

ApollOm

ITIN 4980 - Final Report

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Executive Summary

ApollOm is a software company that offers a digital platform to aid with the dissemination of small-scale music events in the Omaha area. The ability to find a quality system of information available anywhere, whether through a computer or a mobile device, does not yet exist. ApollOm will thus narrow the gap in sharing information about events between artists/venues and their listeners, whether they are tourists or natives of Omaha. The end goal is to become the musical event hub of a newly burgeoning national Omaha music scene.

ApollOm will run as a web application, responsively compatible with both desktop and mobile devices. The user interface is simple and requires minimal effort to navigate. It provides a method of logging in to edit and add new events. A nearby feature provides nearby events happening the same day the user is using the application. A calendar provides information on all upcoming events. This calendar can filter by genre, artist, and venue. Once an event is chosen, the user can find travel time, directions, and obtain a ride from Uber or Lyft, and add it to their own device calendar, all without leaving the application.

The business model for ApollOm comes from two revenue streams. The first is a listing fee of \$10 per event for an artist or venue. An artist or venue can optionally pay \$5,000 to have unlimited events added for the year. The second business model is from a donation feature given to users, who can then use PayPal to donate to the artists or venues. A 2% cut of the donation is given to ApollOm. This allows for the better model to develop or for two revenue streams to exist. Further market research can determine which revenue stream works best.

As mentioned earlier, a web-based application allows ApollOm to easily be multiplatform. This ensures the application will be accessible from computers, iOS devices, Android devices, and Windows Phone devices with only a single code base. A database system will be used to store login and event information. The event information can be updated by the creator from any device, as well; the complete application is available on all devices.

Value Proposition and Features

ApollOm gives users in Omaha a place to find very specific music events. Many of these events are glossed over by others attempting this task. There is also a heavy emphasis on tourists to Omaha, looking for unique music events they cannot find anywhere else while in town. The

problem right now is that a potential listener must know what they are looking for in the first place. ApollOm tries to solve this by providing a central location for music events, available on any smartphone. In other words, the value of ApollOm is in differentiation from the competitors. Here are the features of ApollOm, more specifically:

1. The ability to search and find musical events in a calendar system. Events can be filtered by artist, venue, and genre.
2. Once an event is chosen, the user can find information about the event, such as the artist, venue, address, start and end times, a website (if available), and any other information about the performance.
3. Also from this page, the user can donate to the artist/venue, from which ApollOm takes a cut of the money.
4. Another feature of this page is to allow the end user to add the event to their smartphone calendar.
5. The user can map the chosen event and determine the travel time from their current location.
6. From the map, a user can obtain a ride with Uber or Lyft without having to leave the application.
7. The user can also find events within a five-mile radius occurring the same day on a map. All previously mentioned map features are available here as well.
8. An artist/venue can log in to the application to add events to the calendar.

These features help to improve the traction of smaller artists and venues within Omaha, helping to build a closer nit scene of musicians. As the system grows, it is my hope that it becomes a for all of Omaha's musical community to come together. If this is accomplished, a tight-knit group of musicians can help work together to build a national scene.

Market Research and Competitive Analysis

The Omaha music industry is hard to put a number on, but the national music industry is estimated to be worth \$15.5 billion in 2016, and is expected to grow for the next several years. Live Nation Entertainment alone has made \$4.73 billion in concert revenue. There are several

relatively unknown (and known) venues hosting many relatively unknown artists. This is an area where I will continue to research and obtain more concrete numbers in the future by leveraging new found connections I have made in other university courses. Examples of some of the venues that will be reach include: The Slowdown, The Waiting Room Lounge, Ozone, Sokol Auditorium, Reverb Lounge, and the 402 Arts Collective. It is difficult to find revenues these venues and the artists performing within them receive.

There are several competitors already working within this space. However, many of these differ in several key areas. The Omaha World-Herald and The Reader are focused on advertising larger national tours, and, as newspapers, tend to be more concerned with the needs of the citizens Omaha and an older readership. Omaha Music, has a good selection of events available. However, only a mobile-unfriendly website is offered, making information lookup difficult for today's on-the-go lifestyle common among youth. These offerings focus on a different audience from the one ApollOm is targeting: college age youth interesting in up-and-coming music. There are many national competitors as well, including StubHub, BandsNearMe, TicketMaster, and JamBase. Many of these companies are focused on the sale of tickets, a function that ApollOm does not offer. They generally only display prominent national acts touring the area, as well. They offer little in the way of smaller groups. None of these competitors offer transportation hooks and location based event search, either. This is also evidence, of the attention placed on finding music anywhere, not just Omaha.

System Design

Several tools will be used to develop ApollOm. The system must be able to be accessed from as many devices as possible to help in the goal of drawing a community together. For this reason, ApollOm will be developed as a responsive website accessible from computers and mobile devices. This eases the short development time with a single codebase, rather than three (Web, Android, iOS). The components of the design are as follows:

1. **GitHub** – Code hosting, versioning, and issue tracking/sprint board
2. **Heroku** – Web hosting and backend system
3. **Bootstrap** – Responsive web design framework. It provides many UI components, such as dropdowns, modal windows, and buttons.

4. **FullCalendar** – Responsive HTML/CSS/JS calendar system
5. **Leaflet** – HTML/CSS/JS map system
 - a. **Google Maps** – The other potential mapping system. This will be used if needed to provide the travel information.
6. **PostgresSQL** – Stores user and event data
7. **Cordova** – Converts the website into a mobile application for Android and iOS

The calendar system requires JSON data from the database, it is the responsibility of the backend in Heroku to provide the information from the database. This can be done in PHP, Python, Ruby, Node.js, Java, Go, Scala, or Clojure. I am unsure what language I will use right now. This and other backend tasks, such as user login, integration with Uber/Lyft, will be most of the work required to develop the application.

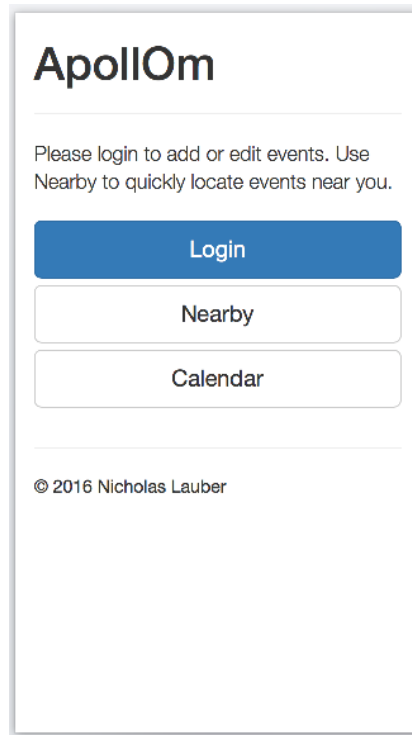
Use Cases

Sam Kalhorn is a sophomore at the University of Nebraska at Omaha. He is a full-time student majoring in music performance and is a member of the UNO Jazz One ensemble and a band outside of the university called Clark & Company. One day, Sam decides that he wants to check out other jazz ensembles performing in the area to check out how they perform. He uses ApollOm on his smartphone to find jazz performances happening near UNO that night. He then maps his current location to the device, allowing him to know the best way to get there. He arrives at the performance on time and enjoys himself. He remembers the easy experience of finding exactly what he was looking for through a simple and intuitive presentation.

Mike Tyler is an investor in Berkshire Hathaway. He came to Omaha for the annual shareholder meeting. When proceedings end on the first evening, he is ready to hear some local jazz music. He wants to see what kind of style Omaha brings to the table. He hears from some local colleagues that ApollOm is the best place to look. He downloads the application onto his smartphone and begins to browse for jazz performances near Berkshire. He finds an event scheduled within an hour and uses the in-application Uber support to get a ride. He enjoys the performance, remembering how easy it was to find and arrive at an event quickly.

User Interface Design

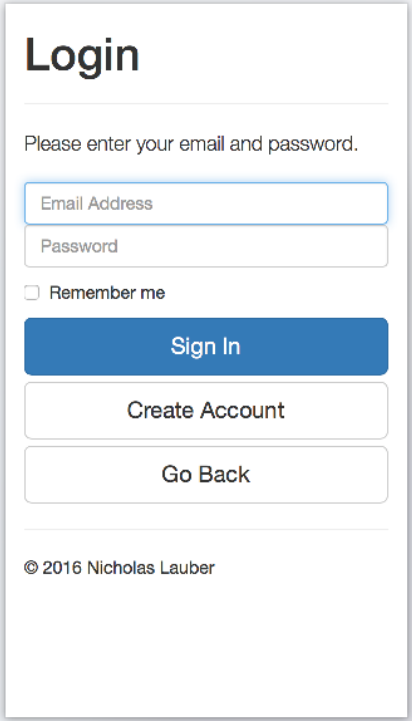
Home Screen



Explanation:

After the user opens the application, the home screen is displayed, giving the user options to log in, look for nearby events, or browse the calendar. Each of these buttons loads a new screen, and can be returned to with navigation buttons at the bottom of each successive page.

Login Screen:



Login

Please enter your email and password.

Email Address

Password

Remember me

Sign In

Create Account

Go Back

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Explanation:

The login screen allows the user to login with an email address and password. The option to remember the user through a cookie is also available. If the user does not have an account, there is also the option to create one.

Create Account:

Create Account

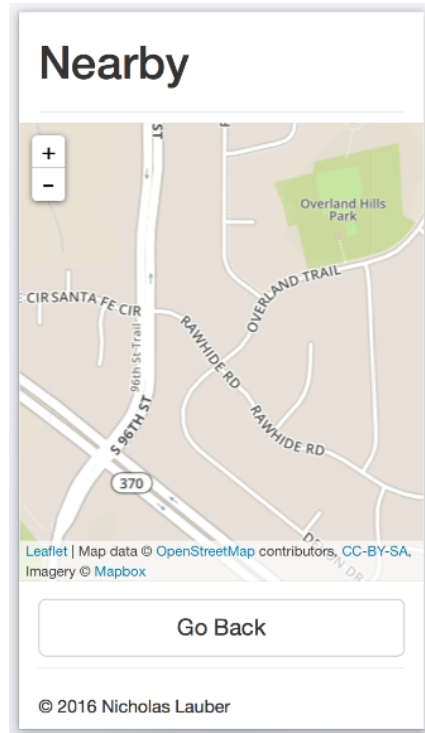
Please enter the following information to create your new account.

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Explanation:

The create account screen allows the user to create an account by providing name, email, and a password. A user account must be approved by ApollOm before its creation is finalized. This is to prevent spam accounts from creating bogus events.

Nearby:



Explanation:

The nearby feature displays a map of events near the user's location and happening the same day they view it. An event can be clicked on to gain further information, add it to the user's calendar, get travel information, and obtain a ride with Uber or Lyft.

Calendar (Logged Out):

The image displays four screenshots of a calendar application interface, arranged in a 2x2 grid. Each screenshot shows a different view of the calendar and includes a search and navigation section at the bottom.

- Top Left:** Monthly view for November 2016. The calendar grid shows dates from 30th to 26th. Events are marked with colored boxes: "8p UH" on Tuesday, 1st, and "7p UH" on Monday, 7th. Navigation includes arrows for previous/next month, "today", and tabs for "month", "week", "day", and "list". Below the calendar is a "Category" dropdown, a search input field with the placeholder "Please enter a artist/venue.", and "Search" and "Go Back" buttons.
- Top Right:** Weekly view for Nov 6 - 12, 2016. The calendar grid shows dates from 11/6 to 11/12. Events include "7:00 - UNO Jazz" on Monday, 7th; "8:00 - The SuperBytes" on Wednesday, 9th; "9:00 - Kennedy Jones" on Wednesday, 9th; and "9:00 - Clark &" on Friday, 11th. Navigation and search elements are identical to the monthly view.
- Bottom Left:** Daily view for Wednesday, November 9, 2016. The calendar grid shows time slots from "all-day" to 10pm. Events include "8:00 - 9:00 The SuperBytes" and "9:00 - 10:00 Kennedy Jones". Navigation and search elements are identical to the monthly view.
- Bottom Right:** List view for November 2016. The calendar grid shows dates and times for events: "8:00pm - 9:00pm UNO Jazz 1" on Tuesday, Nov 1st; "7:00pm - 8:00pm UNO Jazz 2" on Monday, Nov 7th; and "8:00pm - 9:00pm The" on Wednesday, Nov 9th. Navigation and search elements are identical to the monthly view.

Explanation: The logged out calendar view lets the user view events, filter them by artist, venue and genre. An event can be clicked on to gain further information, add it to the user's calendar, get travel information, and obtain a ride with Uber or Lyft.

Calendar (Logged In):

November 2016

< > Add today

month week day list

Sun	Mon	Tue	Wed	Thu	Fri	Sat
30	31	1 8p UN	2	3	4	5
6	7 7p UN	8	9 +2	10 +2	11	12
13	14	15	16 +3	17	18	19
20	21	22	23	24	25	26

Category ▾

Please enter a artist/venue.

Search

Go Back

Nov 6 – 12, 2016

< > Add today

month week day list

	Sun 11/6	Mon 11/7	Tue 11/8	Wed 11/9	Thu 11/10	Fri 11/11	Sat 11/12
all-day							
7pm		7:00 - UNO Jazz					
8pm				8:00 - The Supe			
9pm				9:00 - Kenn		9:00 - Clark	

Category ▾

Please enter a artist/venue.

Search

Go Back

November 9, 2016

< > Add today

month week day list

Wednesday

all-day	
8pm	8:00 - 9:00 The SuperBytes
9pm	9:00 - 10:00 Kennedy Jones
10pm	

Category ▾

Please enter a artist/venue.

Search

Go Back

November 2016

< > Add today

month week day list

November 1, 2016	Tuesday
8:00pm - 9:00pm	• UNO Jazz 1
November 7, 2016	Monday
7:00pm - 8:00pm	• UNO Jazz 2
November 9, 2016	Wednesday
8:00pm - 9:00pm	• The

Category ▾

Please enter a artist/venue.

Search

Go Back

Explanation:

The logged in calendar view is the same as previously mentioned, but provides an add button to create a new event. It also allows for the editing of events created by the user.

User Test Cases

Logged in Test Cases:

This section has the user test cases specific to the logged in venue/artist manager. These tests include logging in, creating an event, editing an event, and logging out.

User will log into the application		
	Input	Expected Results
<u>Test Log In</u>	User clicks on the “Login” button	Login screen appears
	User enters email and password	User is logged into the application
	User checks "Remember Me" box	User stays logged in until logged out

User will create an account		
	Input	Expected Results
<u>Test Create Account</u>	User clicks on the “Create Account” button	Create Account screen appears
	User enters name, email, and password	User information is sent for approval
	User information verified and approved	Account is created

User will create an event		
	Input	Expected Results
<u>Test Create Event</u>	User clicks on the “Add” button	Add Event modal window appears
	User enters event information	Event information sent to database
	Event data in database	Updated data displayed in calendar

User will edit an event		
	Input	Expected Results
<u>Test Edit Event</u>	User clicks on the “Edit” button	Edit Event modal window appears
	User types in new event information	New event information sent to database
	Event data in database	Updated data displayed in calendar

User will log out the application		
	Input	Expected Results
<u>Test Log Out</u>	User clicks on the “Logout” button	Login Confirmation modal window appears
	User clicks “Confirm” button	User is logged out of the application

Logged out User Test Cases:

This section has the user test cases for any user, whether logged in or out. These tests include the nearby feature, filtering the calendar, viewing event information, looking up an event on the map, viewing travel information, and obtaining a ride with Uber or Lyft.

User looks for nearby events		
	Input	Expected Results
<u>Test Nearby Map</u>	User clicks on the “Nearby” button	Nearby screen appears
	User clicks on an Event	Event Info modal window appears
	User clicks the “Travel” button	The map displays travel time/directions
	User clicks the “Transport” button	The transport modal window appears
	User clicks “Uber” button	Information is sent to Uber to obtain a ride
	User clicks “Lyft” button	Information is sent to Lyft to obtain a ride

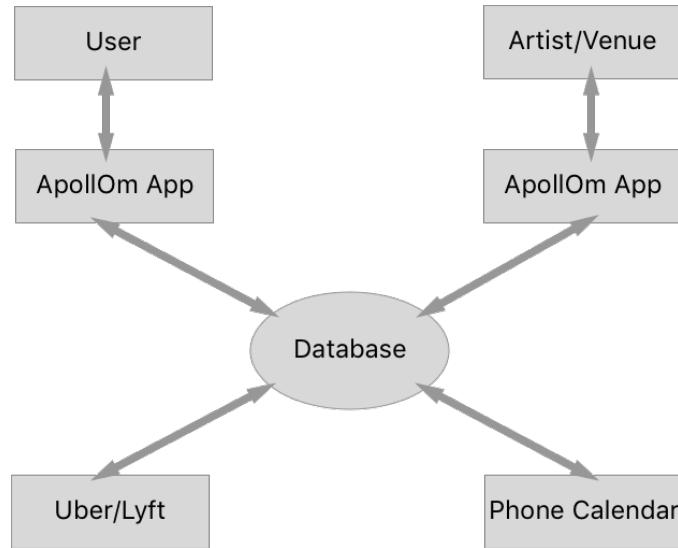
User filters the calendar		
	Input	Expected Results
<u>Test Filter Calendar</u>	User clicks on the “Calendar” button	Calendar screen appears
	User clicks on the Category dropdown	Dropdown Category genres appear
	User clicks a genre	Events outside genre disappear from the calendar
	User enters an artist/venue in the form and clicks the “Search” button	Events outside the artist/venue disappear from the calendar

User views event information		
	Input	Expected Results
<u>Test Event View</u>	User clicks on an event	Event Info modal window appears
	User clicks the “Travel” button	The map displays travel time/directions
	User clicks the “Transport” button	The transport modal window appears
	User clicks “Uber” button	Information is sent to Uber to obtain a ride
	User clicks “Lyft” button	Information is sent to Lyft to obtain a ride

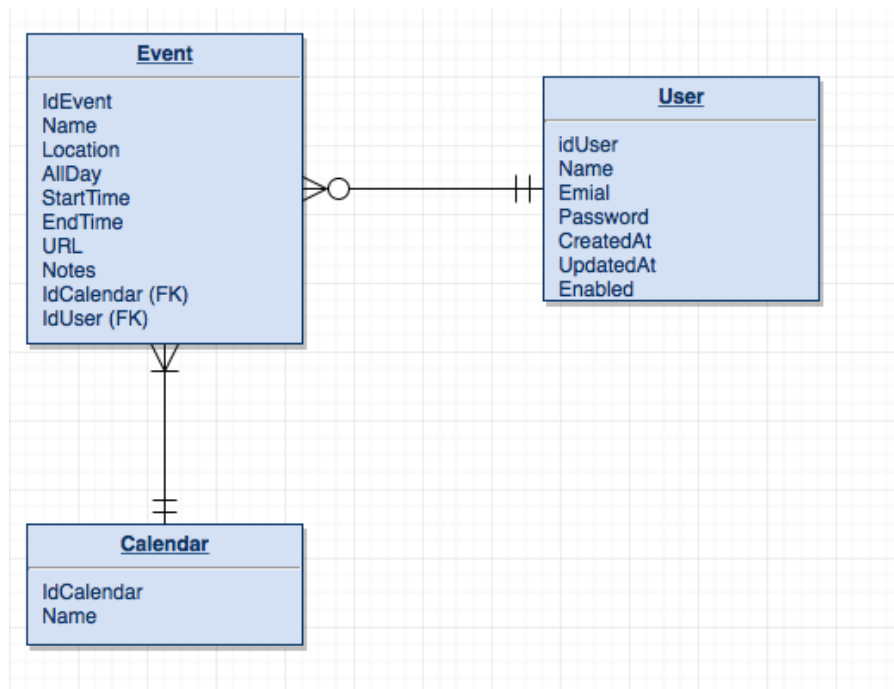
User views a map of the calendar event		
	Input	Expected Results
<u>Test Cal Map</u>	User clicks the “Travel” button	The map displays travel time/directions
	User clicks the “Transport” button	The transport modal window appears
	User clicks “Uber” button	Information is sent to Uber to obtain a ride
	User clicks “Lyft” button	Information is sent to Lyft to obtain a ride

Data Flow/Entity Relationship Diagrams

The data flow diagrams for ApollOm are shown here. The first diagram shows the basic overview of how the system is designed. The database that ApollOm will use will provide different information to different entities, as shown below.



The entity relationship diagram shows the structure of information within the database. An event must have a user and it must be within a calendar. A calendar can have multiple events, and a user can have multiple events.



Future Steps

The next step for ApollOm's development is to research better the technical needs of the project. A few considerations for other implementation methods is needed. For example, Mobile Angular UI or other UI frameworks could be used instead. A decision on using SQL or NoSQL must be done as well. An alternative calendar system will need to be used, if the current one cannot be made more mobile friendly. There is also the consideration to be made with Google Maps. Learning more about implementing the backend must also be done. More market research must also be done. I have recently made new connections with the Omaha music community which I hope to leverage between now and the final presentation in the Spring.

Other than these preconditions, the next semester will be spent building a prototype of ApollOm for web use. This will require the building of an administration system, backend database and server-side code, and client-side code and UI design. The database will be populated with fake data for the capstone class, unless information begins to appear prior to the final presentation.

Beyond the second capstone course, I will begin looking for specific venues to begin partnering with. This could be any of the venues I listed previously, or maybe even one I have not heard of yet. This would help spread the word about my application and potentially bring in more partnerships. In addition, separate, true Android and iOS applications would be considered in the future.