

Fall 12-9-2022

Lawrence County Archives Website

Brianna Hawkins
University of Alabama in Huntsville

Areeb Mohammed

David Niederweis

Mary-Kate Rynders

Follow this and additional works at: <https://louis.uah.edu/honors-capstones>



Part of the [Databases and Information Systems Commons](#)

Recommended Citation

Hawkins, Brianna; Mohammed, Areeb; Niederweis, David; and Rynders, Mary-Kate, "Lawrence County Archives Website" (2022). *Honors Capstone Projects and Theses*. 761.
<https://louis.uah.edu/honors-capstones/761>

This Thesis is brought to you for free and open access by the Honors College at LOUIS. It has been accepted for inclusion in Honors Capstone Projects and Theses by an authorized administrator of LOUIS.

Lawrence County Archives Website

by

**Brianna Hawkins, Areeb Mohammed, David Niederweis,
and Mary-Kate Rynders**

An Honors Capstone

submitted in partial fulfillment of the requirements

for the Honors Diploma

to Type text here

The Honors College

of

The University of Alabama in Huntsville

12/9/2022

Honors Capstone Director: Professor Adam Colwell

Part-Time Lecturer, Computer Science

Brianna Hawkins 12/8/22

Student Date

David Niederweis 12/8/2022

Student Date

Mary-Kate Rynders 12/8/2022
Student Date

Areeb Mohammed 12/8/2022

Student Date

Adam Colwell 12/9/2022
Director Date

Dr. Letha Etzkorn Digitally signed by Dr. Letha Etzkorn
Date: 2022.12.09 16:49:22 -06'00'

Department Chair
Date

Honors College Dean	Date
---------------------	------



Honors College
 Frank Franz Hall
 +1 (256) 824-6450 (voice)
 +1 (256) 824-7339 (fax)
 honors@uah.edu

Honors Thesis Copyright Permission

This form must be signed by the student and submitted as a bound part of the thesis.

In presenting this thesis in partial fulfillment of the requirements for Honors Diploma or Certificate from The University of Alabama in Huntsville, I agree that the Library of this University shall make it freely available for inspection. I further agree that permission for extensive copying for scholarly purposes may be granted by my advisor or, in his/her absence, by the Chair of the Department, Director of the Program, or the Dean of the Honors College. It is also understood that due recognition shall be given to me and to The University of Alabama in Huntsville in any scholarly use which may be made of any material in this thesis.

Brianna Hawkins

Student Name (printed)

Brianna Hawkins

Student Signature

12/9/2022

Date

Mary-Kate Rynders

Student Name (printed)

Mary-Kate Rynders

Student Signature

12/9/2022

Date

David Niederweis

Student Name (printed)

David Niederweis

Student Signature

12/9/2022

Date

Areeb Mohammed

Student Name (printed)

Areeb Mohammed

Student Signature

12/9/2022

Date

Table of Contents

Abstract.....	3
Process	4
Project Assessments.....	6
Self Assessment	6
Customer Assessment	6
Appendix A.....	8
Appendix B.....	13
Link to Website.....	15

Abstract

The Lawrence County Archives website has been and continues to be a key resource for historical records relating to births, marriages, deaths, and divorces among other events in Lawrence Country. In recent years the website has been considered antiquated not just in its design, but more importantly in its functionality and means of updating the previously mentioned data. Additionally, any changes requested to be done to the website take an unreasonable amount of both time and money since it relies on work from people external to the archives' organization. To alleviate reliance on outsourced workers to update the website and instead provide the tools necessary for the archivists to maintain the website and data themselves, this project rearchitects and re-designs the website from the ground up, saving both time and money. To provide the best value for Lawrence County Archives, different hosting and deployment solutions are explored and presented to the customer for final approval. To ensure the completion of the project within the semester, Agile methodologies are used to manage the project and help keep contributors accountable. Additionally, to ensure that the final project does not suffer from major bugs and outages when deployed, rigorous testing and risk assessments are used to find any potential issues and mitigate them before the final project is completed.

Process

The team working on the Lawrence County Archives website consisted of four Computer Science students. The students discussed their strengths and weaknesses, and each took on roles to complete the project.

First, the team reached out to their contact at Lawrence County Archives to define the desired requirements for the website. These requirements were to design a read-only public-facing website, create an admin panel that manages the public website (accessible only to those with authorization), define different levels of user authorization for the admin panel (editor or admin), allow editor users to manage data, databases, posts, and update passwords, and allow admin users to manage data, databases, posts, and users. Additional requirements were defined later in the process to allow editor and admin users to upload pictures and new databases, as well as to implement a calendar to display upcoming events on the public-facing website.

Having completed the Requirements Phase in the software development life cycle, the team continued to the Design Phase, in which they planned to create a Python-based web application hosted on an Oracle Cloud instance. The design phases also included defining user stories to ensure that all requirements are met functionally as well as creating diagrams for frontend and backend designs. See *Appendix A* for these diagrams.

Next, in the Implementation Phase, once the requirements and designs were properly defined, the team created a Flask Server and MongoDB Server, which were both Docker containers that were stored in Oracle Cloud instances for the backend architecture. See *Appendix B* for these diagrams. On the frontend, web pages were created using Bootstrap and Jinja templates for rendering the web pages. The frontend and backend were then integrated.

In the Testing Phase of the software development life cycle, tests were written to verify the functionality of the software before making commits or releasing the project. These tests were implemented with Pytest.

Finally, in the Deployment Phase, the team encountered issues with creating an Oracle Cloud account for the customer, so they had to re-evaluate alternative hosting methods. They decided to use Google Cloud's free tier to host, since cost was a high factor for the customer. After this adjustment, the software was deployed on a Google Cloud instance using a Docker container management solution for a controlled release environment.

Part of the project also included creating a User Manual for the contact at Lawrence County Archives, as well as training her on how to use the admin panel to manage the public website. This User Manual was delivered along with the code necessary for Lawrence County Archives to maintain the website independently.

The team followed a biweekly schedule to achieve project milestones, such as creating a Software Development Plan, User Stories, Architecture Design, Graphical User Interface Design, and Final Delivery. The team presented their progress to the Project Director on a biweekly basis and to the customer at Lawrence County Archives on a monthly basis. All presentations were met with approval before proceeding.

Project Assessments

Self Assessment

The team feels very confident in the product they delivered to Lawrence County Archives. They aimed to please the customer, meet requirements, make suggestions that increase the website's functionality, provide quality service, and deliver the product in a smooth transition. At each phase of the software development process, the team received approving feedback from the project director, as well as from the customer at Lawrence County Archives.

The team also worked well together, with each team member working consistently throughout the semester and contributing their skills to complete a working project on schedule.

Customer Assessment

The following quote is a testimonial given by the contact at Lawrence County Archives regarding the team's performance on the project.

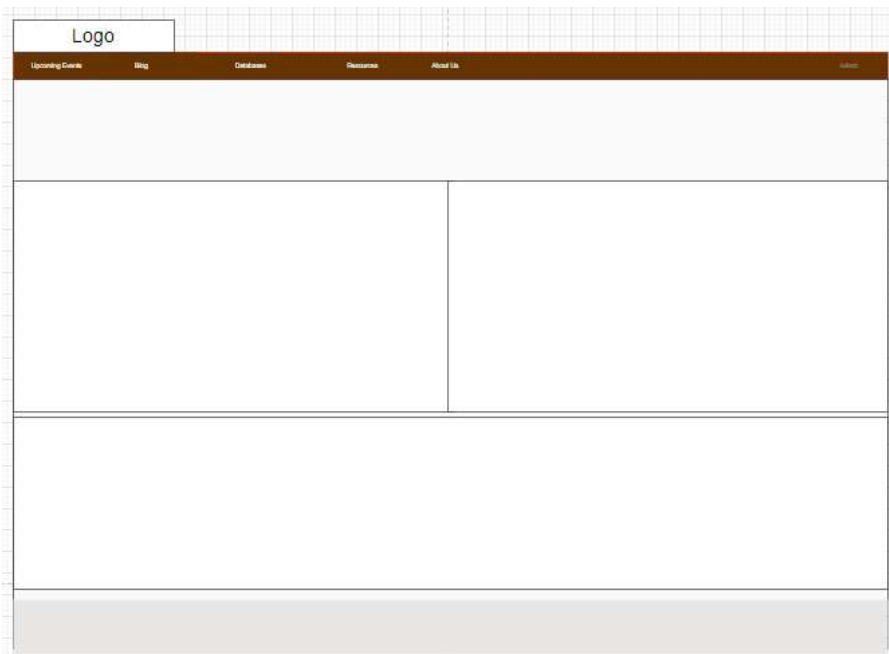
“The Lawrence County Archives, a nonprofit institution, required a complete rebuilding of the current website as well as a new hosting service and in-house ability to control the website content. In pursuit of this, I contacted Dr. Letha Etzkorn for advice and direction. She proposed it as a senior class project for Computer Science students, and I agreed. This project was assigned to Brianna Hawkins, Areeb Mohammed, David Neiderweis, and Mary-Kate Rynders. During the semester, we had several Zoom meetings to discuss my needs and wants as well as their suggestions and ideas. The students kept me apprised each step of the way during the design and invited me to an in-person presentation to view the finished product. I am extremely pleased with the work they have done, and tremendously impressed with their thorough approach to the task. They met and exceeded my expectations. Brianna, Areeb, David, and Mary-Kate will give the Archives a vibrant,

user-friendly website that can be updated and controlled in-house. I appreciate all their hard work and dedication to this project, and I am grateful to the UAH Computer Science department for suggesting this solution to my problem. These four young students are destined to go far in their chosen field.”

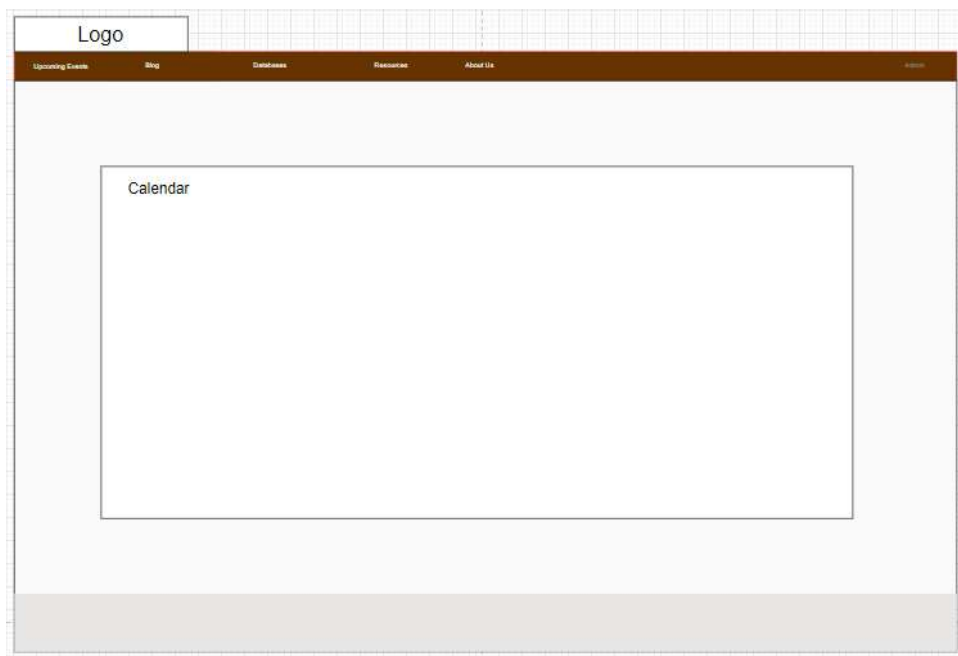
Appendix A

This section contains the diagrams for the frontend designs.

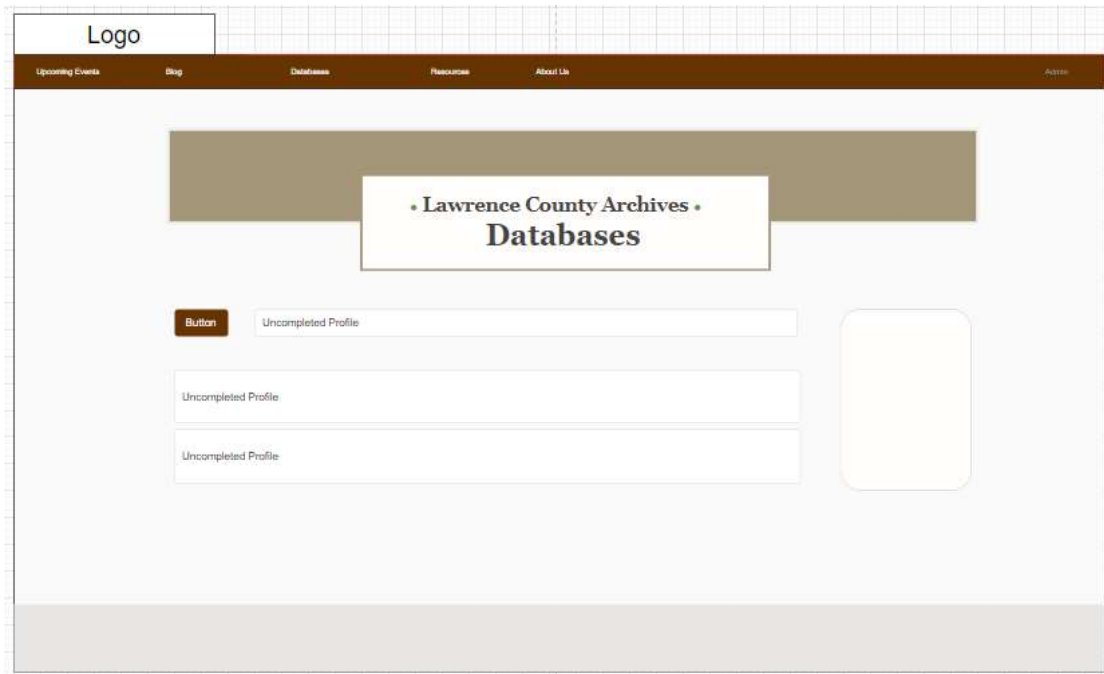
Preliminary Frontend General Pages



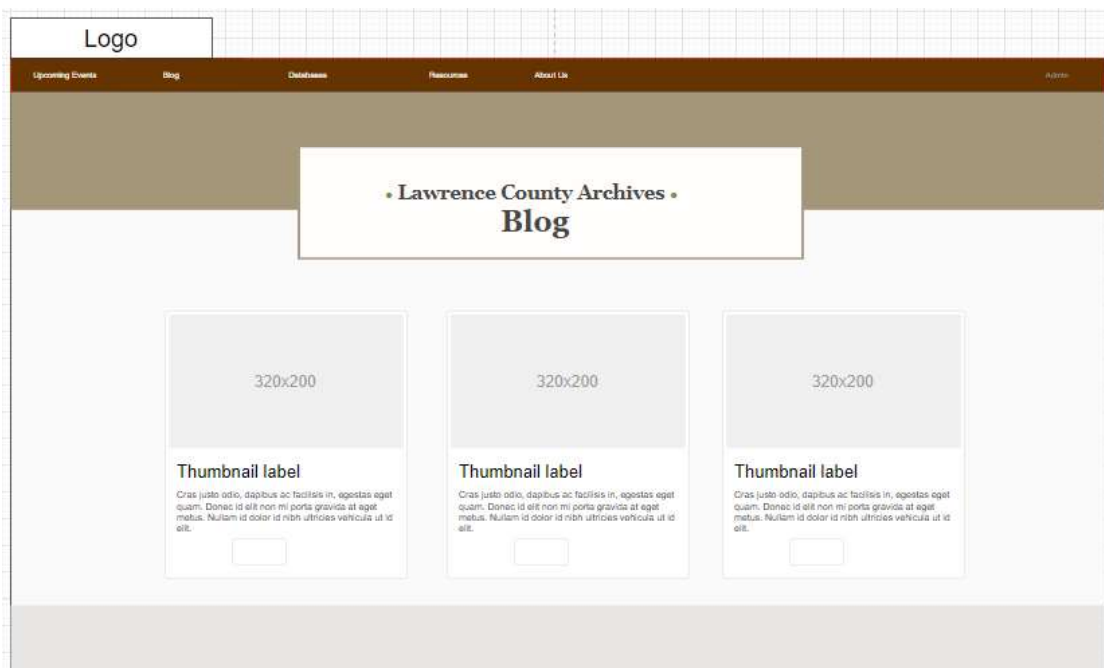
Home Page



Upcoming Events Page

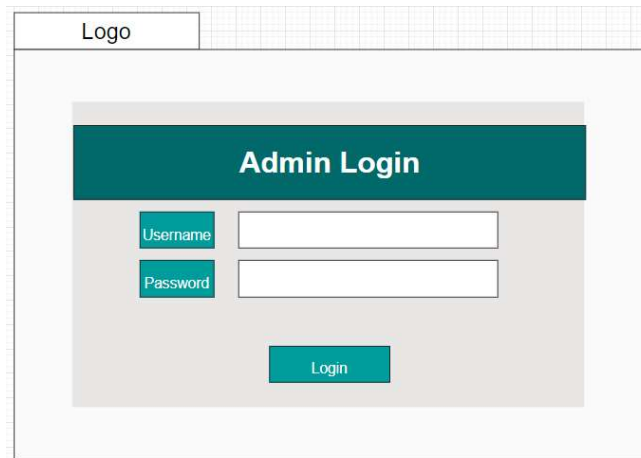


Databases Page



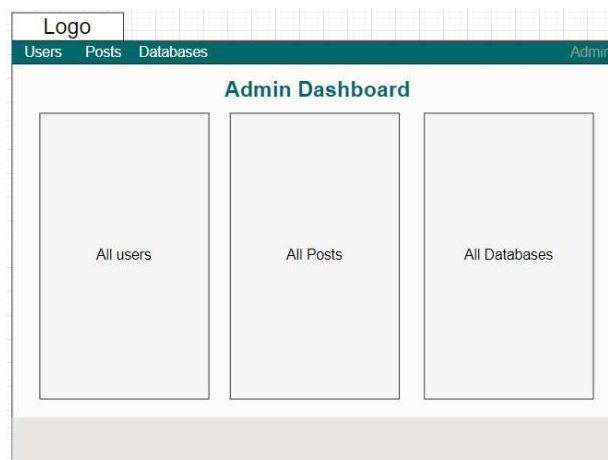
Blog Page

Preliminary Frontend Admin Pages



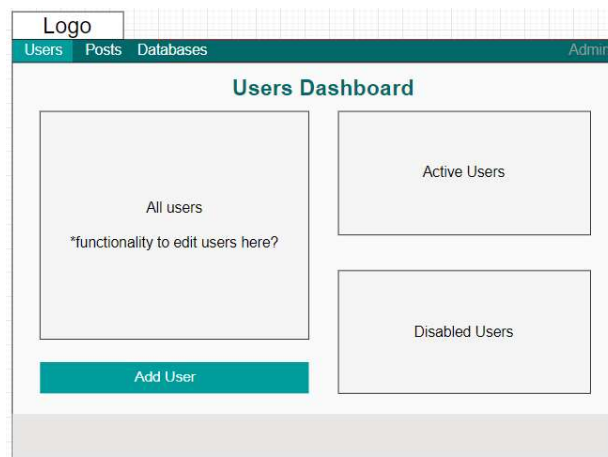
The Admin Login Page features a header with a 'Logo' placeholder. The main content area has a dark teal background with the text 'Admin Login' in white. Below this, there are two input fields: 'Username' and 'Password', each with a teal label and a white input box. A teal 'Login' button is positioned at the bottom center of the form.

Admin Login Page



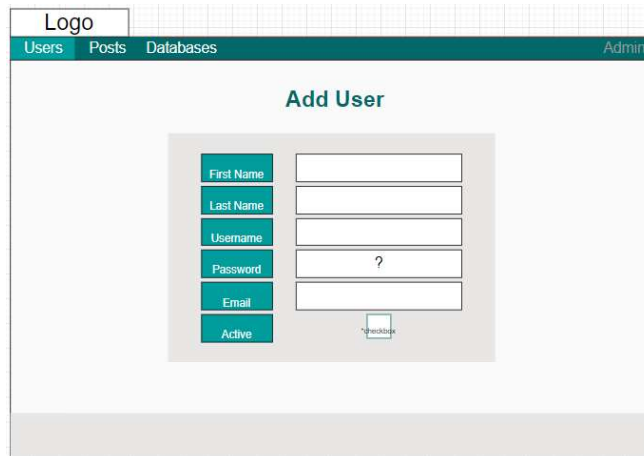
The Admin Dashboard has a header with a 'Logo' placeholder and a navigation bar with 'Users', 'Posts', 'Databases', and 'Admin' links. The main content area is titled 'Admin Dashboard' and contains three large, light gray rectangular boxes labeled 'All users', 'All Posts', and 'All Databases'.

Admin Home Page



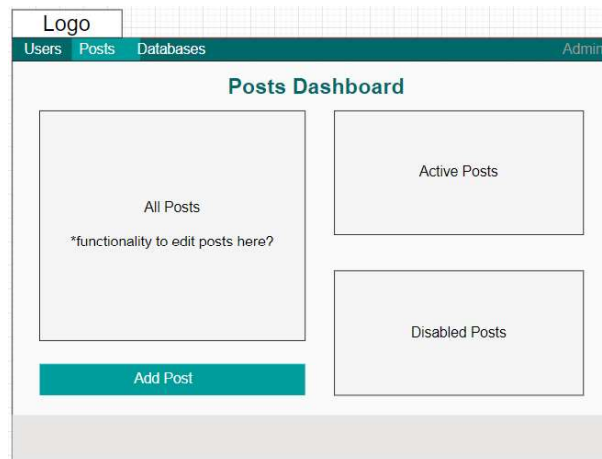
The Admin Users Page has a header with a 'Logo' placeholder and a navigation bar with 'Users', 'Posts', 'Databases', and 'Admin' links. The main content area is titled 'Users Dashboard' and contains four light gray rectangular boxes: 'All users' (with the text '*functionality to edit users here?'), 'Active Users', and 'Disabled Users'. A teal 'Add User' button is located at the bottom left of the main content area.

Admin Users Page



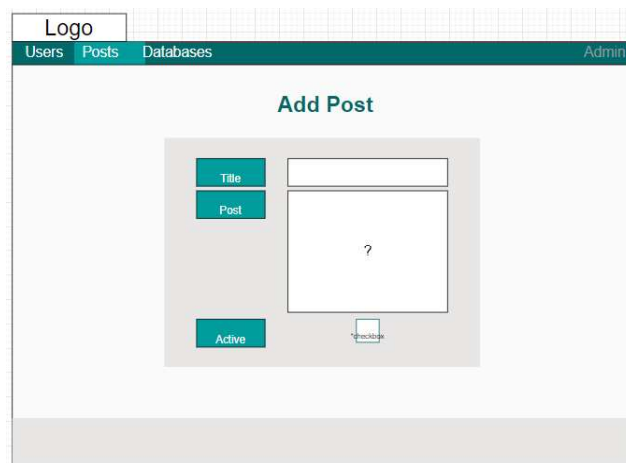
The Admin Add User Page features a header with a 'Logo' button and navigation links for 'Users', 'Posts', 'Databases', and 'Admin'. The main content area is titled 'Add User' and contains a form with the following fields: 'First Name', 'Last Name', 'Username', 'Password' (with a question mark), 'Email', and 'Active'. A 'Save User' button is located at the bottom right of the form.

Admin Add User Page



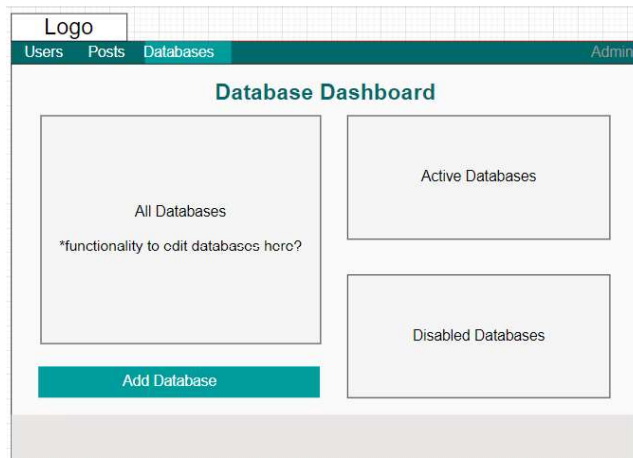
The Admin Posts Page features a header with a 'Logo' button and navigation links for 'Users', 'Posts', 'Databases', and 'Admin'. The main content area is titled 'Posts Dashboard' and contains three sections: 'All Posts' (with a note '*functionality to edit posts here?'), 'Active Posts', and 'Disabled Posts'. An 'Add Post' button is located at the bottom left of the dashboard.

Admin Posts Page

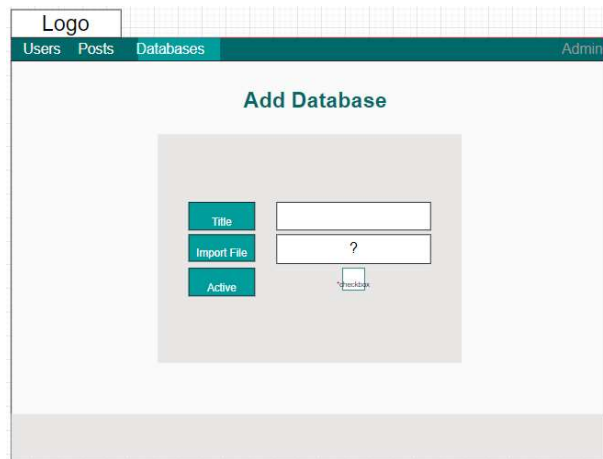


The Admin Add Post Page features a header with a 'Logo' button and navigation links for 'Users', 'Posts', 'Databases', and 'Admin'. The main content area is titled 'Add Post' and contains a form with the following fields: 'Title', 'Post' (with a question mark), and 'Active'. A 'Save Post' button is located at the bottom right of the form.

Admin Add Post Page



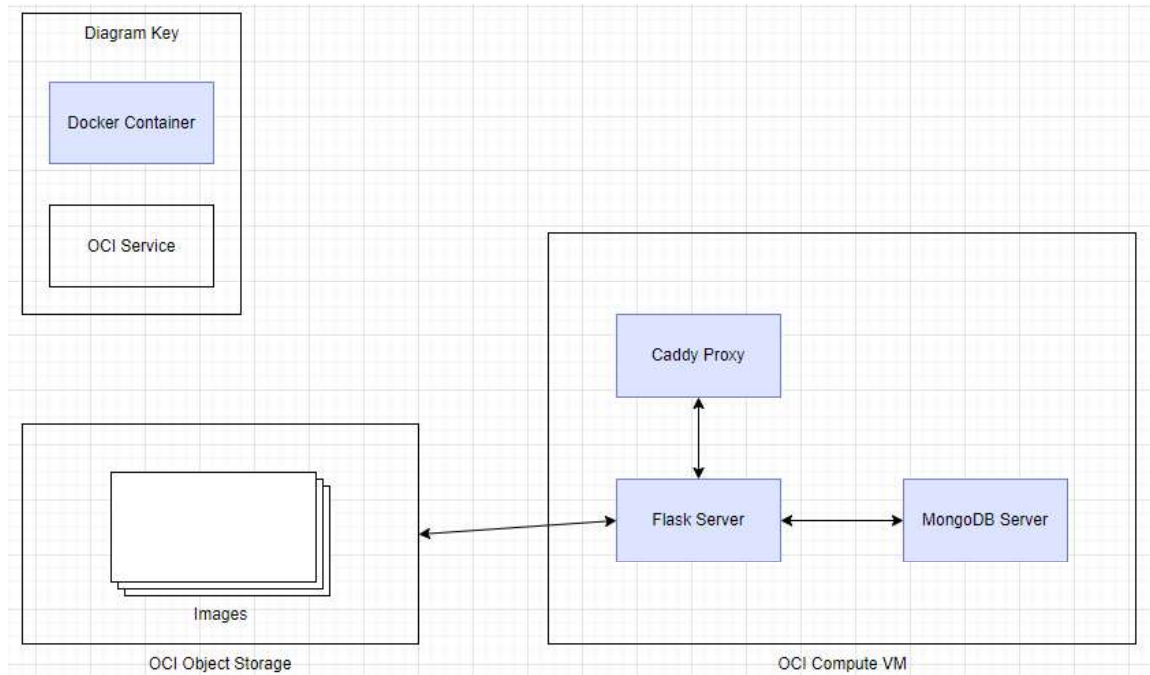
Admin Databases Page

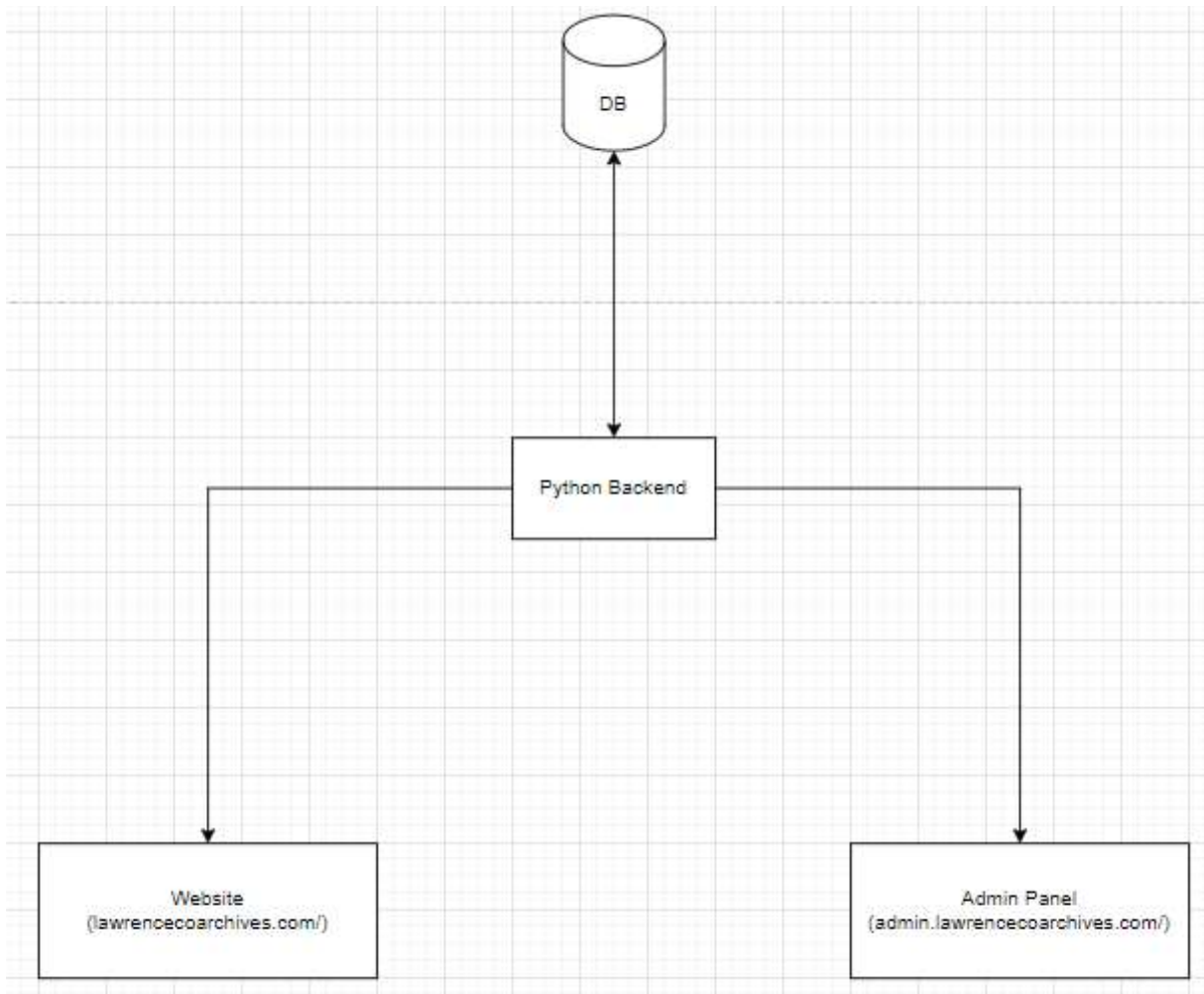


Admin Add Database Page

Appendix B

This section contains the diagrams for the backend software architecture.





Link to Website

<https://lawrencecoarchives.com>