

# Employee Management System

## Project Report 1

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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:

- IX. Employee satisfaction with communications is low
- X. Paper employee records are increasingly difficult to maintain and keep track of
- XI. Time allotment for taxes each year has increased as the business has grown
- XII. 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 of time 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>
<b>Personal Tax Paperwork</b>	16	Year
<b>Business Tax Paperwork</b>	24	Year
<b>Rental Paperwork</b>	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
<b>Current Employee</b>	An individual who is currently working at Best Hairstylists Inc.
<b>Historical Employee</b>	An individual who has seen 1+ clients at Best Hairstylists Inc., but is not currently working there
<b>Administrator</b>	User role that is responsible for implementing and maintaining security services, such as adding users, building profiles, or managing general site administration.
<b>User</b>	User role that has basic usability of the system, but is not able to do administrator level tasks
<b>Visitor</b>	An individual accessing the system that does not have a user account
<b>Announcements</b>	A public statement that can be viewed by a visitor or user
<b>Booth</b>	A physical station located within the salon
<b>Booth Assignment</b>	The booth number for which a current employee is assigned
<b>Personal Device</b>	A piece of computer equipment that is owned by an employee
<b>Company Device</b>	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

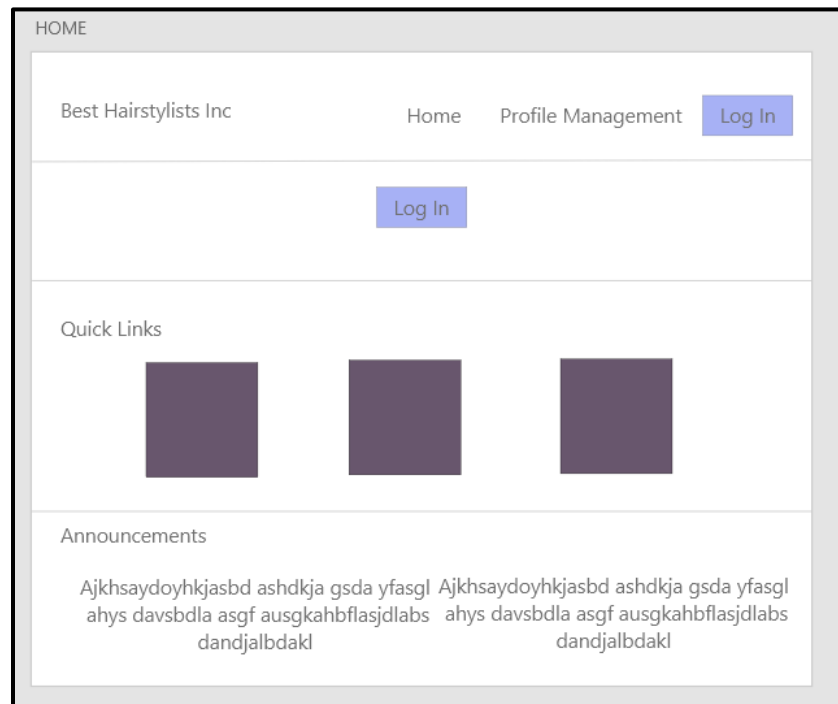
### NON-FUNCTIONAL REQUIREMENTS

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			
ID	Priority Weight	Description	Prototype #
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

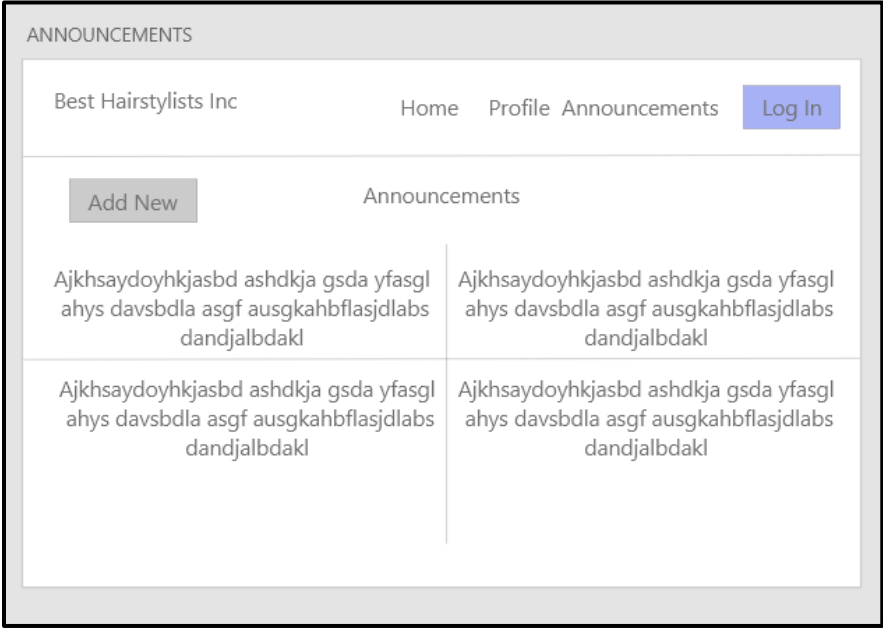
Create New Account

Modify Existing Account

View All Accounts



PROTOTYPE 4:



FUNCTIONAL REQUIREMENT SPECIFICATION

STAKEHOLDERS

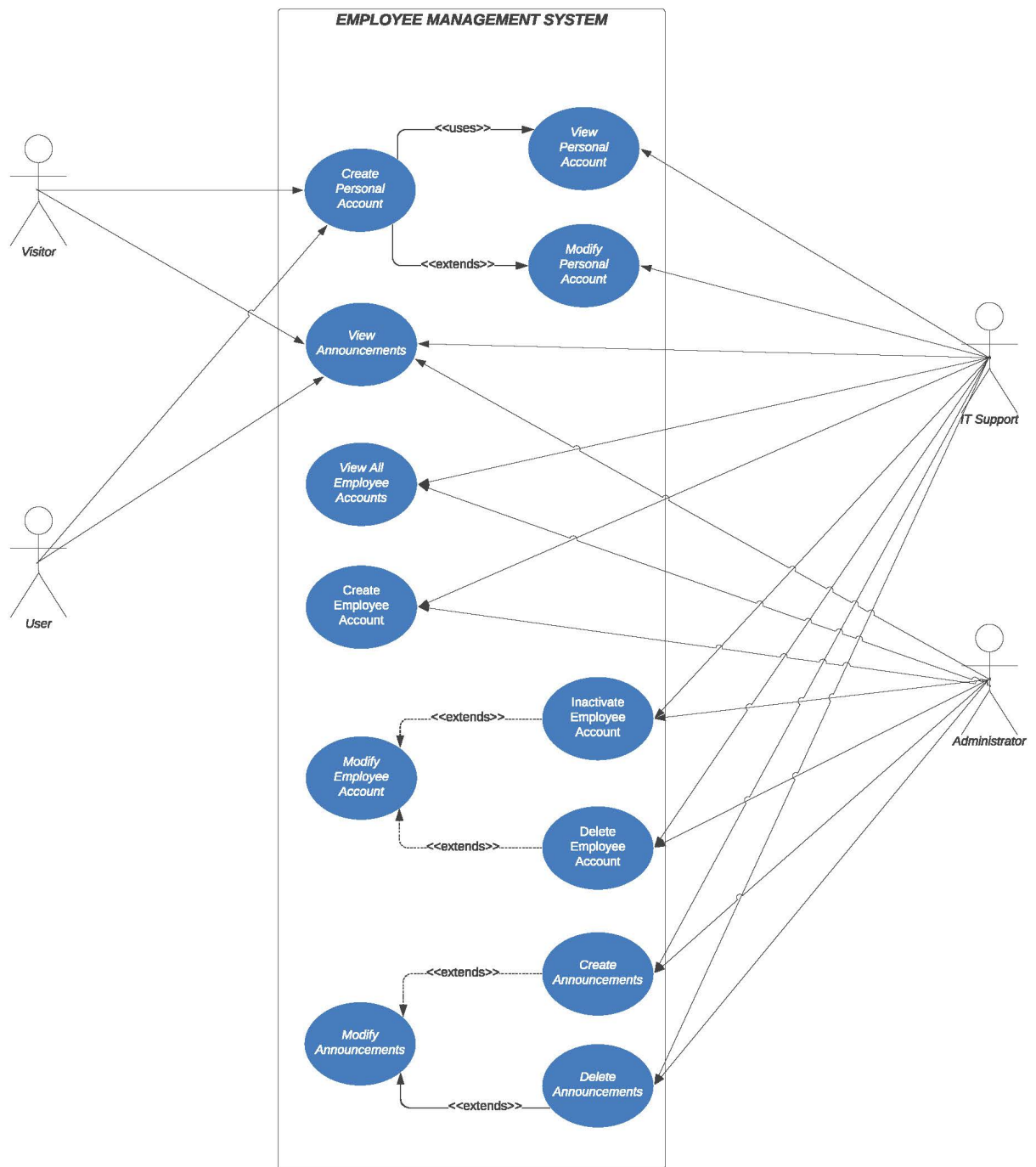
<u>Stakeholder</u>	<u>Role</u>	<u>Estimated Project Importance</u>
Salon Owners	Project Sponsors and Program Owners	HIGH
End Users/Employees	Salon Employees with Basic Usage of Program	MEDIUM
Administrators	Program Administration and Advanced Usage	HIGH
IT Support Consultants	Operational Support of Program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

## ACTORS AND GOALS

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

# USE CASES

## USE CASE DIAGRAM



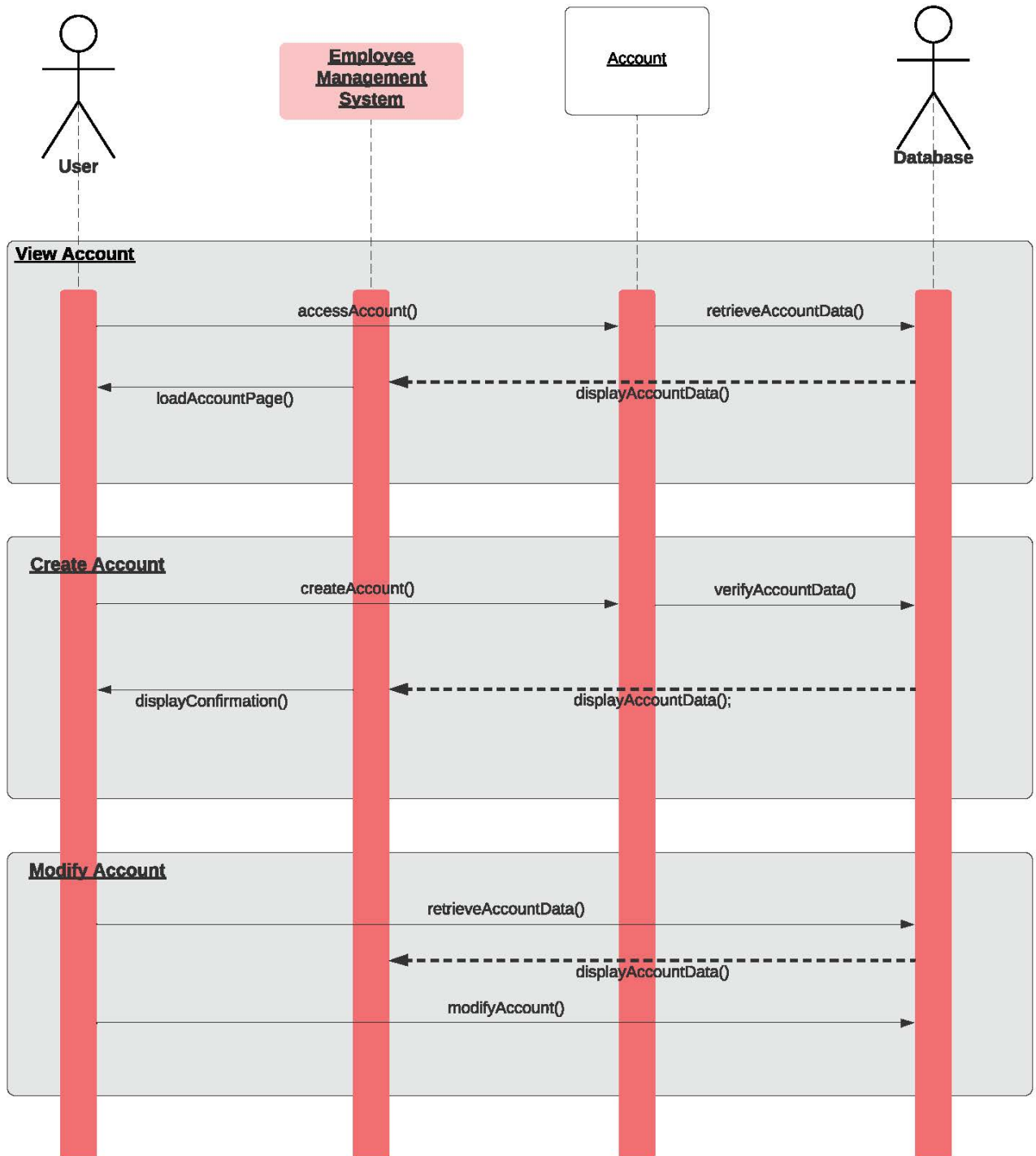
## TRACEABILITY MATRIX

REQ ID	Use Case	Priority	ACCESS	IT Support	Admin	User	Visitor
F-REQ-1 NF-REQ-2	Create Personal Account	1		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
<b>Create Personal Account</b>	New users and visitors are able to create their user account and enter their personal information into the system.	X	A
<b>View Personal Account</b>	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
<b>Modify Personal Account</b>	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
<b>View All Employee Accounts</b>	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
<b>Modify Employee Accounts</b>	Employee account information is able to be edited by those with access to view all employee accounts.	X	B
<b>View Announcements</b>	Announcements display on the home page, where all users and visitors are able to view them.		C
<b>Modify/Create Announcements</b>	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 ACCOUNT](#)[VIEW ACCOUNTS](#)[ANNOUNCEMENTS](#)[LOG IN](#)

---

First Name:

Last Name:

Email Address:

Phone Number:

Birth Date:

Username:

Password:

Email Address:

[CREATE ACCOUNT](#)

### MOCKUP B:

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

---

Username	Password	Email Address	First Name	Last Name	DOB	Phone	Booth #	EDIT/DELETE	
								<a href="#">EDIT</a>	<a href="#">DELETE</a>
								<a href="#">EDIT</a>	<a href="#">DELETE</a>
								<a href="#">EDIT</a>	<a href="#">DELETE</a>
								<a href="#">EDIT</a>	<a href="#">DELETE</a>
								<a href="#">EDIT</a>	<a href="#">DELETE</a>
								<a href="#">EDIT</a>	<a href="#">DELETE</a>
								<a href="#">EDIT</a>	<a href="#">DELETE</a>
								<a href="#">EDIT</a>	<a href="#">DELETE</a>

### MOCKUP C:

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

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

**Date:** January 4<sup>th</sup> 2021

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

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

**Date:** February 4<sup>th</sup> 2021

**Message:** REMINDER! The Salon will be closed from 8:00AM – 8:00 PM on February 15<sup>th</sup> 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		
<b>View All Employee Accounts</b>	1. Access Website 2. Select Log In 3. Enter Username 4. Enter Password 5. Press Login 6. Select View Account	6	<b>LOW</b>
<b>Modify Employee Accounts</b>	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	<b>HIGH</b>
<b>View Announcements</b>	1. Access Website 2. Select View Announcements	2	<b>LOW</b>
<b>Modify/Create Announcements</b>	1. Access Website 2. Select View Announcements 3. Select Create/Edit 4. Fill out Form Fields 5. Select Save	8	<b>MEDIUM</b>

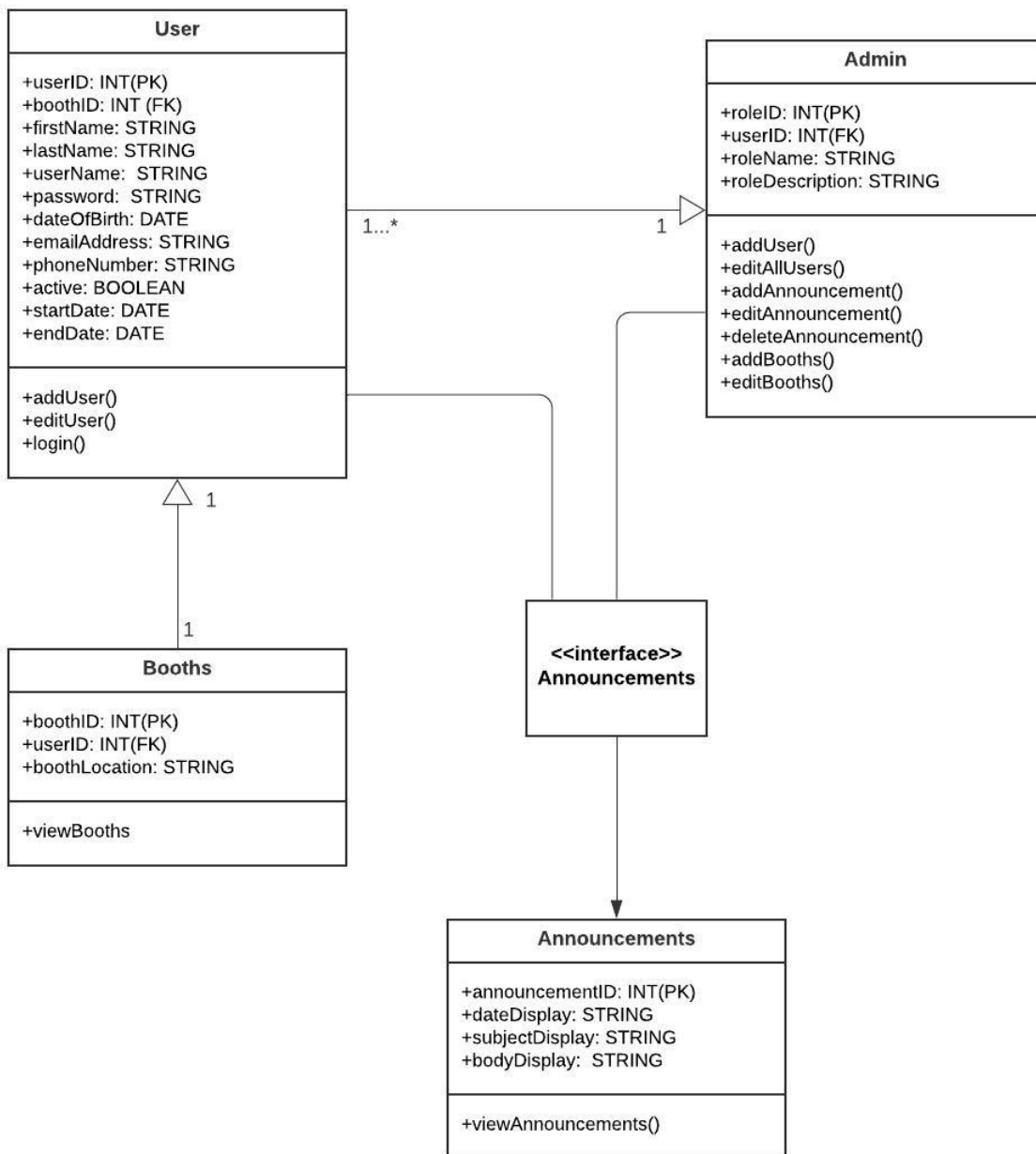


# DOMAIN ANALYSIS

## DOMAIN MODEL

### Employee Management System

ambrumm | March 6, 2021



## SYSTEM OPERATION CONTRACTS

### DEFINITIONS

<b>Operation</b>	Name of operation, and parameters
<b>Cross References</b>	Use cases this operation can occur within
<b>Preconditions</b>	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
<b>Postconditions</b>	The state of objects in the Domain Model after completion of the operation.
<b>SOURCE:</b> <a href="http://csis.pace.edu/~marchese/CS616/Lec6/se_l6.htm">http://csis.pace.edu/~marchese/CS616/Lec6/se_l6.htm</a>	

### Create Account

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

### Modify Account

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

### View Account

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

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

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

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

## PLAN OF WORK

### PROJECT SIZE ESTIMATION

Project Size Estimation for this project is being calculated through Use Case Points through the following formula:

**Use Case Points** = Unadjusted Use Case Weight \* Technical Complexity Factor \* Environmental Factor

**SOURCE:** [http://www.cs.cmu.edu/~jhm/DMS%202011/Presentations/Cohn%20-%20Estimating%20with%20Use%20Case%20Points\\_v2.pdf](http://www.cs.cmu.edu/~jhm/DMS%202011/Presentations/Cohn%20-%20Estimating%20with%20Use%20Case%20Points_v2.pdf)

Unadjusted Use Case Weight			
<u>Use Case</u>	<u>Transactions</u>	<u>Weight</u>	<u>Score</u>
Create Personal Account	11	MEDIUM	10
View Personal Account	6	LOW	5
Modify Personal Account	9	HIGH	15
View All Employee Accounts	6	LOW	5
Modify Employee Accounts	9	HIGH	15
View Announcements	2	LOW	5
Modify/Create Announcements	8	MEDIUM	10

**UNADJUSTED USE CASE SCORE: 65**

Technical Complexity Factor			
<u>Factor</u>	<u>Weight</u>	<u>Perceived Complexity</u>	<u>Calculated Factor</u> (Weight*Perceived Complexity)
Distributed System	2	3	6
Performance Objectives	1	3	3
End-user Efficiency	2	4	8
Complex Processing	1	2	2
Reusable Code	1	1	1
Easy to Install	0	0	0
Easy to Use	1	3	3
Portable	0	0	0
Easy to Change	1	5	5
Concurrent use	2	5	10
Security	1	5	5
Access for Third Parties	1	3	3
Training Needs	1	2	2

**TECHNICAL COMPLEXITY SCORE: 48**

Environmental Factor			
<u>Factor</u>	<u>Weight</u>	<u>Assessment</u>	<u>Impact</u>
Familiar with the development process	1.5	3	4.5
Application Experience	.5	4	2
Object-Oriented Experience	1	3	3
Lead Analyst Capability	.5	3	1.5
Motivation	1	5	5
Stable Requirements	2	2	4
Part-time Staff	-1	0	0
Difficult Programming Language	-1	2	-2

$$\text{ENVIRONMENTAL FACTOR} = 1.4 + (-0.03 \times 18) = .86$$

FINAL PROJECT SIZE ESTIMATION			
Unadjusted Use Case	Technical Complexity Factor	Environmental Factor	<u>Project Size Estimation</u>
65	48	.86	<b>3508.8</b>

## TIMETABLE

Project due dates are outlined below, but are not inclusive of all communication that will occur between AB Consulting and Best Hairstylists, Inc. Over the course of the project, AB Consulting will maintain constant communication with ad-hoc updates, visuals, etc. Status Reports will include additional project documentation, mock-ups, etc along with a detailed update on development progress.

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

## REFERENCES

- Cohn, M. (n.d.). Estimating With Use Case Points. Retrieved from [http://www.cs.cmu.edu/~jhm/DMS%202011/Presentations/Cohn%20-%20Estimating%20with%20Use%20Case%20Points\\_v2.pdf](http://www.cs.cmu.edu/~jhm/DMS%202011/Presentations/Cohn%20-%20Estimating%20with%20Use%20Case%20Points_v2.pdf)
- Larman. (n.d.). USE-CASE MODEL: ADDING DETAIL WITH OPERATION CONTRACTS. Retrieved from [http://csis.pace.edu/~marchese/CS616/Lec6/se\\_l6.htm](http://csis.pace.edu/~marchese/CS616/Lec6/se_l6.htm)
- Rosenblatt, H. J., & Tilley, S. R. (2017). *Systems Analysis and Design* (11th ed.). Boston, MA: Cengage Learning.