

Healthcare Website

Group Project 1

By

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CS 421/621 Adv Web Application Development

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## 1.) Introduction

The goal of this project is to develop a Healthcare website application that includes various features patients and providers can use to effect health care. The application provides an interface that allows the patients to securely inform professionals of their medical conditions, medications, and other history. Patient profiles are created to store information. In addition, patient has access to communicate to representatives or anyone in the department they desire in the form of direct messaging. Providers can schedule appointments and update patient information. With security being of utmost importance, both healthcare provider and patients will have the reliability to know that their information is secure through embedded login system using sessions. Session handling allows for a multi-user environment.

## 2.) Technologies

Multiple technologies were used in the implementation of this web application. The following are the front-end technologies used for this web application.

- a.) HTML – This is the integral component of the front side that ensure appropriate structure is developed and can be presented to the user.
- b.) CSS – Is the styling mechanism that serves as the texturing component and beautifying the web application
- c.) JavaScript – Served as adding interaction between pages and internal components.
- d.) Bootstrap – To provide additional presentable features to the application, Bootstrap served for styling forms, action objects and text.
- e.) JQuery – Dynamic content
- f.) Python – Served to make pages active and provide interaction

The following are the back-end technologies used for this application

- a.) Python – programming language to provide interaction between the front end and the back end of the application
- b.) Flask – Rest APIs and HTML templates
- c.) SQLAlchemy – library dedicated to providing interaction and communication between Python, Flask and the database (ORM)
- d.) SQLite3 – Database technology for non-ORM database interaction
- e.) Hashlib – Generation of sessionId
- f.) Datetime – Date calculation, parsing, display

The following are other technology tools used for management and communication

- a.) IntelliJ - IDE used for development
- b.) Visual Studio Code – IDE used for development
- c.) Github – version control to assist in development and merging final product
- d.) Discord - program used for communication and keep team updated on tasks

### 3.) Results

PATIENT NAME: Jimmy Dean  
HEIGHT: 1.9M


WEIGHT: 190 lbs.

DOB: 06/10/1937  
ATTENDING: Dr Red Duke

GENDER: Male

ID:M123978971  
INSURANCE: Self Pay

NAME:  
PRIMARY CONTACT: 205 555 5228



Select Patient

Insurance

Claims

Orders

History

Patient Care

Messaging

Calendar


Create Employee

## Secure Messages

New Message

Contact	Subject
Edward Johns	Milk

PATIENT NAME: Jimmy Dean HEIGHT: 1.9M		WEIGHT: 190 lbs.	DOB: 06/10/1937 ATTENDING: Dr Red Duke	GENDER: Male	ID:M123978971 INSURANCE: Self Pay	NAME: PRIMARY CONTACT: 205 555 5228
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Select Patient

Insurance

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Orders

History

Patient Care

Messaging

Calendar

Create Employee

# Secure Messages

Compose Message

Recipient Name

Recipient Name

Subject


Subject

Message

Submit

Cancel

PATIENT NAME: Jimmy Dean HEIGHT: 1.9M		WEIGHT: 190 lbs.	DOB: 06/10/1937 ATTENDING: Dr Red Duke	GENDER: Male	ID:M123978971 INSURANCE: Self Pay	NAME: PRIMARY CONTACT: 205 555 5228
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Select Patient

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Patient Care

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Create Employee

# Message

Send

PATIENT NAME: Jimmy Dean  
HEIGHT: 1.9M


WEIGHT: 190 lbs.

DOB: 06/10/1937  
ATTENDING: Dr Red Duke

GENDER: Male

ID:M123978971  
INSURANCE: Self Pay

NAME:  
PRIMARY CONTACT: 205 555 5228



Select Patient

Insurance

Claims

Orders

History

Patient Care

Messaging

Calendar

Create Employee

Create Employee

Employee Name:  Position:  Department:

PATIENT NAME: Jimmy Dean  
HEIGHT: 1.9M

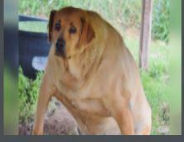
WEIGHT: 190 lbs.

DOB: 06/10/1937  
ATTENDING: Dr Red Duke

GENDER: Male

ID:M123978971  
INSURANCE: Self Pay

NAME:  
PRIMARY CONTACT: 205 555 5228



Select Patient

Insurance

Claims

Orders

History

Patient Care

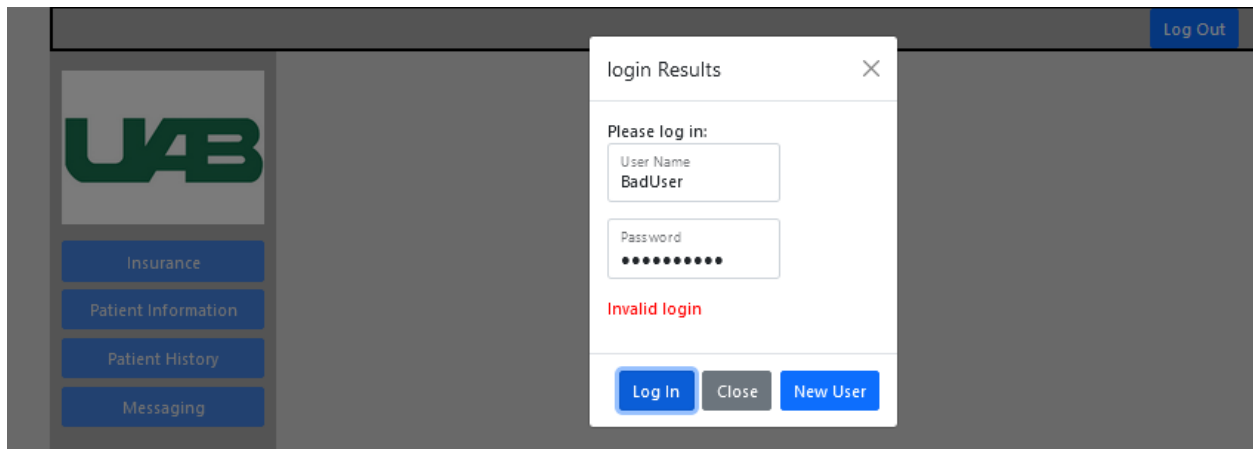
Messaging

Calendar

Create Employee

Employee ID	Position	Name	Department
HC3458	Nurse	Diego Garcia	Nursing
HC3501	Surgent	Michael Scott	Cardiology
HC8496	Receptionist	Pam Beasley	Accounts

User Login:



**Patient Login has limited options:**



**Provider Login has more options but starts with several disabled until a patient is selected:**

Select Patient To Proceed



- New User
- Select Patient
- Insurance
- Patient Information
- Patient History
- Intake Calendar
- Add Appointment
- Messaging
- Create Employee

Patient Search Text

Date of Birth

- ☐ Male
- ☐ Female
- ☒ Any

Search

eepatient

qqpatient

qwe

Once selected, the provider is able to update data for that patient:

The screenshot shows a web browser window with multiple tabs. The active tab is 'Insurance wireframe'. The address bar shows '127.0.0.1:5000/patientInformation'. The browser's bookmark bar includes 'Import bookmarks...', 'blazerNET', 'amazon', 'craigslist account', 'Amazon Music Unlimi...', 'Hulu | Home', 'Dashboard', 'Localhost 5000', and 'paitent1'. The web application interface has a top navigation bar with a 'Log Out' button. On the left, a sidebar menu lists: 'New User', 'Select Patient', 'Insurance', 'Patient Information', 'Patient History', 'Intake Calendar', 'Add Appointment', 'Messaging', and 'Create Employee'. The main content area is titled 'Patient Selected qqpatient' and features the 'UAB' logo. It contains several input fields for patient data: Address (111 First), City (Bham), State (AL), Zip (21873), Phone (H) ((205)555 5252), Phone (C/W) ((205)991 5252), DOB (06/11/2003), SSN (123-45-2892), Occupation (Painter), Employer (AAA House Painting), and Email (root@noreply.net). Below these fields are two questions with radio button options: 'What is your sexual orientation?' (male, female) and 'What is your current relationship status?' (single, married). A 'Submit Changes' button is located at the bottom of the form.

And insurance information:

The screenshot shows a web application interface for managing insurance information. It features a table with three columns: 'Type', 'Provider', and 'Group/family'. The first row contains the values 'Health', 'Delta PPO', and 'LJKH-IOH3', with a 'Remove' button to the right. Below the table, there is a section titled 'Add new insurance:' which includes three input fields labeled 'Type', 'Provider', and 'Group or Family', followed by 'Add Insurance' and 'Clear' buttons.



## And history:

Have you ever visited us before?

☒ yes ☐ no

If so, please provide the date of your visit, write N/A if you've never visited:

Please look over the health conditions and write below which ones apply to you.

### Health Conditions

acid reflux	cataracts	heart disease	crohns	alcohol/drugs	heart valve issues
mental health	allergies	chronic pain	hernia	M.R.S.A	anemia
depression	anxiety	blood pressure	osteoporosis	artery issues	vein issues
diabetes	high cholesterol	arthritis	skin infection	esophagus issues	ulcers
HIV	UTI	asthma	sleep apnea	fractures	irritable bowels
autoimmune disease	seizures	gallstones	kidney disease	STI	thyroid issues
lung disease	headaches	cancer	tuberculosis	blood clots	stroke
gout	liver disease	hepatitis	glaucoma	bleeding	

List your ailments and health conditions below:

Submit Changes

Are you taking any medication? If so, list them below.

## Provider can also add appointments:

Current Julian Date: 213

<input type="text" value="Julian Date"/>	<input type="text" value="Time of Day"/>
<input type="text" value="Patient Name"/>	<input type="text" value="Provider Name"/>
<div>Add To Schedule</div>	

**And view appointments (note the next and previous day buttons):**


<a href="#">Previous Day</a> <b>Sunday Julian Day 213 of 2021</b> <a href="#">Next Day</a>		
Time	Patient	Provider
08:30	Patient One	Red Duke, MD
09:30	Patient Two	Red Duke, MD
15:00	Another Patient	Red Duke, MD

**Add User is used to create patients and providers:**

Enter New User Information And Either patient or provider

<input type="text" value="Name"/>		
<input type="text" value="User Name"/>	<input type="text" value="Password"/>	<input type="text" value="User Type patient"/>
<input type="button" value="Add This User"/>		

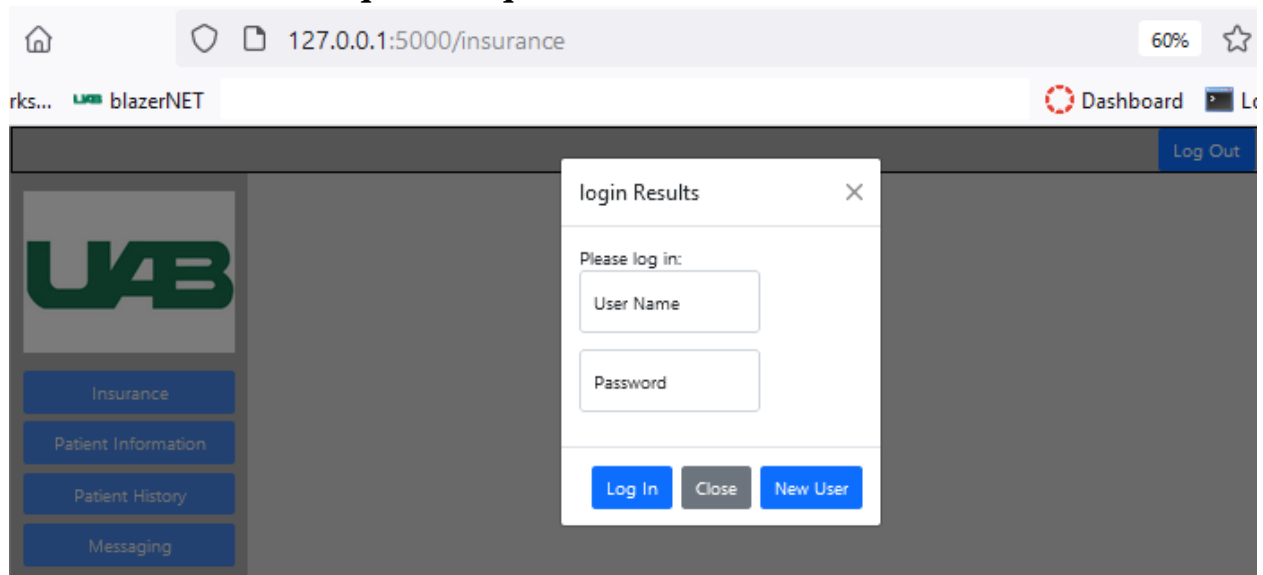
**Log Out button clears the sessionId cookie and deletes the back end session object then redirects back to main page:**



login Results

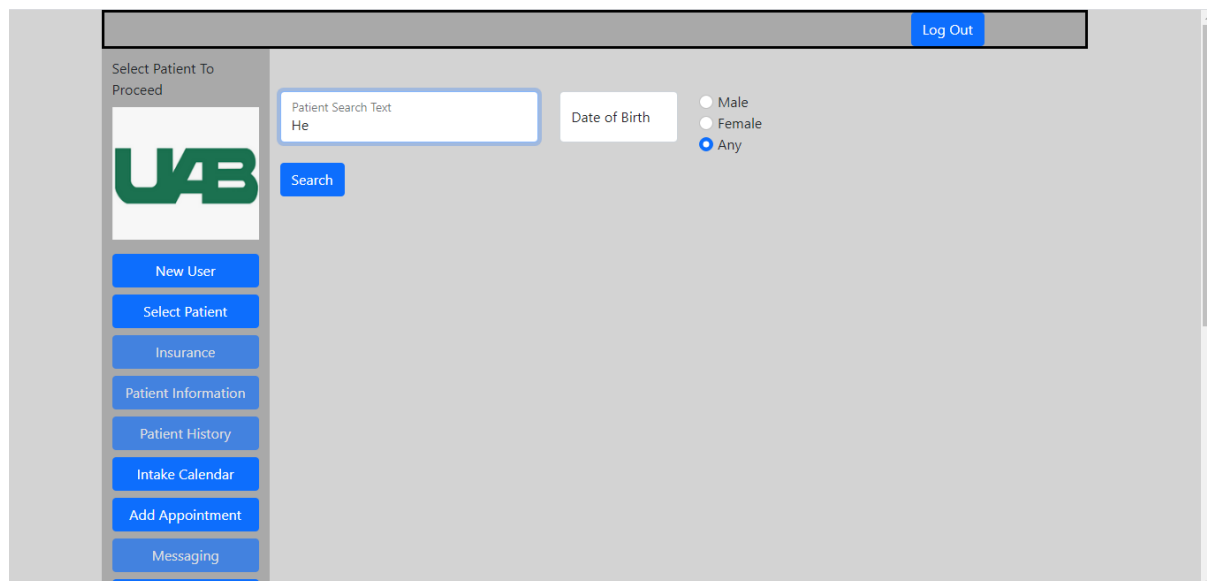
Please log in:

**Note that without a valid session, the system redirects back to login and that all server side data requests require a valid session:**



### **Patient-Select:**


**Patient select allows providers to search for patients based on name, gender, and DOB:**



**From their it will bring up a clickable button and the DOB for each patient that meets the criteria**

Log Out

Select Patient To Proceed



New User  
Select Patient  
Insurance  
Patient Information  
Patient History  
Intake Calendar  
Add Appointment  
Messaging

Patient Search Text

Date of Birth

☐ Male  
☐ Female  
☒ Any

Search


Heros Byers

11-23-00

**And once that is clicked it will bring you to the patient's page**

Log Out

Patient Selected Heros Byers




New User  
Select Patient  
Insurance  
Patient Information  
Patient History  
Intake Calendar  
Add Appointment  
Messaging

**You can also search based off the female gender**

Log Out

Select Patient To Proceed



New User

Select Patient

Insurance

Patient Information

Patient History

Intake Calendar

Add Appointment

Messaging

Patient Search Text


Date of Birth

☐ Male  
☒ Female  
☐ Any

Search

Log Out

Select Patient To Proceed



New User

Select Patient

Insurance

Patient Information

Patient History

Intake Calendar

Add Appointment

Messaging

Patient Search Text

Date of Birth

☐ Male  
☐ Female  
☒ Any

Search

Heros Byers

qqpatient


11-23-00

06/11/2003

**You can also search based off DOB**

Log Out

Select Patient To Proceed



New User

Select Patient

Insurance

Patient Information

Patient History

Intake Calendar

Add Appointment

Messaging

Patient Search Text


Date of Birth  
12-12-97

☐ Male  
☐ Female  
☒ Any

Search

Log Out

Select Patient To Proceed



New User

Select Patient

Insurance

Patient Information

Patient History

Intake Calendar

Add Appointment

Messaging

Patient Search Text

Date of Birth

☐ Male  
☐ Female  
☒ Any


Search

Zachary Cobb

12-12-97

Log Out

Select Patient To Proceed



New User

Select Patient

Insurance

Patient Information

Patient History

Intake Calendar

Add Appointment

Messaging

Patient Search Text

Date of Birth  
11-23-00

☐ Male  
☐ Female  
☒ Any


Search

Zachary Cobb

12-12-97

Log Out

Select Patient To Proceed



New User

Select Patient

Insurance

Patient Information

Patient History

Intake Calendar

Add Appointment

Messaging

Patient Search Text

Date of Birth  
11-23-00

☐ Male  
☐ Female  
☒ Any

Search

Heros Byers

11-23-00

**EX: Search just male gender**

**If you don't fill out your gender you will appear for either male or female**

**E.g.: eepatient**

#### **4.) Discussions/ Future Works**

**Direct-Messaging:** In the future to improve the messaging features, SocketIO can be added to provide instant messaging components so that the user can speak with a live representative. For the Secure messaging aspect, adding the availability to add documents or files in messages so that senders can provide important information to both parties that can be necessary for their healthcare needs.



Form validation, additional data for users. More separation of patients and providers. More reliance on ORM. Container usage for portability. More error handling. Fewer page loads. Intake Calendar should link to specific patients. Create calendar record should also link to existing patients and providers.

Patient-History-Update: Could have improved the overall look of the patient form and how it takes input from the user.

Patient-Select: Could improve the overall design of the search because it looks very basic. We could also add more options to search with and display more info of the patients.

## **5.) References**

SQL Information

[https://www.w3schools.com/sql/sql\\_intro.asp](https://www.w3schools.com/sql/sql_intro.asp)

Bootstrap Page in General

<https://getbootstrap.com/docs/4.3/components/forms/>

<https://getbootstrap.com/docs/4.0/content/tables/>

HTML Features

[https://www.tutorialspoint.com/html5/html5\\_overview.htm](https://www.tutorialspoint.com/html5/html5_overview.htm)

HTML Attribute Explanations

<https://developer.mozilla.org/en-US/docs/Web/HTML/Attributes>

Flask Documentation

<https://flask-doc.readthedocs.io/en/latest/>

SQLAlchemy Documentation

<https://docs.sqlalchemy.org/en/14/>

Various Knowledge Reference

<https://stackoverflow.com>