

UC Night Life

by

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Abstract

The COVID-19 pandemic has had a massive impact on socialization of students outside of the classroom, especially for freshman and sophomore students who have joined University of Cincinnati (UC) at the beginning and during the pandemic. Students have been stuck indoors and away from campus the past year and a half and do not know the area very well. Additionally, the pandemic has impacted their ability to meet new students outside of the online and offline classroom. UC Night Life was created to allow for students to find locations in and around Cincinnati to go to meet new people and enjoy/explore the city to its fullest.

UC Night Life is a web application that allows for users to find locations of interest in and around campus. They can either navigate the map on the main landing page to manually find locations of interest around Cincinnati or use the search bar by typing in key terms of things that they might be interested in (e.g., restaurant, near campus, music, downtown). When they wish to learn more about a location, they can navigate to its dedicated webpage. Once on the webpage of their desired location, they can find information such as general location data, internal and external 360 photos of the location, a description of what they might expect, as well as information about the location written by fellow students. For locations that have events - such as music venues or sport arenas – the page will provide an up-to-date feed and links to purchase tickets to attend.

Having all this information accessible on UC Night Life will allow for students to visit handpicked locations in and around campus/Cincinnati and prepare them for what to expect at any given location. This will allow for them to go out, explore the city, and meet new people without worrying about finding where to go or what they're going to do there. This platform is a fantastic tool that allow for new students to better navigate Cincinnati.

Introduction

Project Summary:

Our platform, UC Night Life, intends to solve the problem of new students missing out on the unique night life experience at UC. UC Night Life intends to highlight points of interest and traditional events inside and around campus as well as provide details that will be useful to each area being covered. Additionally, with Covid-19 affecting so many small businesses over the last few years, UC Night Life will even be useful to returning students and community members to campus and the surrounding areas. The information will include hours of operation, what to expect when you arrive, as well as other useful information.

Problem Statement:

As a result of the ongoing COVID-19 pandemic, there has been a 150% increase of enrollment in exclusively distance learning (Lederman, 221 C.E.). Additionally, there has been an increase of 71% of anxiety and stress due to the outbreak (Son et al., 2020). Additionally, the pandemic has had a great impact on the mental health of students with a 7.2% rise in anxiety amongst students (Fruehwirth et al., 2021) with 91% of students stating that social isolation has played the biggest role in their decrease in mental health (Chow & Kahn, 2021). While education is the primary reason for attending UC, social interaction is also extremely important for mental wellbeing and making friends. When attending school for the first time, many students miss out on the opportunities of UC's night life. This is half of the college experience, but students are unaware that they are missing out on UC's nightlife due to the lack of information that is online. Since Covid-19 has entered the UC community, many new students have not been able to do some of the activities that past students were able to experience. Our platform is designed to fix this issue by giving students the information on UC's nightlife to assist them with their nightlife college experiences. Since UC already has a virtual tour of campus, we would like to expand on the idea and encompass the entire Cincinnati region. We will be including downtown and on/off campus locations among other points of interest around Cincinnati. While other services have some data that UC Night Life will contain - and that users might find useful - they lack having all this data in one centralized location, they lack the integration with on campus activities/locations, and the catering to our specific demographic - college students who are unfamiliar with the region and wish to learn more.

Solution:

UC Night Life seeks to solve the problem of new users missing the unique night life experience at UC, and to introduce them to the greater Cincinnati region as well as campus. This platform will allow students to find new experiences on and around UC by providing them with the necessary information on common places and points of interest in and around the campus. The information will include hours of operation, what to expect when you arrive, as well as other useful information provided by those who are intricately familiar with the region. We plan to use a Linux Ubuntu server to host a web application to provide students with the information

described above, and plan to take 360 pictures using a camera from the library to give the students the most accurate view of the location they are checking out.

Project Source:

Freshman year is a hard time for students to find places to socialize. It is difficult for new students to meet friends and experience new cultures outside of their comfort zone. Individually, all the team members have faced this issue, but were able to overcome it through meeting individuals inside and outside of class. This has become hard to near impossible for freshmen nowadays due to the pandemic. The goal behind this platform is to give students a tool that will allow them to find places where they can meet with peers and form relationships that will last a lifetime. Ian Carlin is responsible for our requirements analysis. Our team formed out of prior friendships and past work partnerships.

Discussion

Project Objectives/Goals:

The goal of UC Night Life is to provide new students or returning students with a way to socialize, especially after the quarantine time, and find new places near campus. Additionally, the platform should allow for socializing with people with varying backgrounds and to figure out what to do with themselves as they become independent adults. The platform will provide information about locations around campus as well as traditional on campus activities that might go overlooked by students such as “On the Green” for Club Sports, Welcome Weekend special events, as well as unofficial events around the University.

Highlighting of UC’s best nightlife locations

- Provide details of nightlife locations such as location, operational hours, what to expect, etc. for users who are unfamiliar with the region
- Allow for students to branch out and try new places that they may have not known about
- Diversify students’ nightlife experiences

Easily accessible platform that will help students branch-out and experience all that UC has to offer

- Updates to current events happening around UC
- Weekly news that will keep students informed about upcoming events around all of UC’s nightlife locations

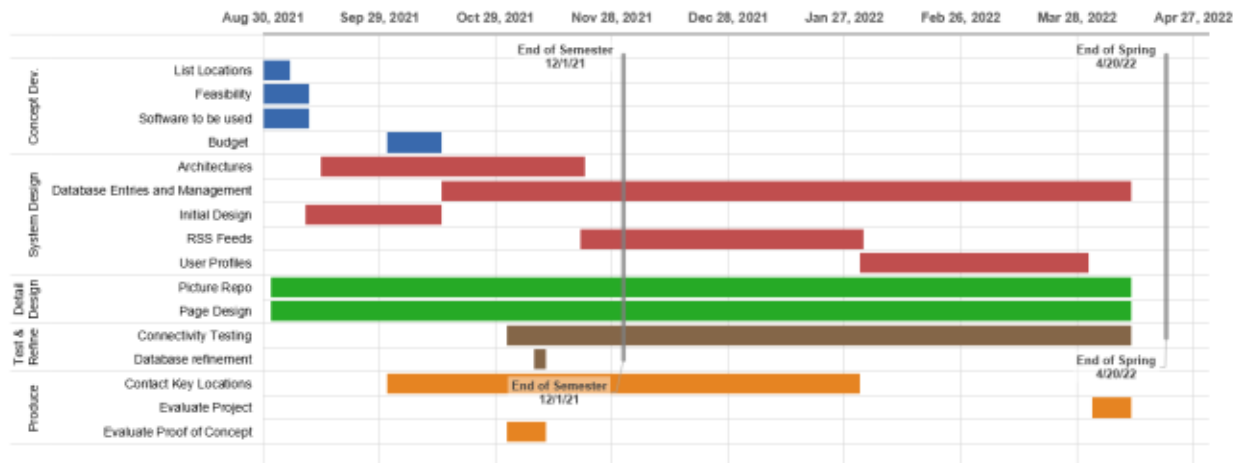
Project Scope:

Our team will develop a platform that enables UC students to be able to experience the nightlife that UC offers by utilizing its platform to provide information on the top points of interests that the UC nightlife has to offer.

Quick Project Timeline:

We created a workspace on [Trello](#) to track our progress throughout the project.

PROJECT TIMELINE



Project Start: 8/23/21 columns used to create the chart

CATEGORY	TASK	START	END	COLOR	Start	Blue	Red	Green	Brown	Orange	Purple
Concept Dev.	List Locations	8/30/21	9/5/21	Blue	8/30/21	7	0	0	0	0	0
	Feasibility	8/30/21	9/10/21	Blue	8/30/21	12	0	0	0	0	0
	Software to be used	8/30/21	9/10/21	Blue	8/30/21	12	0	0	0	0	0
	Budget	10/1/21	10/14/21	Blue	10/1/21	14	0	0	0	0	0
System Design	Architectures	9/14/21	11/20/21	Red	9/14/21	0	68	0	0	0	0
	Database Entries and Management	10/15/21	4/10/22	Red	10/15/21	0	178	0	0	0	0
	Initial Design	9/10/21	10/14/21	Red	9/10/21	0	35	0	0	0	0
	RSS Feeds	11/20/21	1/31/22	Red	11/20/21	0	73	0	0	0	0
	User Profiles	1/31/22	3/30/22	Red	1/31/22	0	59	0	0	0	0
Detail Design	Picture Repo	9/1/21	4/10/22	Green	9/1/21	0	0	222	0	0	0
	Page Design	9/1/21	4/10/22	Green	9/1/21	0	0	222	0	0	0
Test & Refine	Connectivity Testing	11/1/21	4/10/22	Brown	11/1/21	0	0	0	161	0	0
	Database refinement	11/8/21	11/10/21	Brown	11/8/21	0	0	0	3	0	0
Produce	Contact Key Locations	10/1/21	1/30/22	Orange	10/1/21	0	0	0	0	122	0
	Evaluate Project	4/1/22	4/10/22	Orange	4/1/22	0	0	0	0	10	0
	Evaluate Proof of Concept	11/1/21	11/10/21	Orange	11/1/21	0	0	0	0	10	0

Insert new rows above this one

MILESTONE LABEL	DATE	Margin Bottom	Margin Top
Start of Fall	8/23/21	50%	95%
End of Semester	12/1/21	25%	95%
Start of Spring	1/10/21	10%	95%
End of Spring	4/20/22	30%	95%

Technologies Used:

UC Night Life intends to require the use of:

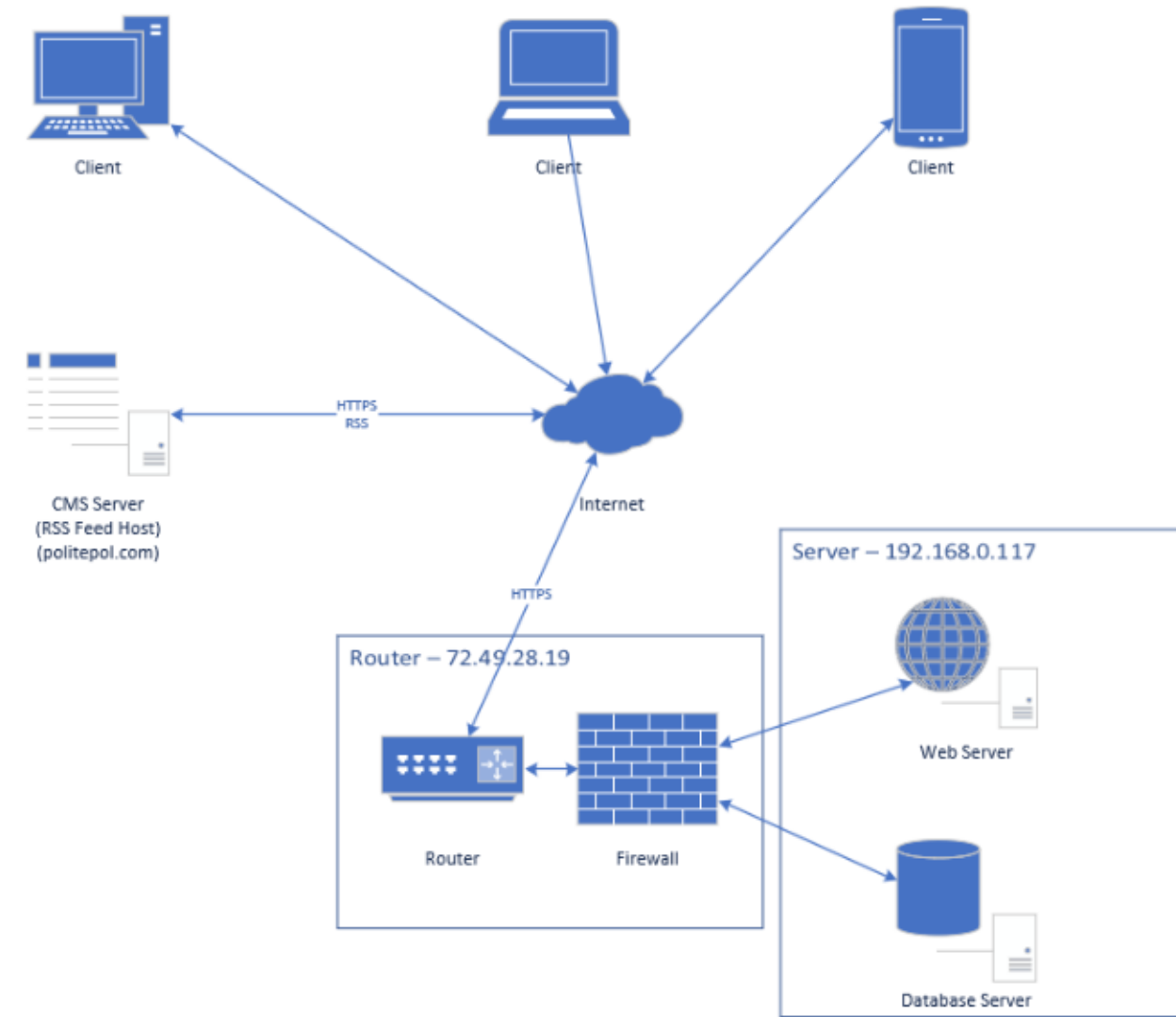
1. Ubuntu Server
 - Very well documented
 - Ability to host website
 - Works with a variety of other software applications
 - Currently running on personal computer
2. XAMPP

- Extremely user friendly
 - Familiarity with the development team
 - Works with a variety of other software applications
 - Ability to easily run SQL database and Apache webserver
3. A-Frame
 - Very well documented
 - Ability to use on a variety of platforms
 - Familiarity with the development team
 - Display 360 photo spheres of locations
 4. HTML/CSS
 - Basic programming languages that are required for this project
 - Familiarity with the development team
 5. SQL
 - Integral part of using a SQL server
 - Necessary for doing database requests for content on websites
 6. RSS
 - Allows for scraping up-to-date information from outside sources
 - Very easy to implement on any webpage
 - Very well documented
 7. My Google Maps
 - Provides an accurate map that can be used on the application
 - Display coordinates and map of Cincinnati/campus
 - Ability to link to pages internally and externally

Technical Architecture Diagram:

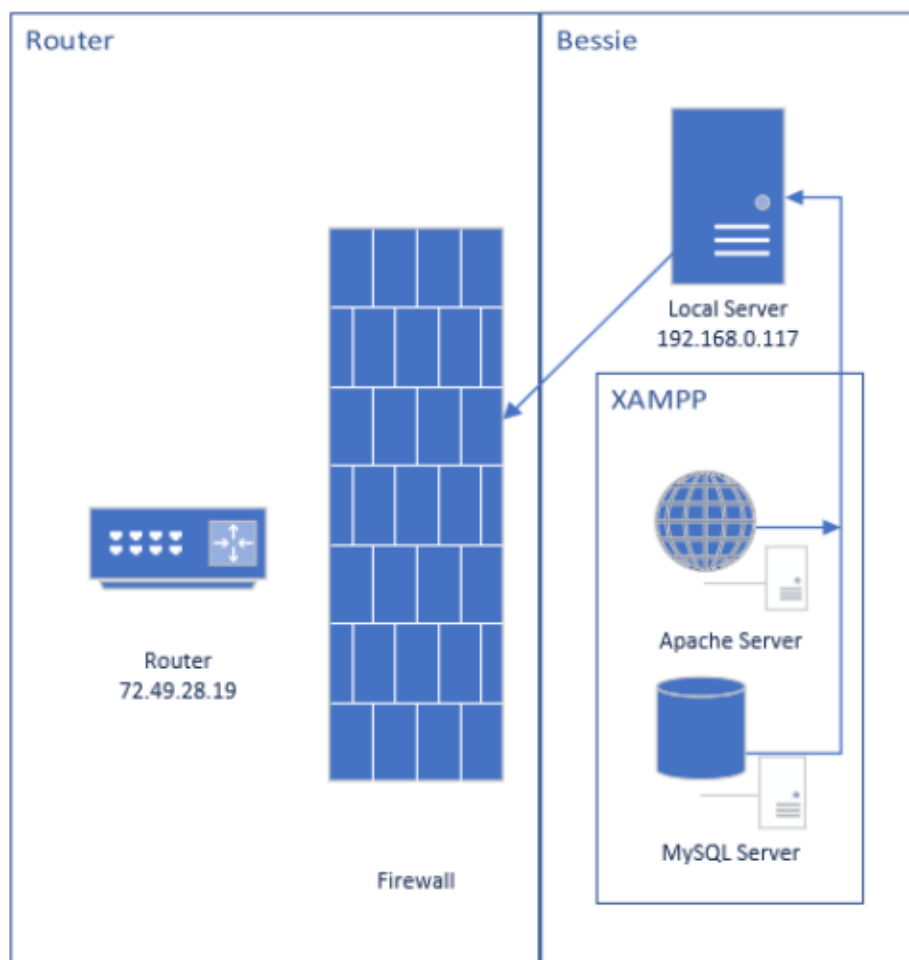
Physical Network Diagram:

The main server is port forwarded to the router which makes it accessible to the internet. From there, the client can reach the webserver and can request the relevant RSS feeds from our RSS provider.



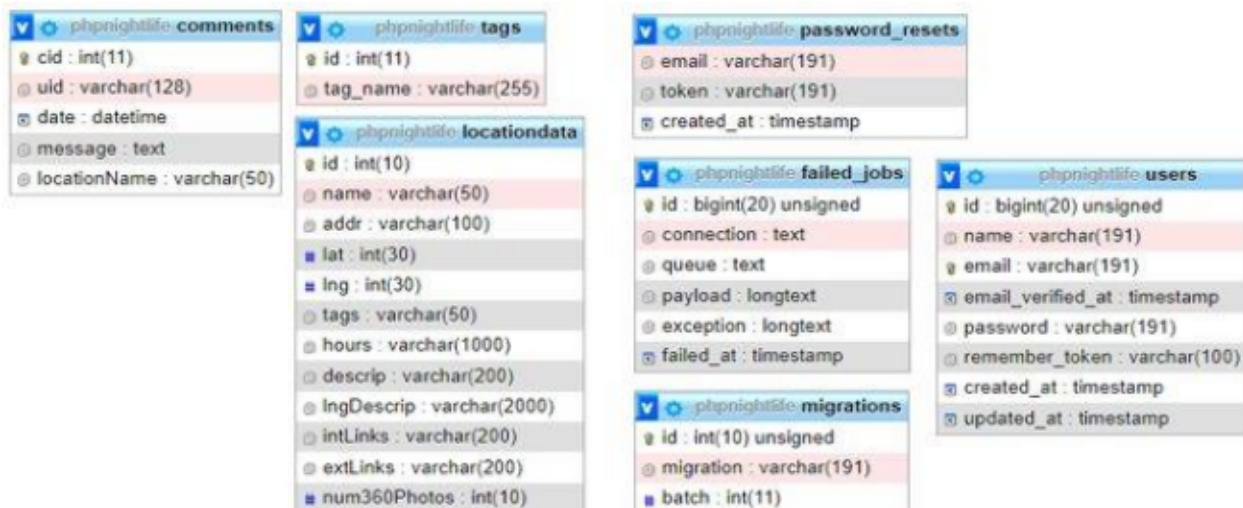
Logical Network Diagram:

The main server hosts both the database and the webserver itself. This communicates through the firewall to the router which allows the webserver to be accessible from the web.



Database Diagram:

Our database diagram consists of the seven tables. Our tags table consists of a list of tags that is used for populating the autocomplete feature of our search bar. Our locationdata table is used for storing information for each individual location that we have searchable on our site as well as latitude and longitude data that is used for our map. Both tables have a primary key of a unique ID. The comments table consists of user generated comments as well as some extra data such as the date and time the comment was made, the location that it was commented on, and the username of the commenter. The last 4 table deal with user accounts. One the users table is used to store the username, email and password of each unique user. The other three tables are used to track the progress and



User Personas:

These are two users that we have designed our platform around. One is a UC alum who is unfamiliar with the region, and another is a UC student who wishes to find places near campus to visit and meet new people.

Table 1 User Persona Table

User Persona: 1	
	Title: University of Cincinnati Alumnus
	Name: Travis Kelce
	Age: 32



	<p>Gender: Male</p>
<p>Behavior</p>	<p>Lives in a different state. Has a full-time career.</p>
<p>Pain</p>	<p>Hasn't been back to Cincinnati in years and does not know what locations are still there and/or new.</p>
<p>Needs & Goals</p>	<p>Looking for places to eat/drink in the area or possible locations to go to in Cincinnati.</p>

Table 2 User Persona Table

<p>User Persona: 2</p>	
	<p>Title: University of Cincinnati Covid-19 Student</p> <p>Name: Kim Possible</p> <p>Age: 18</p> <p>Gender: Female</p>
<p>Behavior</p>	<p>Spends majority of her time inside the comfort of her dorm as her classes are mostly remote.</p>
<p>Pain</p>	<p>Does not know UC very well as they did not get the chance to be on campus the past year and a half because of Covid-19 pandemic.</p>
<p>Needs & Goals</p>	<p>Would like to create more of a social life. Doesn't know where to go to meet new people. Needs something affordable</p>

Use Cases:

These are possible use cases that our users might perform when on UC Night Life. They include using our map to find places in a specific area and searching for key terms to find specific locations in the region.

Table 3 Use Case Table

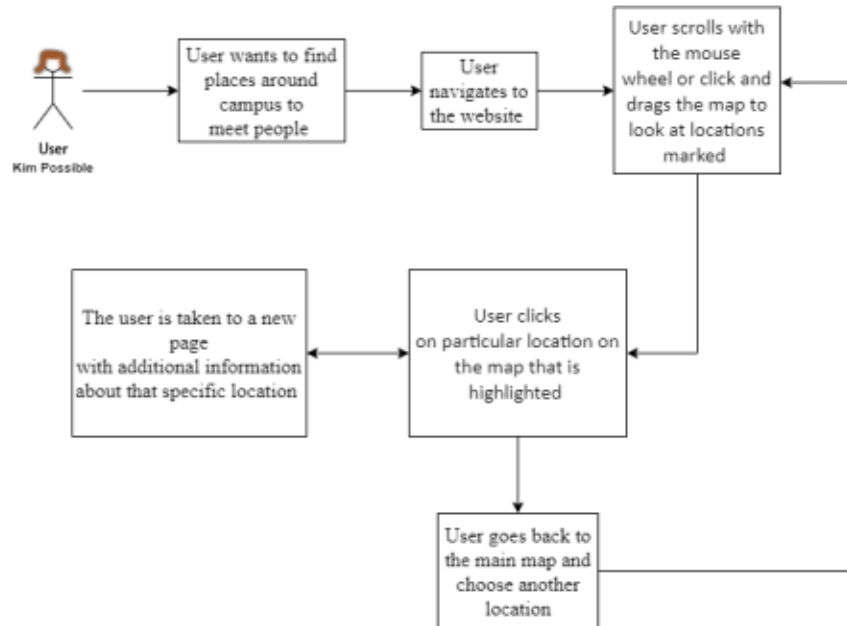
Use Case ID	1
Use Case Name	Find locations on the map
End Objective	User finds things to do in general area on the map and learns more information about locations
User/Actor	Kim Possible
Trigger	User wants to find places around campus to meet people
Frequency of Use	1-2 times a week
Preconditions	User navigates to the website
Basic Flow	<ol style="list-style-type: none">1. User scrolls down to the map on the home page2. User scrolls with the mouse wheel or click and drags the map to look at locations marked3. User clicks on particular location on the map that is highlighted
Alternate Flow	<p>At step 1 of the basic path, the user can navigate to the map tab in the header to find a better sized map of the general area.</p> <p>After step 3, the user can be taken back to the main map and choose another location</p>
Postconditions	The user is taken to a new page with additional information about that specific location

Table 4 Use Case Table

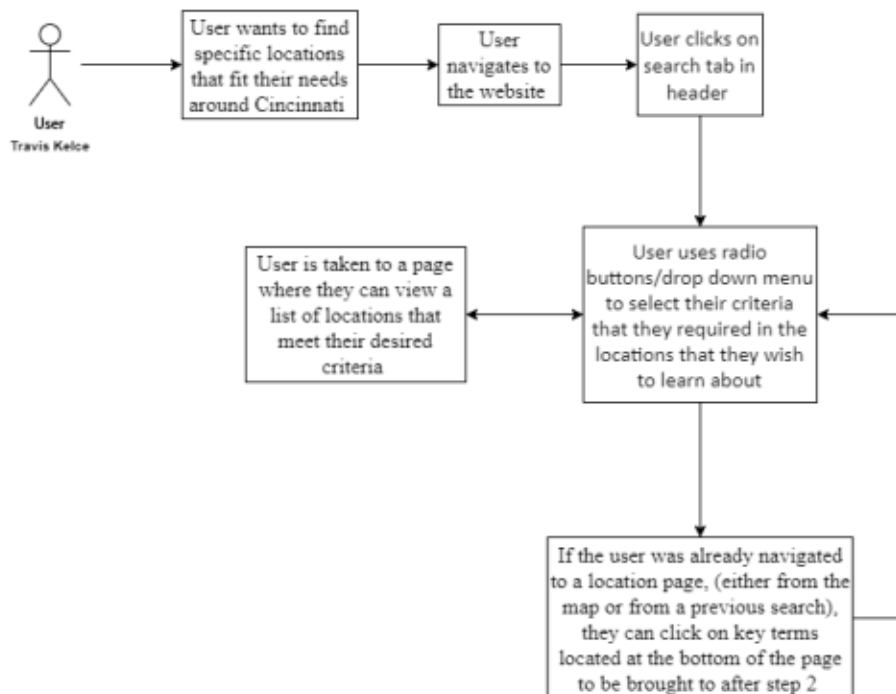
Use Case ID	2
Use Case Name	Find locations using search
End Objective	User generates a list of possible locations that fit their general criteria that they entered
User/Actor	Travis Kelce
Trigger	User wants to find specific locations that fit their needs around Cincinnati
Frequency of Use	1-5 times total
Preconditions	User navigates to the website
Basic Flow	<ol style="list-style-type: none"> 1. User clicks on search tab in header 2. User uses radio buttons/drop down menu to select their criteria that they required in the locations that they wish to learn about
Alternate Flow	If the user was already navigated to a location page, (either from the map or from a previous search), they can click on key terms located at the bottom of the page to be brought to after step 2
Postconditions	User is taken to a page where they can view a list of locations that meet their desired criteria

Use Case Diagram:

User Kim Possible is new to campus as their first year and a half at UC was during Covid-19. Since she is unfamiliar with the area, she would like to find locations around UC to get out of the dorms and meet new people.



User Travis Kelce is an alumnus who graduated from UC a number of years ago. He has not been back in years and is not sure what is still open or what has closed in the area. He is looking for a place to grab a burger and drink a beer.



Testing Plan:

Overview

This section includes our group's method of testing, the scope of our project, what we wish to accomplish during the preliminary testing of our project, the conditions of our testing, what we learned throughout the testing, and how we will be addressing changes being implemented throughout our time on the project.

Methodology

Our approach to testing will be primarily focused on trial and error to ensure that our website is fully navigational and working to our standards. Code will be QA tested by another member before being put into the final product, and connectivity to our database/website will be tested around various areas.

Scope

We will be testing the following cases/features:

1. Finding locations on the map
2. Finding locations through search
3. VR/360 functionality for each location
4. Live location data pulling for specific locations (i.e. Bogarts, 5/3 Arena, Nippert)
5. Any new additions of features to the website

Objectives

This is our testing strategy and our end goals.

- a. All major features and use cases need to be accounted for and thoroughly tested by manual review
- b. All use cases must account for all the user roles
- c. All edge cases need to be tested with all locations and combinations of webpages tested
- d. All bugs need to be resolved before IT Expo

Test Logs and Procedures

Item #	Test Case #	User	Role	Expected Output	Actual Output	Pass/Fail	Reason	Date
1	1	Kim	user	Location info page on same tab	Location info page opens on new tab	F	Google maps embed redirects to new page	2/2/22
1	2	Kim	user	Location info page on same tab	Location info page on same tab	P	Resolved Google maps	2/2/22

							embed redirect error	
2	1	Travis	user	New search finds desired location on same tab	Search comes back with POST & SQL error code	F	SQL & POST formatting wrong in code	2/4/22
3	1	Kim	user	User clicks on internal link and is taken to info page	404 error. Info page not properly created from database	F	Internal links no longer working with google maps since change from POST to GET	3/6/22
3	2	Kim	user	User clicks on internal link and is taken to info page	User is properly taken to info page about location	P	Properly switched from POST to GET and set up way to pull images dynamically using the database	3/15/22
4	1	Kim & Travis	user	RSS feed properly displays and provides working external links	RSS feed properly displays and provides working external links	P		3/15/22

Testing Review

During the testing, we were able to learn that some of our functionalities are not as polished as we had hoped before we started. We discovered that sometimes when a user was trying to load the location information from the map, it would open a new tab instead of redirecting to the information page on the same tab that we have created.

Additionally, we learned how difficult it can sometimes be to merge different technologies together into one cohesive project. For example, combining PHP database calls while trying to display the unique panorama photos for each location was made difficult when we had multiple panorama photos for some locations but not others. This was resolved by reworking how we

displayed the panorama photos in the first place, by seeing if the location had more than one photo to display and then calling code specific to those locations.

In the future, we would change how we set up the webpages initially because setting up multiple web pages ourselves would be more problematic for our testing due to an increased chance of bugs and errors opposed to how we now utilize a dynamic web page creator. Additionally, we should have foreseen how difficult it would be to add additional locations without the use of dynamically calling and displaying information for each unique location.

Change Management Plan:

Rules for requesting a change or new implementation:

- Anybody can request a change for any part of the project
- Posted in either the Discord/Teams with reason for change
- EVERY group member must be informed of the change/implementation before it can be approved
- 3/5 group members must agree to the change for it to be implemented
- Approved changes will be kept in the discord via pinned messages/code repo in GitHub
- Run through the entirety of the application, ensuring new features are compatible with all other features present.

Budget:

Below is a table describing our projected budget if we were to present ourselves to a company since we do not have a sponsor for our project. As instructed, the hourly rate for Labor is 20/hr, and we projected that it would take 3000 hours to re-create a working proof concept. For external labor, we rated it at 15/hr. That would primarily fall under the people who would be going around to various areas and locations to take the pictures that are displayed on the website. We also added the costs for our computers since everything we have is being built and hosted on them. Lastly, we included the approximate annual subscription to the software we used on the project, such as Adobe Suite/Dreamweaver.

Table 5 Project Budget

Estimated Cost Rough Order of Magnitude:						
	Rate Per/Hr	Work Effort (Hours)	1 X Costs	Ongoing Annual		
				Rate Per/Hr	Work Effort (Hours)	1 X Support Cost
Labor - IT	20	3000	\$60,000.00	20	1000	\$20,000.00
Labor - External	15	10	\$150.00		0	\$-
Software - External						\$500.00
Hardware - External			\$5,000.00			
Misc.						
TOTAL			\$65,150.00			\$20,500.00

Problems Encountered and Analysis of Problems Solved:

- Not getting replies from potential location – trying to solve this issue by following up on more of the emails that are being sent out. Also just appearing at locations and asking in person sometimes did the trick
- RSS feed not functioning properly – still working on solution to this issue, but have made progress by using third party software to help with the integration. Still hard to find sources for RSS feeds and creating custom ones is time consuming.
- Integrating the UI with front end code, we were not able to get them working properly but are looking for solutions.

- Calling the data from the database – we were able to solve it by finding a proper tutorial online with the solution to the issue we were facing.

Conclusion

- We have learned that we need to research some more about what we plan on integrating and how it will function within our project before we go in the code and try to implement new changes. Additionally, we now know that we need to prepare ahead of time for assignments and other activities as getting everyone together is a challenge with 5 people.
- Our group developed more coding skills, mainly in part to 4 of us being in Cyber Security where programming is not a major focus of the coursework. We are also getting good experience in enterprise software such as Azure and Dreamweaver.
- While we continue to build this project, our focus will be the addition of content such as various webpages and RSS feed integration. Our other major implantation will include user profiles so that users can register an account, and comment on locations that are on our website, or suggest new locations to be added.

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