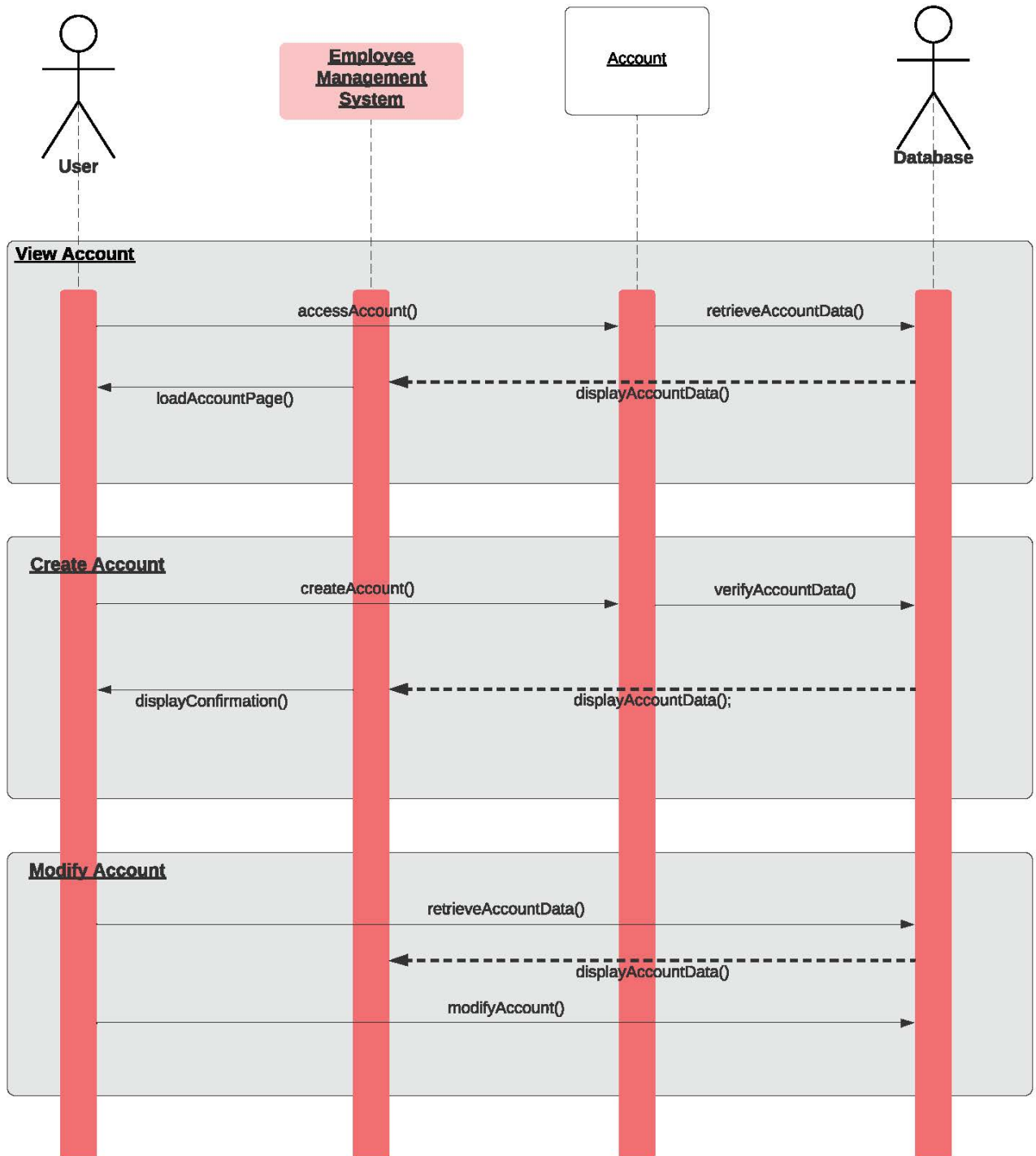
TRACEABILITY MATRIX

REQ ID	Use Case	Priority		IT Support	Admin	User	Visitor
F-REQ-1 NF-REQ-2	Create Personal Account	1	ACCESS	X		X	X
F-REQ-3 F-REQ-4	View Personal Account	1		X		X	
NF-REQ-3 NF-REQ-4	Modify Personal Account	1		X		X	
F-REQ-7 F-REQ-6	View All Employee Accounts	1		X	X		
NF-REQ-6 NF-REQ-7	Modify Employee Accounts	1		X	X		
NF-REQ-9 NF-REQ-8	View Announcements	2		X	X	X	X
F-REQ-8	Modify Announcements	2		X	X		

USE CASE DESCRIPTIONS

Use Case	Description	Sequence Diagram	Mockup ID
Create Personal Account	New users and visitors are able to create their user account and enter their personal information into the system.	X	A
View Personal Account	Users with accounts can access their personal account information that they set up when they created their account. They can view in real time their employee profile.	X	B
Modify Personal Account	Users with accounts can modify their personal account information. While viewing their account information, they also will have the ability to edit their information.	X	B
View All Employee Accounts	All employee account information is visible in an area of the application is accessible by administrators and IT support to support employee account maintenance.	X	B
Modify Employee Accounts	Employee account information is able to be edited by those with access to view all employee accounts.	X	B
View Announcements	Announcements display on the home page, where all users and visitors are able to view them.		C
Modify/Create Announcements	Announcements can be created, edited, and deleted from the announcements area by administrators.		C

SEQUENCE DIAGRAMS



USER INTERFACE SPECIFICATION

PRELIMINARY DESIGN

MOCKUP A:

BEST HAIRSTYLISTS INC.

CREATE ACCOUNTVIEW ACCOUNTSANNOUNCEMENTS

LOG IN

First Name:

Last Name:

Email Address:

Phone Number:

Birth Date:

Username:

Password:

Email Address:

CREATE ACCOUNT

MOCKUP B:

BEST HAIRSTYLISTS INC.

CREATE ACCOUNTVIEW ACCOUNTSANNOUNCEMENTS

LOG IN

Username	Password	Email Address	First Name	Last Name	DOB	Phone	Booth #	EDIT/DELETE	
								EDIT	DELETE
								EDIT	DELETE
								EDIT	DELETE
								EDIT	DELETE
								EDIT	DELETE
								EDIT	DELETE
								EDIT	DELETE
								EDIT	DELETE

MOCKUP C:

BEST HAIRSTYLISTS INC.[CREATE ACCOUNT](#)[VIEW ACCOUNTS](#)[ANNOUNCEMENTS](#)[LOG IN](#)

[ADD NEW](#)**ANNOUNCEMENTS**

Date: January 4th 2021

Message: Need help navigating our new employee management system? Reach out to IT Support at support@besthairstylists.com

[EDIT](#) [DELETE](#)

Date: February 4th 2021

Message: REMINDER! The Salon will be closed from 8:00AM – 8:00 PM on February 15th for construction.

[EDIT](#) [DELETE](#)

USER EFFORT ESTIMATION

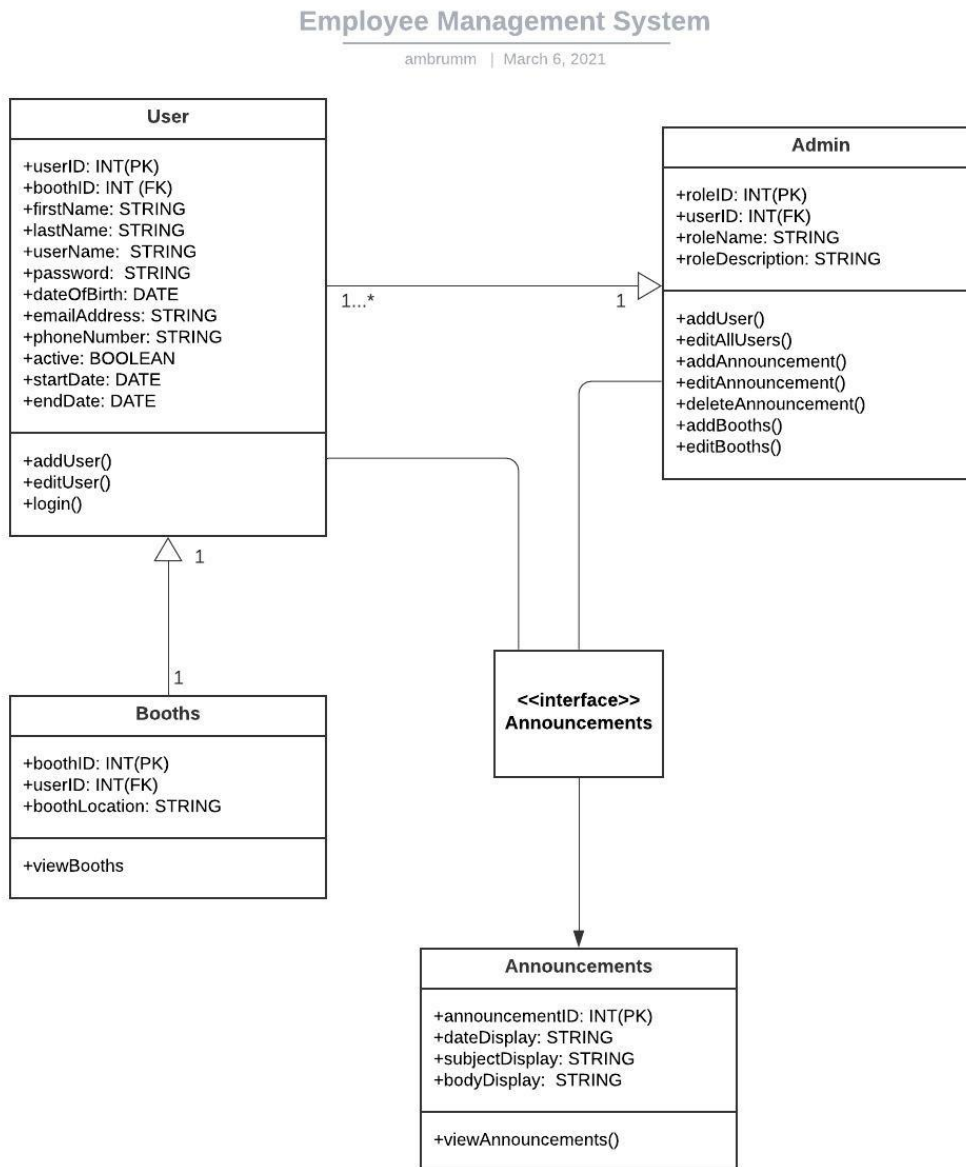
Scenario	Sequence of Events	Keystrokes	Difficulty Level*
Create Personal Account	1. Access Website 2. Select Create Account 3. Fill out Form 4. Press Submit	11	MEDIUM
View Personal Account	1. Access Website 2. Select Log In 3. Enter Username 4. Enter Password 5. Press Login 6. Select View Account	6	LOW
Modify Personal Account	1. Access Website 2. Select Log In 3. Enter Username 4. Enter Password 5. Press Login 6. Select View Account	9	HIGH

	7. Select Edit 8. Modify Data 9. Select Save		
View All Employee Accounts	1. Access Website 2. Select Log In 3. Enter Username 4. Enter Password 5. Press Login 6. Select View Account	6	LOW
Modify Employee Accounts	1. Access Website 2. Select Log In 3. Enter Username 4. Enter Password 5. Press Login 6. Select View Account 7. Select Edit 8. Modify Data 9. Select Save	9	HIGH
View Announcements	1. Access Website 2. Select View Announcements	2	LOW
Modify/Create Announcements	1. Access Website 2. Select View Announcements 3. Select Create/Edit 4. Fill out Form Fields 5. Select Save	8	MEDIUM

**Difficulty Level was estimated based off of the complexity level of this individual software. High difficulty on this software may not equate to high difficulty in all software*

DOMAIN ANALYSIS

DOMAIN MODEL



The four core tables that allow this software to function are Users/Employees, Booths Admin, and Announcements. Announcements have no relationship with any of the other objects and exist solely for functionality/visibility within the interface.

SYSTEM OPERATION CONTRACTS

DEFINITIONS	
Operation	Name of operation, and parameters
Cross References	Use cases this operation can occur within
Preconditions	Noteworthy assumptions about the state of the system or objects in the Domain Model before execution of the operation. These will not be tested within the logic of this operation, are assumed to be true, and are non-trivial assumptions the reader should know were made
Postconditions	The state of objects in the Domain Model after completion of the operation.
SOURCE: http://csis.pace.edu/~marchese/CS616/Lec6/se_l6.htm	

Create Account	
Operation	createAccount()
Cross References	<ul style="list-style-type: none">- Create Personal Account- Create Employee Account
Preconditions	N/A
Postconditions	<ul style="list-style-type: none">- A New Account was created- A Username/Password was created- Attributes were initialized

Modify Account	
Operation	editAccount()
Cross References	<ul style="list-style-type: none">- Modify Personal Account- Modify Employee Accounts
Preconditions	<ul style="list-style-type: none">- User account(s) exist- User/Admin is logged in
Postconditions	<ul style="list-style-type: none">- Account Attributes were modified- New Attributes retrieved

View Account	
Operation	viewAccounts()
Cross References	<ul style="list-style-type: none">- View Personal Account- View Employee Accounts
Preconditions	<ul style="list-style-type: none">- User account(s) exist- User/Admin is logged in
Postconditions	<ul style="list-style-type: none">- Account Attributes were displayed

Create Announcement	
Operation	createAnnouncement()
Cross References	- Create Announcements
Preconditions	- N/A
Postconditions	<ul style="list-style-type: none"> - A New Announcement was created - Announcement Displays on Webpage - Attributes were initialized

Modify Announcement	
Operation	editAnnouncement()
Cross References	- Modify Announcements
Preconditions	<ul style="list-style-type: none"> - Admin is logged in - Announcement record already exists
Postconditions	<ul style="list-style-type: none"> - Announcement Attributes were modified - New Attributes retrieved

View Account	
Operation	viewAnnouncements()
Cross References	- View Announcements
Preconditions	- Announcement(s) currently exist
Postconditions	- Announcement Attributes were displayed

INTERACTIVE DIAGRAMS

DESIGN PRINCIPLES

Per request of Best Hairstylists Inc, the system design and layout has been kept as simple and straight-forward as possible to help reduce costs of technical support. The use cases requested in the project plan will be able to be implemented without the use of advanced mathematical functions or algorithms; as a result, AB Consulting believes that they can implement all required features with a considerably simple back-end design. The final product produced at project completion will be a minimum viable product (MVP), which will contain enough features to be utilized by early users with the expectation that feedback will be provided, and future enhancements and additions will be made through an SLDC process (Wikipedia).

The proposed software solution has three core areas: announcements, employee profiles, and booths. All three areas need to be modifiable by front-end users who do not have direct database access. The data from each of these areas live within their own tables and communicate with one another when needed. Employees are assigned specific booths to work in, but they can modify their assigned booth whenever needed. On the contrary, announcements are not tied to a specific user or a specific booth and therefore communicate only with the interface where users can view, edit, or create announcements when needed. Announcements have been included in this report but will be implemented in phase two of the implementation.

DATABASE TABLE DESIGN

employee_management_system employee
userID : int(12)
firstName : text
lastName : text
DOB : date
phone : varchar(10)
email : varchar(65)
password : varchar(65)
active : tinyint(1)
startDate : date
endDate : date
boothID : int(11)

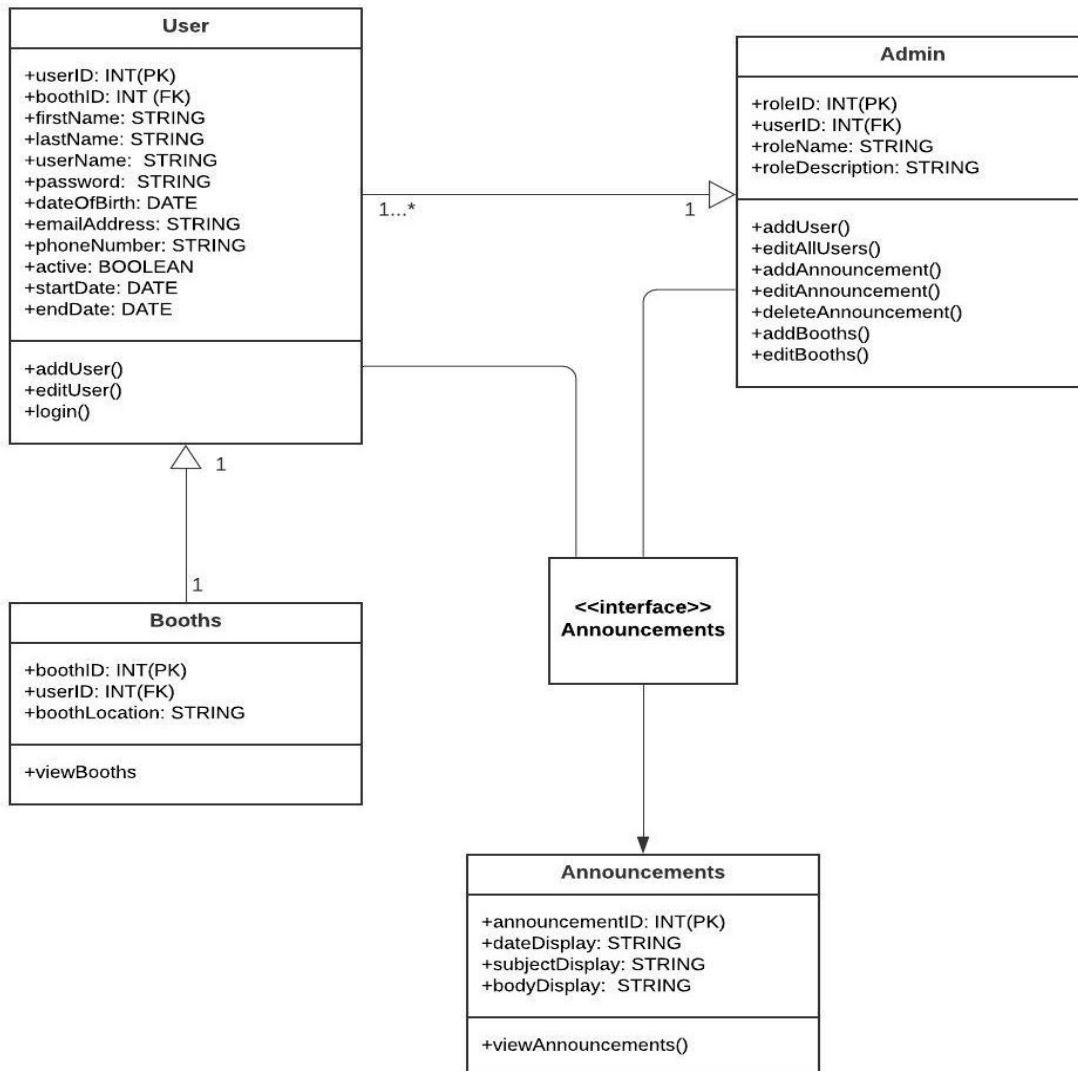
employee_management_system admin
adminID : int(11)
password : varchar(35)
username : varchar(35)

employee_management_system announcements
announcementID : int(11)
date : date
subject : varchar(65)
body : longtext

employee_management_system booths
boothID : int(11)
boothNumber : int(11)
boothDescription : varchar(100)
userID : int(11)

CLASS DIAGRAM AND INTERFACE SPECIFICATION

CLASS DIAGRAM



The classes specified in this document outline the base structure of the Employee Management System. This diagram also portrays the attributes, operations, and relationships. There are varying relationships between classes such as one to one, one to many, etc. A majority of the operations reside in the administrative table, as only administrators can do advanced functions within the system. In this case, the administrators will be the owners and operators of the salon.

DATA TYPES AND OPERATION SIGNATURES

employee_management_system

admin

Column	Type	Null	Default	Links to	Comments	Media (MIME) type
adminID (<i>Primary</i>)	int(11)	No				
password	varchar(35)	No	123			
username	varchar(35)	No				

Indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
PRIMARY	BTREE	Yes	No	adminID	2	A	No	

announcements

Column	Type	Null	Default	Links to	Comments	Media (MIME) type
announcementID (<i>Primary</i>)	int(11)	No				
date	date	No	current_timestamp()			
subject	varchar(65)	No				
body	longtext	No				

Indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
PRIMARY	BTREE	Yes	No	announcementID	2	A	No	

booths

Column	Type	Null	Default	Links to	Comments	Media (MIME) type
boothID (<i>Primary</i>)	int(11)	No				
boothNumber	int(11)	No				
boothDescription	varchar(100)	Yes	NULL			
userID	int(11)	Yes	NULL	employee -> userID		

Indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
PRIMARY	BTREE	Yes	No	boothID	6	A	No	
userID_FK_employeeID	BTREE	No	No	userID	2	A	Yes	

employee

Column	Type	Null	Default	Links to	Comments	Media (MIME) type
userID (<i>Primary</i>)	int(12)	No				
firstName	text	No				
lastName	text	No				
DOB	date	No				
phone	varchar(10)	No				
email	varchar(65)	No				
password	varchar(65)	No				
active	tinyint(1)	No	1			
startDate	date	No	current_timestamp()			
endDate	date	Yes	<i>NULL</i>			
boothID	int(11)	Yes	<i>NULL</i>			

Indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
PRIMARY	BTREE	Yes	No	userID	1	A	No	
userID	BTREE	Yes	No	userID	1	A	No	

TRACEABILITY MATRIX

TRACEABILITY MATRIX								
<u>Requirements</u>	<u>PW</u>	<u>UC1</u>	<u>UC2</u>	<u>UC3</u>	<u>UC4</u>	<u>UC5</u>	<u>UC6</u>	<u>UC7</u>
F-REQ-1	1	X	X	X	X	X	X	
F-REQ-2	1				X	X		X
F-REQ-3	1		X	X				
F-REQ-4	1		X	X	X	X		
F-REQ-5	1		X		X		X	
F-REQ-6	2				X	X		
F-REQ-7	2				X	X		
F-REQ-8	2						X	X

USE CASES

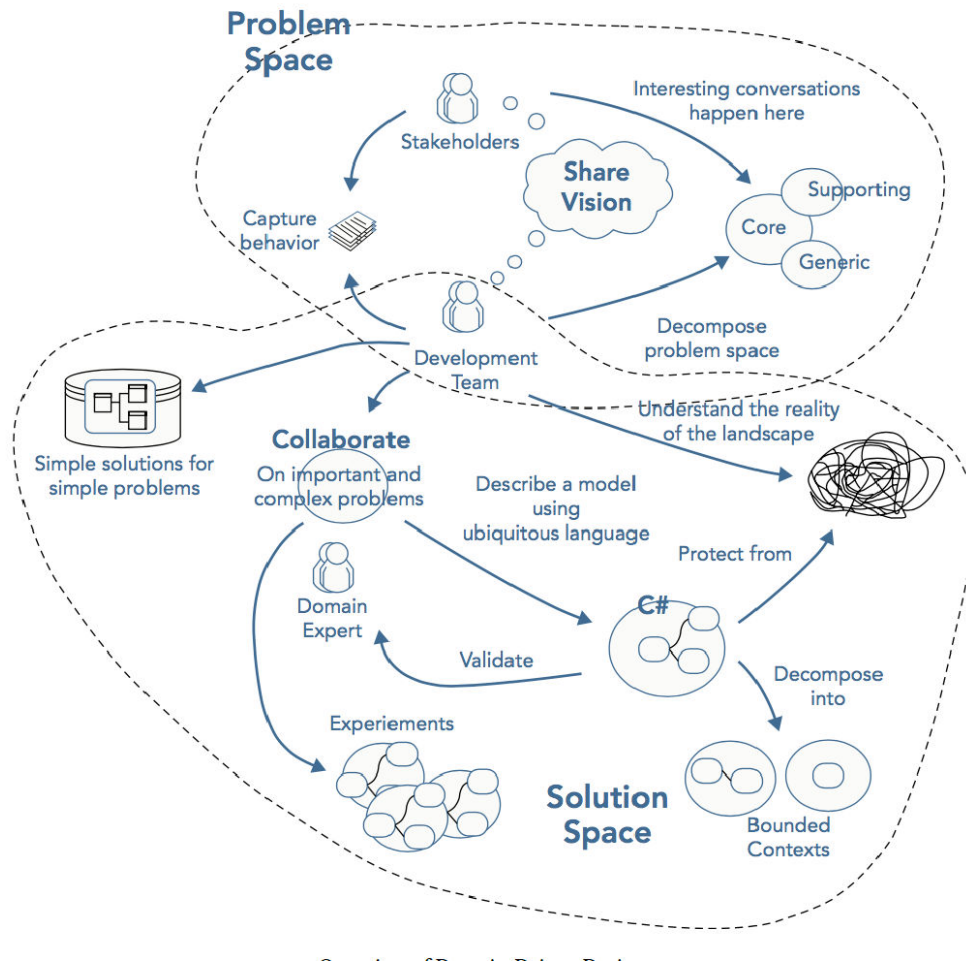
<u>Use Case</u>	<u>Description</u>	<u>ID</u>	<u>PRIORITY WEIGHT</u>
Create Personal Account	New users and visitors are able to create their user account and enter their personal information into the system.	1	Medium
View Personal Account	Users with accounts can access their personal account information that they set up when they created their account. They can view in real time their employee profile.	2	Low
Modify Personal Account	Users with accounts can modify their personal account information. While viewing their account information, they also will have the ability to edit their information.	3	High
View All Employee Accounts	All employee account information is visible in an area of the application is accessible by administrators and IT support to support employee account maintenance.	4	Low
Modify Employee Accounts	Employee account information is able to be edited by those with access to view all employee accounts.	5	High
View Announcements	Announcements display on the home page, where all users and visitors are able to view them.	6	Low
Modify/Create Announcements	Announcements can be created, edited, and deleted from the announcements area by administrators.	7	Medium

FUNCTIONAL REQUIREMENTS		
<u>ID</u>	<u>Priority Weight</u>	<u>Description</u>
F-REQ-1	1	Self-Sufficient Account Creation and Management
F-REQ-2	1	Admin/User Authorization Levels
F-REQ-3	1	Employee Profile Management
F-REQ-4	1	Booth Assignment Management
F-REQ-5	1	System should be accessible by any desktop PC on any OS
F-REQ-6	2	Differentiation Between Current and Historical Profiles
F-REQ-7	2	View/Filter Employee Profiles by Admins
F-REQ-8	2	Announcement Creation by Admins

SYSTEM ARCHITECTURE AND SYSTEM DESIGN

ARCHITECTURAL STYLE

The architectural style that AB Consulting has implemented for Best Hairstylists Inc. is a Domain-driven model. The structure and naming conventions used in the database and in the application align with the business need, as pictured in the Class Diagram and the Data Operations and Signature sections of this report. For example, the Announcements area of the UI works with the Announcement Class and Announcements table in the database, through the use of methods called viewAnnouncement, editAnnouncement, deleteAnnouncement, etc. This is also demonstrated in the image portrayed below. This required more isolation, but because of the simple nature of the design and development request did not result in an extended amount of additional billable development hours. (Wikipedia)

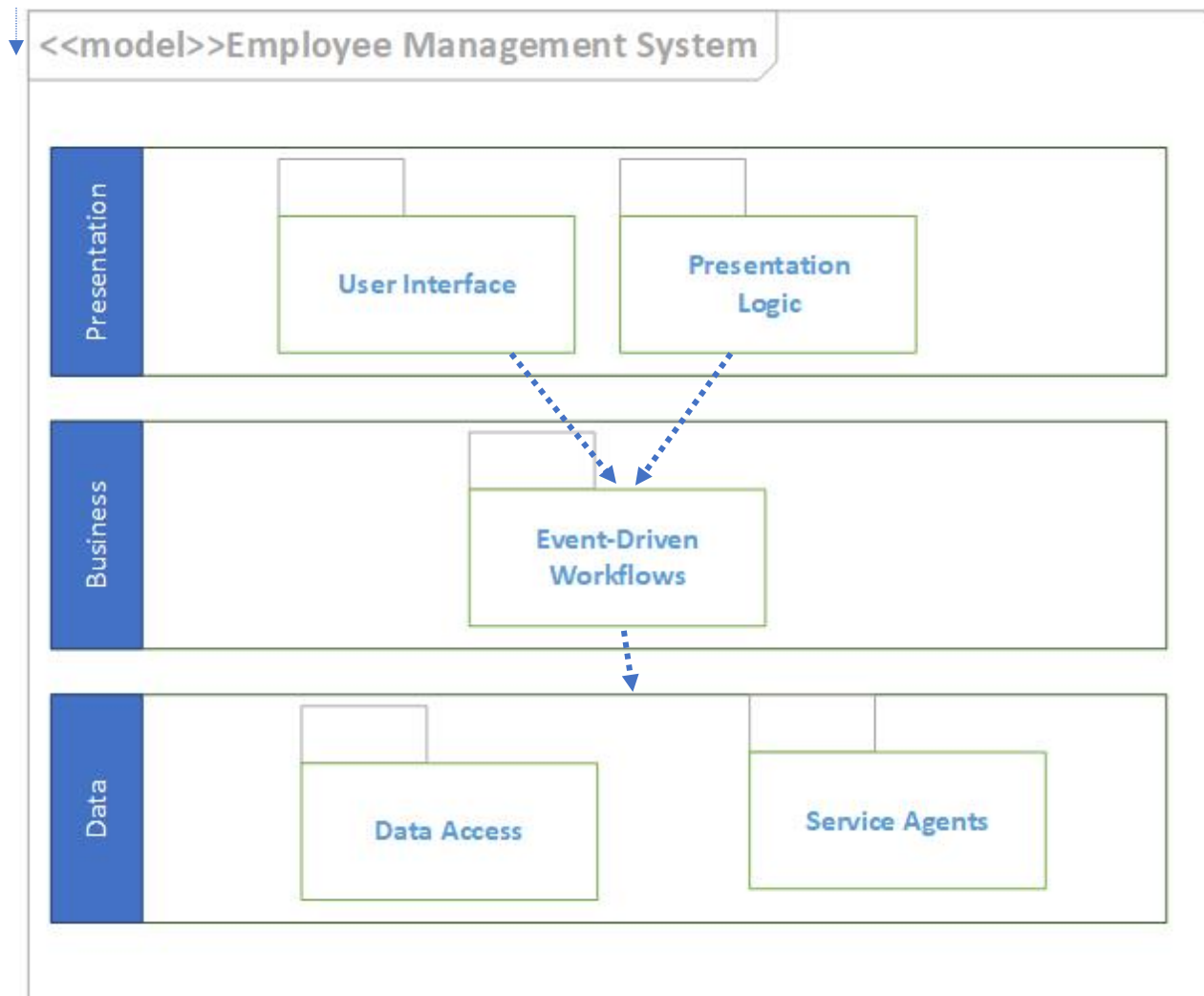


(Source: <https://devopedia.org/images/article/233/4722.1581163731.jpg>)

This project implementation will fit the baseline needs for Hairstylists, Inc, with the expectation that those needs may change in the future or that enhancements and new features will need to be implemented. In order to make those modifications easier down the line, the Domain-driven model was utilized to assist in front-end user and back-end development communication. Due the nature of their small business as well as their line of work, IT support is often contracted, and they have communicated a consistent difficulty with contracted groups not understanding their line of business. By utilizing a Domain-driven model, the domain

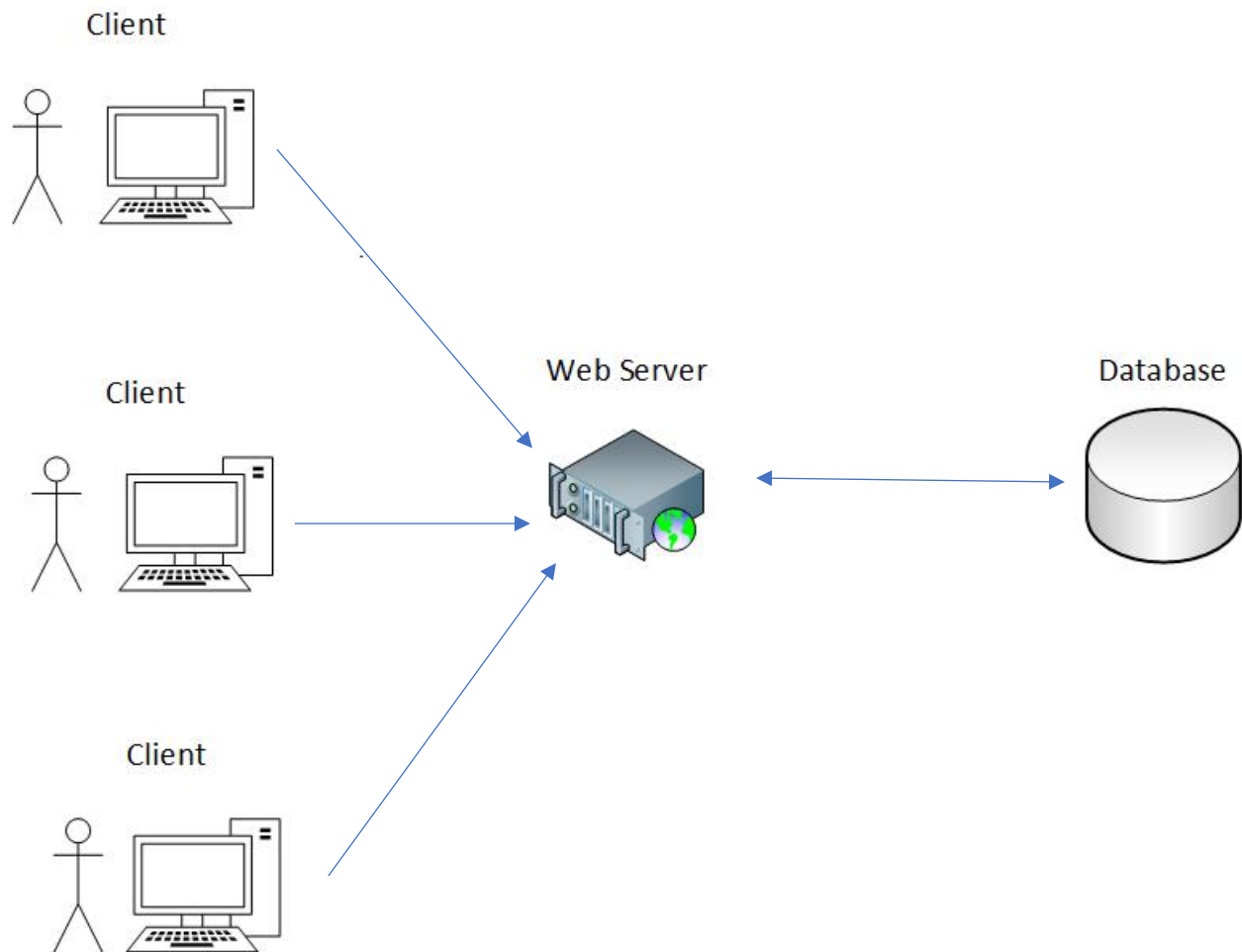
subject matter experts can easily associate the technical build with the use in the system to help guide development in the right direction when needed.

UML PACKAGE DIAGRAM



SUBSYSTEMS TO HARDWARE

Solution is accessed via a standard web browser or client such as Google Chrome, Internet Explorer, Firefox, Internet Edge, etc. Multiple clients can access the webserver at the same time. When triggered, the webserver will select, update, or insert data as necessary when initiated by the user via the client. Through triggers and code within the web application, the web server and database will communicate with each other in both directions; the web server will send the database data when an insert or update action is called and the database will return data to the web server when a select action is called.



PERSISTENT DATA STORAGE

A MySQL relational database is the database management system for this project. Each table of the Employee Management System is designed specifically to meet the use cases outlined in the project proposal but has been implemented in a way that future features and changes can be applied with moderate effort and minimal design modifications of existing functionality. Using various relationships, including one-to-one, one-to-many, and many-to-many as outlined in the Class Diagram section of this report, each database table relates to another as needed to meet client specifications. These tables can be queried to display data to users, with the possibility of more advanced reporting and filtering functionality through additional projects.

GLOBAL CONTROL FLOW

EXUCTION OF ORDERNESS

This Employee Management System is event-driven, meaning every user can generate or initiate actions in any order. The system is designed to wait for initiation of a task/event, then accomodates these events via loops and referencing of other files as needed. For example, to log into the application a user selects the “Log In” button, which calls the webserver to open a particular page that allows the user to enter a username and a password. Upon pressing

“Submit”, the application is triggered to verify that the login credentials are correct and either display an error message or the home page depending on the result. However, it is important to note that not all actions can be executed in any order; some design elements require previous actions to have occurred in order for the event to be called. In-Order sequencing was built into the application to allow for security roles that require certain permissions to be able to access certain areas and/or for information to be viewable. (Richards)

TIME DEPENDENCY

This Employee Management System was designed to function in real-time, so that after changes have been made they can be immediately viewable by users with only a minor delay. When an event is triggered, the changes that the event created are immediately placed into the database so that other users can see those changes post-event. Given the small size of the business and that the system is designed primarily to maintain Employee information, lag should be minimal between users but could still exist. To accommodate for lag between page refreshes and events being initiated by other users, pages are refreshed automatically every five minutes for all users. Once a page has loaded, the five minute timer begins before the page is automatically refreshed for them.

HARDWARE REQUIREMENTS

Client Requirements

- Web Browser – Latest Version of Google Chrome, Internet Explorer, Internet Edge or Firefox.
- ISP Speed: Minimum of 50 MBPS for performance, Unmetered
- PC CPU: Core i5+
- PC RAM: 4GB+
- PC Storage: 256GB SSD+
- PC Screen: Color, 1920 X 1080 Resolution (1080p)

Servers

Two servers are needed to implement and operationally maintain this application – one server for the database, and another for the application. For security purposes, these will be separated so that if a server became compromised only one will have been exposed.

Minimum requirements for each server

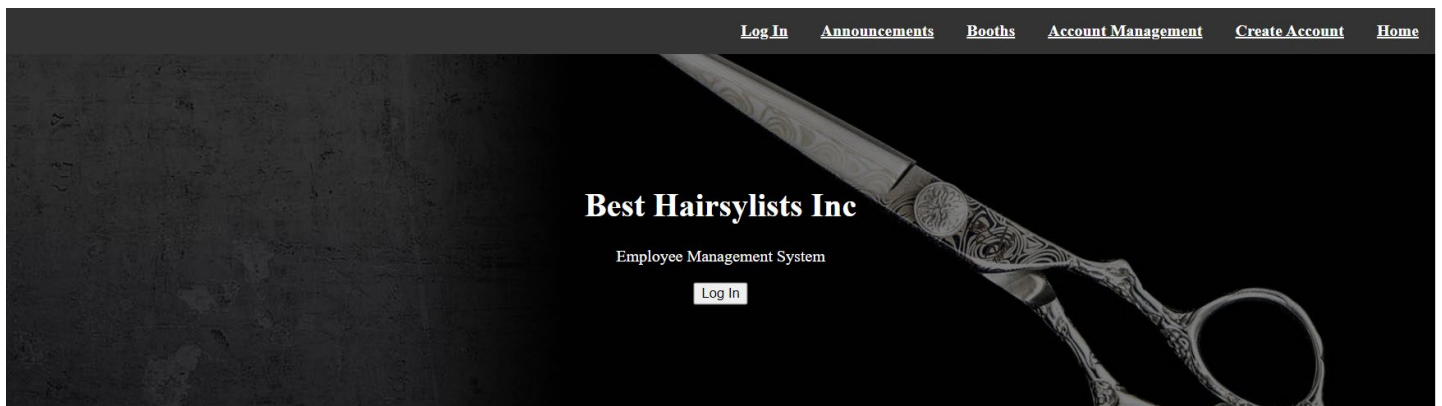
- Processor -Dual Core Intel Pentium or Higher
- RAM - 4GB+
- HDD - 40 GB+

USER INTERFACE DESIGN AND IMPLEMENTATION

USER INTERFACE CHANGES

No major User Interface changes have been implemented between the original mock-ups and the current system design and implementation. Per request of Best Hairstylists Inc, the system design has been kept simple to help alleviate IT support overhead costs operationally and to reduce training time when onboarding new employees. Given the nature of the business, no advanced reporting is needed at this time, but simple reporting capabilities might be added in the later part of the implementation if development resource time allows.

Logos and images were added throughout the webpage as shown below to create a professional and sleek look, but no drastic location changes have needed to be implemented. Certain features have been added such as error messages, warnings, etc that were not in the original mock-up plan or specifically requested in the RFP (request for proposal), but do not change the overall layout of the interface.



TESTING

TEST DESIGN AND PLAN

Testing will occur both programmatically and manually to ensure that all technical, non-technical, and user-interface requirements are met and are functioning properly. Throughout the programming of the solution, several tests occur during the coding process through a “check as you go” approach that has allowed developers to check that a function works before moving into the next. Prior to client demonstration, the tests below will be re-ran to ensure the following functionality has been programmed successfully.

Note that all other requirements will be implemented and tested during phase two of the project.

- Web Application connects to the MySQL database successfully
- Existing users can log in appropriately to the application will not be allowed to log-in
- Non-existing users (ie incorrect username/password combinations)
- New accounts can be created via a webform and appear in the database post submission
- Existing accounts can be queried and are viewable on the appropriate page
- Existing accounts can be modified on the webpage and those modifications appear in the database post submission

User Interface ease of use and design functionality will be tested by a third party, who has had no interaction with the programming or designing process. This usability testing will take

place using the observation method, where the project team will ask the test participant questions while navigating the pages. This will make sure that what has been designed will work operationally and will make reasonable sense to any future user of the application who was not involved in the original implementation. The participant(s) will be asked questions such as:

- What do you see on this page?
- If you already had an account, how do you think you would log in?
- If you did not already have an account, where do you think you would go?
- When you click on this option, what would you expect to see?
- Now that the page has loaded, does the page contain everything you would have expected? Is anything missing?

After Usability Testing is complete, any issues identified will be modified within the HTML and CSS design of the web page. Programming changes are not an expected result of this part of the testing process, but participants may provide insight into ideas for additional features or future modifications that can be made in phase two prior to final submission to the client.

HISTORY OF WORK

PROJECT COMPLETION DATES

Over the course of three months, AB consulting has developed the proposed software to meet the requirements of the scope outlined above. Throughout the development process, AB Consulting has included several demonstrations and consistent communication with Best Hairstylists Inc. to provide proof that project timelines were met and to ensure satisfaction at completion of the project. After the final demonstration, AB Consulting will provide one full day (8 hrs) of on-site training. We believe that fully understanding the technological tools you use is key to prime productivity and spend this time making sure you are fully trained in all mechanics and features of the software. Original project due dates with completion date comparisons are outlined below.

ACTIVITY	DUE DATE	COMPLETE DATE
Project Start	2/1/2021	~
Status Report #1	3/8/2021	3/8/2021
Status Report #2	3/26/2021	3/25/2021
Demo #1	3/29/2021	3/28/2021
Status Report #3	4/8/2021	4/8/2021
Final Demonstration/Implementation Sign-off	5/7/2021	5/2/2021
On-Site User Training	5/10/2021	~
Project End	5/14/2021	5/2/2021

KEY ACCOMPLISHMENTS

- Advanced PHP, HTML, CSS skills
- Applied database development and design knowledge into a tangible product
- Planned, Designed, and Created an Employee Management System from beginning to end
- Applied Project Management skills into a realistic scenario, giving me further insight into how the business works from the back-end
- Identified a real business issue and implemented a solution to solve for it

SUMMARY OF CHANGES MADE

- Removed duplicative verbiage and diagrams
- Minor spelling corrections
- Re-formatting/Design changes to ensure consistency
- Adjusted verbiage on Domain Model based on feedback from report #2, but no changes were made to the model itself through the implementation
- Added clarifying note on effort level descriptions in the User Effort Estimation section
- Referred to the diagrams specifically in the Design Principles written section
- Added text description to the Class Diagram based on feedback from report #2

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