Amanda McMahon & Salma Mala
CSC 480, Senior Project
Department of Engineering
May 8th, 2019



Our project is to create an application for American Society of Civil Engineers-ASCE conference 2019 at Saint Martin's University. In this app, will allow up to 700 users, students will be able to look up schedules, campus maps, room setting, and food options near as well as the university Cafeteria. It will also send out notifications prior to a session starting.

Introduction

We did part of the project planning with project scope, which involves determining and documenting a list of specific project goals, deliverables, collecting data, features, functions, tasks, deadlines, and ultimately costs. In other words, it is what we needed to be achieved and the work that must be done to deliver our project.

The time of this project was an issue as we had only a month to finish up all of our coding and designing work in order for the app to be published on the app store on time. We also had to do this project twice in different forms as our client did not like the initial design and features. We choose this project because we thought this is something that is very demanding in the current market as well as it would be a good opportunity to imply the coding knowledge that we have as well as learn more. We used HTML, CSS, PHP, Javascript, and SQL.

Problem Solving:

- Gathering related information from different sources and figuring out how to use them
- Limited time were given to finish up the project only about a month
 - o (ASCE 2019: April 11th-13th)
- Needed a third party to launch the app in the app store
- Connecting SQL to HTML through PHP was very challenging

- Communicating with the clients to figure out exactly what they need/want
- Creating an ERD to help us and the client to visualize the process, systemes, and the design of the app
- Creating a design of the app and the process
- Getting feedback from the clients on the design
- Planned a process
- Testing the app as we work it
- Making it easy for the users to use the app

Project Description:

Our project is to create an application for the upcoming American Society of Civil Engineers-ASCE conference, 2019 at Saint Martin's University. In this app students will be able to search schedules, locations, campus maps, room setting, and food options near as well as the university cafeteria. The app will also send out notifications prior to a session starting.

Project Motivation:

We chose this project because we thought creating this mobile application will help us both Amanda and Salma learn more and implement the knowledge that we already have learned from our class courses. Initially we planned to create a website where we would have all the necessary datas and eventually turned that into a mobile app by using a third party. However later in to the process we ended up using a third party to crete and launched the app.

Work Organization:

We have been working on our project together from start to finish. Our roles have changed throughout the process of the whole project.

- While Amanda focused on the website, Salma's job was to convert the website into an application which will be friendly for any devices, including ios and android.
- Salma also took care of the security aspect of the app where students/users will need to log into the app in order to get notifications and access to the app's services.
- We made sure that user security was a big part of the whole app as you know nowadays cyber crime is a very common thing, and we didn't want our users to worry about their information.
- We created the database where the app will save the information selected by the users to send them notifications.

- We are also both responsible for testing and making sure that the application works and runs smoothly.
- We tested the app several times, and we also let the clients test the app as well to see if
 they like the design, features, database, security part and in general the whole process
 itself.

Literature Review:

Throughout the project, we focused mainly on the desired features from our client. It wasn't until later on as we approached the due date that we began paying attention to other apps available in the app stores. There was one application we noticed in particular that is also geared towards ASCE conferences. In fact, it is called, "ASCE Conferences and Events." This application is basically an international version of the application that we have created.

Our application is specific for Saint Martin's University and includes elements unique for our school and client. For example, our client requested that we include food options nearby campus, a campus map, and room settings. ASCE Conferences and Events is strictly information about the conferences.

This other application does have very helpful and creative features though, such as access to presentations with the ability to add personal notes by drawing on the slides. It also allows users to connect with other attendees and provides access to exhibitors and posters. ASCE Conferences and Events was released to the Android app store on April 24 of 2017.

Functional requirements:

User's options would be to either log-in or not log-in to the mobile application and still be able to see/view events and all the related features. The way we set up the system is that if a user decides to log into the app and saves the password, it will allow them to save an event on their own schedule and be able to check only on their own schedule view as well as send out notification prior to a session starting. If an user decides to not to log into the systems and doesn't save the passwords and usernames, they can only view the events but won't be able to save it to their schedule nor receive notification prior to a season starting.

Database requirements:

We had to consider about having certain permissions to create databases, and calculate the storage needed for database and related data.

Permissions Required for Creating Databases:

To create databases, we need Create Databases permission on the database group that will contain the database and Use Template permission on at least one database configuration template. In general it is useful to have the following permissions on the database group and on the database, but in our project we have used some of these.

- Create snapshots.
- Create external backups.
- Delete snapshots and manage their retention time.
- Clone the database.
- Recover the database from a backup or snapshot.

The organization administrator can create a role with these permissions and assign users in the organization to the role.

Calculating Database Storage Allocation:

During the database creation process, we specify database storage allocation, point-in-time recovery storage allocation, and the database group for the database. The database group provides the CPU, memory, storage, and network resources required to run the database. The storage and point-in-time recovery allocations specify how much of the database group's resources to use for this database.

When you calculate the amount of storage to allocate to the database, proceed as follows.

• Estimate how much data will be stored in the database.

• Consider the number of users and average expected number of transactions in a particular time period and include room for growth.

Database storage allocation is for the database data only. It does not include overhead for the operating system, database software, swap space, or snapshots. You must have enough resources available to cover both the database allocation and to cover any overhead. Even if the database group has enough free space for creating a database, database creation does not complete if you do not have enough resources for the overhead.

Edit Database Info:

Enables the database creator to edit database properties such as the name, description, and size of the database. Part of the database was to create several events that was hold by the university, and was the main goal of the mobile app. We initially used SQL under XAMPP to create the table, but later we found a clever way to create a google calendar and linked that google calendar into the the mobile app.

View Database:

Enables the database creator and the users to view the database. We worked on our database together from start to end. To create the database we used SQL. We organized our database table mostly by time and location

Database table and organization: A visual representation of our data table

Event	Location	Start Time	End Time	Day	Description
Aesthetics Judging	REC	7:00PM	8:00PM	Thursday, April 11th	Steel Bridge
Bridge Captain's Meeting	REC 2nd Floor	6:00PM	6:30PM	Thursday, April 11th	Steel Bridge
Bridge Competition	REC	7:30AM	12:00PM	Friday, April 12th	Steel Bridge
Bridge Set-up	REC	4:00PM	6:00PM	Thursday, April 11th	Steel Bridge
Business Meeting	Worthington 1	7:30AM	9:00AM	Friday, April 12th	Technical Paper/Business Meeting
Canoe Captain's Meeting	Worthington 1	7.00PM	7:30PM	Thursday, April 11th	Concrete Canoe
Canoe Design Presentations	Worthington 2	9:00AM	12:00PM	Friday, April 12th	Concrete Canoe
Canoe Drop-off (scheduled) and Set- up	Pavillion	7:30AM	11:00AM	Friday, April 12th	Concrete Canoe
CC Captain's Meeting (#1)	Worthington 2	7:30AM	9:00AM	Friday, April 12th	Concrete Canoe
Check-In/Registration AISC & ASCE	Pavilion Lobby	4:00PM	8:00PM	Thursday, April 11th	General
Judge Training	REC 2nd Floor	7:00AM	7:30AM	Friday, April 12th	Steel Bridge
Late Check-In	Pavillion Lobby	7:00AM	7:30AM	Friday, April 12th	General
Lunch	TUB	11:00AM	1:00PM	Friday, April 12th	General
Technical Paper Presentations	Worthington 1	9:00AM	12:00PM	Friday, April 12th	Technical Paper/Business Meeting

A visual representation example of a specific data on SQL:



Non-functional requirements:

When user opens the app, the app should able to load the features with in 5 seconds with all thumbnail images. We don't want our system to take too long to download the features. Once users logged in they would be able to save schedules and get notification prior to an event starting.

The application should be able to show or recommend the event that the user have signed up for. Also Application should be able to recommend similar events base on user previous selected schedule

Implementation:

This application involves one input, which is optional, and multiple outputs. If you have an account and login, you can save schedules and receive notifications (one input, two outputs). One other output is viewing the schedule with login, but logging in is not required to view the schedule.

We had some issues in our original design involving the database. We originally were building our database with SQL through XAMP on one of the SMU computers inside Cebula Hall. Our problem was we couldn't access the database from any other computer. We would test it on other computers by logging into the same account and the database didn't exist. We were able to avoid this problem later on after switching to the third party. Our only data

Use Cases:

Use Case Name: View Schedule	ID: 001	Importance Level: High			
Primary Actor: Students and various faculty from various universities					
Short Description: If a user decides to not to log into the systems and doesn't save the					
passwords and usernames, they can only view the events but won't be able to save it to their					
schedule.					

Trigger: Clicking "Skip Login" in the app. Type: External / Temporal Major Inputs: Major Outputs: Description Source Description Destination Skip View Schedule Skip User Major Steps Performed: Information for Steps: • Opening the application Open • Clicking "Skip Login" Skip • View the schedule View

Use Case Name: Save and Receive ID: 002 Importance Level: High

Primary Actor: Students and various faculty from various universities

Short Description: If a user decides to log into the app and saves the password, it will allow them to save an event on their own schedule and be able to check it only on their own schedule view.

Trigger: Logging into the application

Type: External / Temporal

Major Inputs:		Major	Outputs:	
Description Login Notifications App View Select Save	Source User User User User User	Descri Login Notific View Select Save	cations	Destination App User User User User User
 Major Steps Performed: Open the application Input login information App automatically enable to be sent prior to session View schedule Select desired schedule to Save schedule 	ns starting	Inform	Open Login Notifications View Select Save	

Language Implementation:

- HTML
 - o To create the webpage
- CSS
 - o Style and organize the webpage
- JavaScript
 - o For features that require more complex coding
- PHP

- To connect the webpage to the database
- SQL
 - To create a database for login and other necessary information

Week by week progress report:

Week #1

Formation of the group. Amanda and Salma decided to be in one team because our areas of study are a little different which will allow us to learn from each other as well as different sets of knowledge would help us to create something solid for our senior project course. While Amanda's focus in web designing, Salma's focus is on software development and data structures.

Week #2

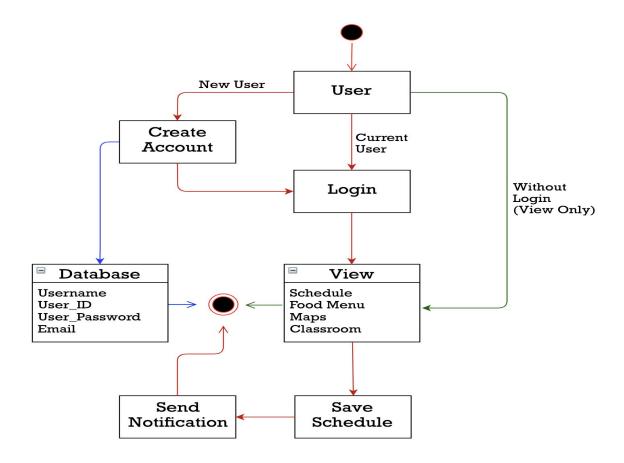
We searched for a client. Did some research on what exactly we as a group would like to do that will allow us to implement the knowledge that we have learned in class as well as learn as we do this senior project.

Week #3

We found our client Dr. Jill Walsh, a professor for the Engineering Department. She would like us to create a mobile app for the American Society of Civil Engineers-ASCE conference 2019 at Saint Martin's University. In this app, will allow up to 700 users, students will be able to look up schedules, campus maps, room setting, and food options near as well as the university Cafeteria. It will also send out notifications prior to a session starting.

Week #4

We have made several meetings with our clients. We created an ERD to help us focus on the process. Creating an ERD diagram of the project helps us visualize how everything is connected. The arrows are color coded to help show the separate processes.



Week #5

Salma focused on collecting the needed information form different sources such as Dr. Jill Walsh, the academic adviser of ASCE, and Hannah Hoffman, the club president, and their website under Saint Martin's University domain. Amanda started to work on the website. We have gathered most of the information that we need for our project so far, however, we have not stated to create the application yet. That being said, I would say that we are halfway there as we have our plans laid out and have all the datas we need that are necessary for the project, so we would be able to finish our project end of this month.

Week #6

Amanda and I are working on our project together from start to finish. Our roles have changes throughout the process of the whole project.

- While Amanda focused on the web site, my job is to convert the website into an application which will be friendly for any devices including ios and android.
- I am also taking care of the security part of the app where students/users will need to log into the app in order to get notification and access to the app's services.
- I am creating the database where the app will save the information selected by the users to send them notifications.
- I am responsible for testing and making sure that the application works

Week #7

As we mentioned on our earlier reports, our project is to create an application for the upcoming American Society of Civil Engineers-ASCE conference 2019 at Saint Martin's University. In this app, students/users will be able to look up schedules, campus maps, room setting, and food options near as well as the university cafeteria. It will also send out notifications prior to a session starting.

We worked on our project together from start to finish. Our roles have changed throughout the process of the whole project.

Unfortunately, our client did not approve of the design of the initial website after already creating it. Because of this, we were left with a much smaller time frame and had to switch to using a third party to finish the project quickly. Although, after the application was published, we continued our initial project and finished it the way we originally planned. Therefore, we were still able to get the learning experience. There was one more unfortunate event that happened during our senior project, which was the wait time for the application to be publish to both the android and ios app stores. Upon submitting all the required information, we were notified that there will be a publish process time that could take up to 7 days. This caused our application to not be available during the ASCE events. Although, we actually had finished our part of the project on time for this process to finish. After finishing our project and messaging our client

about the completion, our client wanted to speak with a few colleagues once more before launching. If we had known about the publish processing time, we would have been able to prevent the app from being published too late.

Here are what our roles have been throughout the project. These roles are referring to our original plan. When we had to switch to a third party, we had the same role, which was sitting together and working on it throughout the whole process.

- Amanda design the app, and she also created the website to be converted.
- Salma and Amanda created the database for the notification information
- Salma worked on database and users' security
- Salma and Amanda worked together on converting the website into a mobile application.
- We both continued to test the application to ensure smooth running and no faults/bugs.

We finished our project before the deadline. Overall, this whole process of getting this project done is been a learning curve for both of us since it is our first time creating a mobile application.

Schedule:

Milestone	Notes	Date
Team Formation	Select your team with compatible interests	January 27, 2019
Identification of client and topic area		February 10, 2019
Completion of Git course in datacamp		February 17
Creation of individual repository on Github		February 17
Begin posting bi-weekly progress reports in Moodle with copies in a	Entries should be dated for every other Sunday and report on activity for the preceding two weeks. The entries should	February 24

journal file in your repository	include client meetings/contacts and significant decisions or accomplishments concerning the project.	
Mid-Term Report and Oral Presentation.	Post a text file entitled "Mid-Term Report" in each individual repository. This must describe the purpose of the project and a plan to complete it. The general plan should be augmented by a specification of the individual's particular role/responsibilities.	March 3. Oral Presentations will be during the week of March 4.
Final written and oral presentations.	The oral presentation should include a demonstration of the final product. The written report, posted on Github, will be based on a template specified by the instructor.	Week of May 6

How we met and/or why we didn't meet our schedule and how we adjusted it:

We didn't meet our tentative schedules because our project time duration was different then the class schedule as our project needed to be done in a short period of time. So we revised our schedules to finish the creating the mobile app.

Revised Schedule:

Milestone	Notes	Date
Team Formation	Select your team with compatible interests	January 27, 2019
Identification of client and topic area	Our client is Dr. Jill Walsh	February 24, 2019

Completion of Git course in datacamp	We didn't received the email invitation	February 17
Creation of individual repository on Github	We didn't received the email invitation	February 17
Begin posting bi-weekly progress reports in Moodle with copies in a journal file in your repository	We didn't received the email invitation	February 24
Doing research on Mobile application	Just learning how to create a website and then turn that into a mobile app	February 25
Collecting datas for the mobile App	We started to collect datas from several sources	March 1, 2019
Creating an ERD	To see how the process should look like	March 1
Creating database	Starting to create the database	March 2
Mid-Term Report and Oral Presentation.	Post a text file entitled "Mid-Term Report" in each individual repository. This must describe the purpose of the project and a plan to complete it. The general plan should be augmented by a specification of the individual's particular role/responsibilities.	March 3. Oral Presentations will be during the week of March 4.
Creating the website	Using HTMl	March 5
Organizing the website	Using CSS	March 6
Testing the website	Running it on Google Chrome	March 7

Collecting more datas	The event schedules and maps information	March 8
Meeting with the client	The features that they want in their app	March 11
	Continue working on the website and the database	March 11-15
	Testing the website	March 17
Meeting with the client to get feedback	They did not like the design of the initial website	March 22
Finding alternatives	Doing Research	March 23
Using a third party to rectret the app	Recreate the app in the short time available to us to complete the project before due date	March 24
Create the event schedules and datas for the Conference	Using Google calendar and SQL	March 25-27
Testing the app	Editing, updating, and organizing	March 28
Meeting with the client	To get feedback on the app, and this time they loved it. But wanted to show it to a few people before submitting it to the app store	March 29
Showing the app to client's other people	To get everyone's approval on the app	April 1
Update the database	the schedules as they have made some changes on the events	April 3rd

Testing and ready to be launched at the app store	Everything is ready from our part of the project, submitted the app to the client	April 4
App launched	Needed to pay for the app store before launching the app	April 4
Presentation of the senior project for the Microsoft people	We presented our app and the slides info rnt of Microsoft people, Client, and our class teacher	April 8
App being launched		April 9
Completion of Git course in datacamp		April 15
Creation of individual repository on Github	Finally we were able to finish this up	May 4
Final oral presentations.	The oral presentation should include a demonstration of the final product.	Week of May 6
Final written detailed report	After getting the extension: The written report, posted on Github, will be based on a template specified by the instructor.	May 12

Experimental Result and Analysis

Our testing method for our mobile application was the online preview of our app in the third party. It included various versions of Android and Apple smartphones and tablets. We were able to see the working product before publishing. Everything worked as we wanted it to.

Conclusion and Future Work

We believe that we met our client's expectations on this project as they were happy with the visual representation, app features, and the security of the app. We worked hard together through every challenged that we were faced with and despite the short timeframe, we were able to create a working mobile application. Even though we were unable to publish the app in time for the ASCE events, we successfully completed all of the requirements for our client. This project has been a lot of work for the two of us, but a lot of knowledge has come out of it. We did our best in every step!

We now know in advance to not accept projects with such a short timeframe like what we went through this semester. Although, if a project similar to this one comes up in our future, we know how to handle it and create a working application for our client efficiently.

What we learned:

We learned a lot from this project as we started working on it. We learn how to join SQL to HTML by using PHP. We also learn how to use Google calendar to create database and add that to your mobile app.

First thing we learned is that one month is not enough is to create a mobile application.

Second, we learned that it takes a maximum of seven days to launch your app on the app store.

Third, we learned multiple methods of creating a mobile application. The main method would be coding everything from scratch in the languages that are more specifically for creating apps. Another method is creating a website using the coding languages necessary for the app, such as HTML, CSS, PHP, JavaScript, and SQL, and then using a converter to convert the website to a mobile application. The last method we learned was to use a third party.

Reference:

For this report, the only references we used were previous progress reports and use case templates from our previous class, Software Engineering.

In addition, each team member should submit a summary (at least ONE full-content page) describing what tasks he/she worked in the project and the result of each task in the report.

Like stated in all of our progress reports, we work together in everything we do. Even when we have individual tasks, we work on them side by side and both learn from each task. Here are what our roles have been throughout the project. These roles are referring to our original plan. When we had to switch to a third party, we had the same role, which was sitting together and working on it throughout the whole process. Here is a list of the work that we have been doing:

- We both did a lot of research and taught ourselves almost everything about creating a mobile app
- Amanda design the app, and she also created the website to be converted.
- Salma and Amanda created the database for the notification information
- Salma worked on database and users' security
- We created an ERD to help us visualize the whole process and the App systems
- We made some use cases to make sure that our work in on point as well as it's organized
- We wrote our reports, presentations and slides together
- We have also created a Google calendar to help us out with the schedule and finishing up everything in a timely manner

- Salma and Amanda worked together on converting the website into a mobile application.
- We both learned how to use different programing languages could come together and create a single program such as using HTML, CSS, Javascript, SQL and add it all together by using PHP
- We both continued to test the application to ensure smooth running and no faults/bugs.

We finished our project before the deadline. We believe that we met our client's expectations on this project as they were happy with the visual representation, app features, and the security of the app.

Conclusion:

We worked hard together through every challenged that we were faced with and despite the short timeframe, we were able to create a working mobile application. Even though we were unable to publish the app in time for the ASCE events, we successfully completed all of the requirements for our client.

This project has been a lot of work for the two of us, but a lot of knowledge has come out of it. We did our best in every step!

Overall, this whole process of getting this project done is been a learning curve for both of us since it is our first time creating a mobile application.

Appendices:

Midterm Slides:



Project Description and Motivation

Our project is to create an application for the upcoming American Society of Civil Engineers-ASCE conference 2019 at Saint Martin's University. In this app students will be able to look up schedules, campus maps, room setting, and food options near as well as the university Cafeteria. It will also send out notifications prior to a session starting.



Process

- Talking to the client and what they want
- Collecting data
- Making a plan
- Designing the structure
- Creating an ERD
- Figuring out what language to use



Coding and languages

- HTML
 - o To create the webpage
- CSS
 - Style and organize the webpage
- JavaScript
 - o For features that require more complex coding
- PHP
 - o To connect the webpage to the database
- SQL
 - o To create a database for login and other necessary information

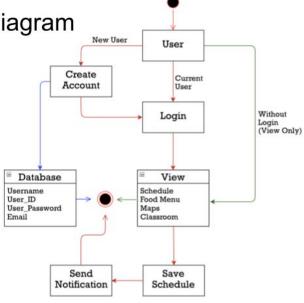


ERD-Entity Relationship Diagram

Creating a diagram of the project helps us visualize how everything is connected.

The arrows are color coded to help show the separate processes.





Data

- Schedule
- Campus Map
- Food options
- Room schedule
- Contact list



Features

- Send out notifications
- Access to information with and without log in
- Any devices friendly (including ios and Android)
- Allows 700 users



Plan to Finish the Project

Code

Gather, organize, and style source code

Add Add desired features

Mobile

Convert website to mobile application

Publish application to IOS on Android

Team:

Salma Mala and Amanda McMahon

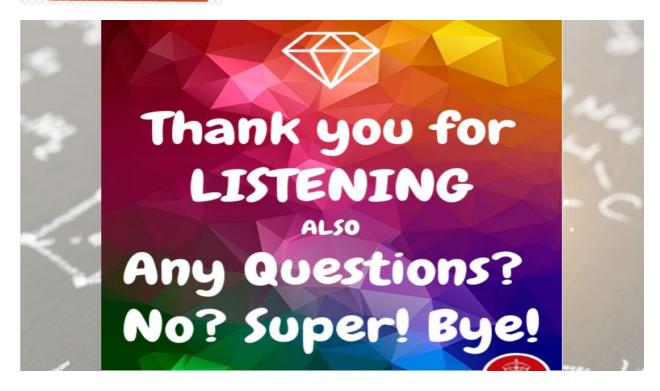


CLIENT

Client:

Dr. Jill Walsh

Professor of the Engineering Department



Final Presentation Slides:



Team and Client

Team:

Salma Mala and Amanda McMahon





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Dr. Jill Walsh

Professor of the Engineering Department

Project Description and Motivation

Our project is to create an application for the upcoming American Society of Civil Engineers-ASCE conference, 2019 at Saint Martin's University. In this app students will be able to search schedules, locations, campus maps, room setting, and food options near as well as the university cafeteria. The app will also send out notifications prior to a session starting.

Problem Solving

- Gathering related information from different sources
- Limited time
 - o (ASCE 2019: April 11th-13th)
- Needed a third party to launch the app in the app store
- Connecting SQL to HTML through PHP

- Communicating with the clients to figure out exactly what they need/want
- Creating ERD
- Creating a design
- Getting feedback from the clients on the design
- Making it easy for the users to use the app
- Planned a process

Process

Working with client

Collecting data

Making a plan



Designing the structure

Creating an ERD

Selecting languages

Features



Send out notifications



Access to information with and without log in



Any devices friendly (including ios and Android)

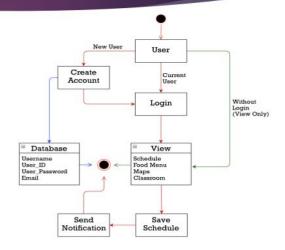


Allows 700 users

ERD - Entity Relationship Diagram

Creating a diagram of the project helps us visualize how everything is connected.

The arrows are color coded to help show the separate processes.



Coding and Languages

- HTML
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- CSS
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- PHP
 - To connect the webpage to the database
- SQL
 - o To create a database for login and other necessary information



Code: HTML

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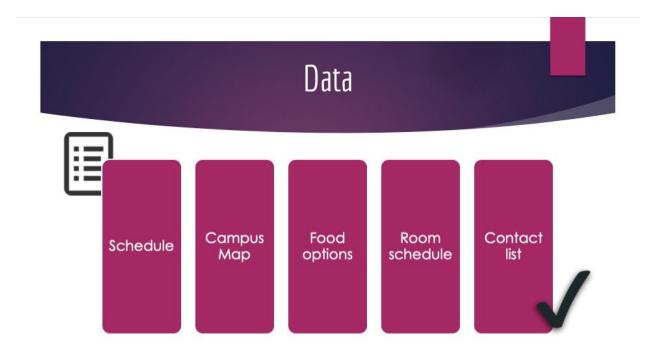
Code: HTML Cont.

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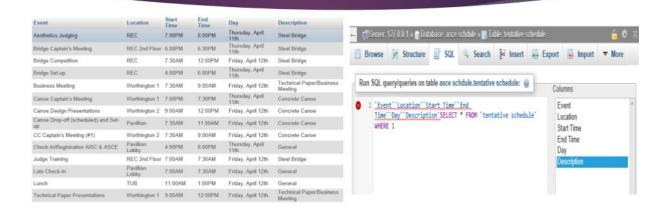
Code: HTML Cont.

Code: CSS

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48 subscribedutton (
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Database: MySQL



Plan to Finish the Project

Code Gather, organize, and style source code

Add

Add desired features

Mobile

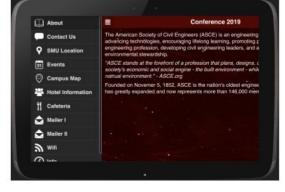
Convert website to mobile application

Publish

Publish application to IOS and on Android

Application Visualization: Tablet





Apple Android

Application Visualization: Smartphone



Apple and Android

Thank you!

Any Questions?