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SCU Events

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SANTA CLARA UNIVERSITY
DEPARTMENT OF COMPUTER ENGINEERING

Date: June 12, 2018

I HEREBY RECOMMEND THAT THE THESIS PREPARED UNDER MY SUPERVISION BY

Kellen Bryan
Danno Mayer

ENTITLED

SCU Events

BE ACCEPTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF

BACHELOR OF SCIENCE IN COMPUTER SCIENCE AND ENGINEERING



Thesis Advisor



Department Chair

SCU Events

by

Kellen Bryan
Danno Mayer

Submitted in partial fulfillment of the requirements
for the degree of
Bachelor of Science in Computer Science and Engineering
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Santa Clara University

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June 13, 2018

SCU Events

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June 13, 2018

ABSTRACT

As students at Santa Clara University for the past four years, we have noticed a lack of student participation in school-sponsored events. Sporting events, art exhibits, student performances and so on do not draw the desired participation from the Santa Clara community. Part of this problem is that the university's event calendar page is unorganized, lacks a comprehensive list of SCU events and has a poor user interface. Without a comprehensive, centralized place to find information on Santa Clara events, it is difficult for people to attend events and even more challenging to increase awareness about what is happening on campus.

With the ultimate goal of increasing both awareness and participation for university events, we have created a new SCU events calendar page. This calendar page aims to simplify the user experience so that obtaining desired information and browsing through upcoming events is intuitive and effective. This paper details our year-long process for creating the webpage, SCU Events.

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Chapter 1

Introduction

1.1 Motivation

Santa Clara University often struggles bringing in students to fill the seats at sporting games, art exhibitions, speaker series and other organized events on-campus. Exciting and well-attended events are essential for both attracting new students to SCU and increasing a sense of unity amongst classmates. Currently, the main source for information on any events or programs happening on the Santa Clara campus is the schools calendar webpage. This page is cluttered and rarely has a comprehensive list of on-campus events. The poor design and functionality of the webpage discourages many students from using it and subsequently decreases awareness to many of the events that Santa Clara puts so much work into organizing. The process through which events are posted to the events calendar is inefficient and cluttered as well. The faculty use a web-application called Livewhale (LiveWhale, 2018) to store calendar events for their specific department calendars. Once an event has been approved, Livewhale then populates the school's calendar page (a Livewhale template) with little flexibility for SCU administrators to edit the user-interface. Through our research we found that the webpage has a total of 174 different administrators with approval privileges, so the review process has little regulation. This is evident by the fact that on many days, the majority of events are for lower level math class tutoring. What's more, there is no way to distinguish an event as more significant than the others. Events are sorted chronologically, so an important afternoon event won't be visible until the viewer has scrolled down past all of the other lower-priority events.

1.2 Solution

Our solution is to create a web-based application called SCU Events. By presenting events in a more efficient manner, our application will provide a user-friendly interface and organization scheme that allows for easy viewing and searching of all of the upcoming Santa Clara Events. Our goal is to facilitate awareness and ultimately increase student attendance at on-campus events by increasing accessibility to event information. Our solution provides a centralized page where administrators can add, remove and edit events and the general public can view a list of all upcoming

events at Santa Clara. This solution is intended to be a proof-of-concept that we can present to school administrators to demonstrate what the impact of a more user-friendly and intuitive event calendar can have on participation in school-sponsored events. Our page displays events for each day in a list-view that leaves little room for misinterpretation. On the homepage, users can see the title of an event, the time and the location. If users want to find out more about an event than what is displayed on the homepage, they can click on the event and they will be directed to an event specific page with all of the event details and a description of the event. We will use a filtration system on the homepage so it will be easy for users to see sets of events they are more interested in. This filtration system will help to prevent the page from being cluttered with posts that do not apply to everyone, such as tutoring. SCU Events will provide improvements to accessibility to all events and the way they are displayed helping to increase overall awareness and SCU student involvement in on-campus events.

Chapter 2

Requirements

The requirements section details functional and non-functional requirements as well as design constraints for the project. Requirements were discerned from analyzing the current solution employed by Santa Clara University and comparing it with other universities' solutions.

2.1 Functional Requirements

1. Application will display comprehensive list of Santa Clara University events
2. Each event will include information regarding when it is taking place, where it is taking place and a brief description of the event
3. Users will be able to filter events based on category
4. Users will be able to filter events based on date

2.2 Non-Functional Requirements

1. Application will be visually appealing and well-organized
2. Update data regularly to ensure events are accurate
3. Intuitive user-interface
4. Responsive, fast and reliable user-interface

2.3 Design Constraints

1. Supported by all major web-browsers
2. Mobile friendly

Chapter 3

Use Cases

This project has four primary use cases for the client, each detailed in this section. Administrators have all of these same use cases with an additional two: adding and removing events. Each intends to provide simple functionality for the user and administrator. The web application will have a main page that will serve as the landing page for users. The page will have a calendar icon with the current date highlighted. SCU-related events for that date will be visible on the page. Users should be able to select any date on the calendar to view the events happening on that date. Additionally, users should be able to select any event that is of interest to them and be navigated to a page with additional information regarding the event. At this stage of our design, we are operating with the users being the general public who views our web page and administrators being certain approved individuals.

3.1 Use Case Diagram

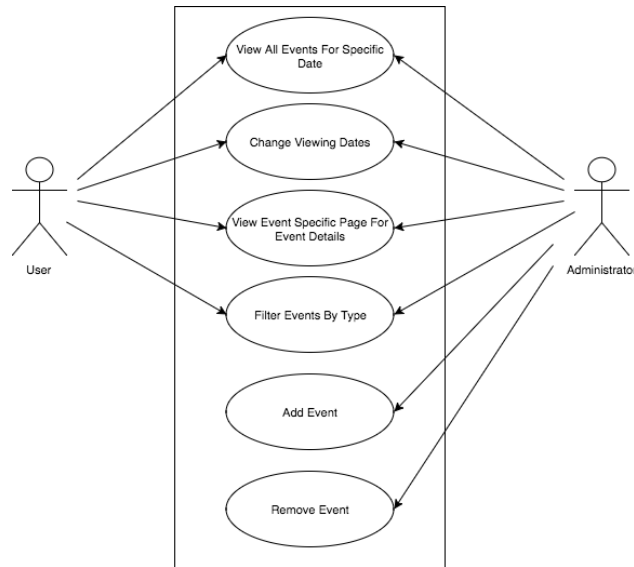


Figure 3.1: Use Case Diagram

3.2 Use Cases

1. View all events for specific date

Goal: For a specific date, show events in chronological order in small enough size to prevent unnecessary page scrolling

Pre-conditions: Santa Clara related events must be occurring that day

- (a) Navigate to home page of website
- (b) Events will be visible for the specified date on the page. The date specified will be highlighted on a calendar icon on the page
- (c) Scroll up and down to see all events

Post-conditions: None

Exceptions: None

2. Change the specified date

Goal: Enable user to select the date for which he or she wishes to see events

Pre-conditions: Select a specific date on the calendar (as seen in conceptual model)

Post-conditions: A list of events on the specified date will be displayed in the events list

- (a) Navigate to the home page where the event calendar icon is displayed
- (b) The current date events are being shown for will be highlighted. To change the date, select another date on the calendar
- (c) The events for the highlighted date will be loaded onto the page and viewable by the user

Exceptions: On days with no events, the area where events are displayed will be blank

3. Get information on when, where, and what regarding each event

Goal: Obtain sufficient information about an event

Pre-conditions: Select on specific event from events list

- (a) On the main page where events for a specific date are shown, select an event
- (b) Upon selecting, the user will be navigated to a new page showing information about the specific event
- (c) Information will include where the event is, a brief description of the event, and when it is taking place

Post-conditions: System will navigate to the event's specific page, where all of this information will be found

Exceptions: None

4. Filter events based on the type of event

Goal: Allows users to view events they are interested via filtering

Pre-conditions: Multiple types of events must exist

- (a) A sidebar of filter names will be available on the main page. To filter events, select a filter with a name related to desirable events.
- (b) Multiple filters may be selected at once. If no filters are selected, all events will be displayed
- (c) To remove a filter, select the filter name in the sidebar once again and it will be removed from the search

Post-conditions: Events displayed based on filters selected

Exceptions: None

5. Add Event

Goal: Allows admins to add new events to calendar

Pre-conditions: None

Post-conditions: New event added to database and displayed on webpage

Exceptions: Not all necessary event information provided

6. Remove Event

Goal: Allows admins to remove existing events from calendar

Pre-conditions: Event must exist in database

Post-conditions: Event is removed and no longer visible on webpage

Exceptions: None

Chapter 4

Activity Diagram

The Activity Diagram shows the various paths a user can take within the project. The possible actions are based on the Use Cases described in section 3 of this document. The diagram follows standard UML format (Tsui, 2016, p.122).

4.1 Activity Diagram

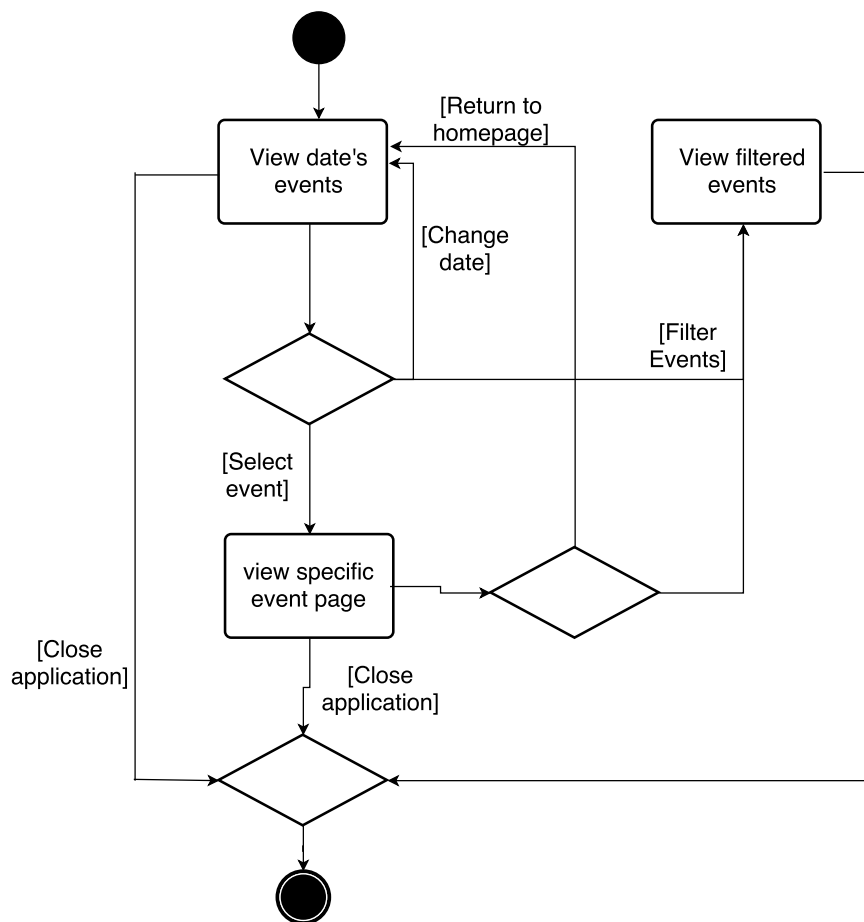


Figure 4.1: Activity Diagram

Chapter 5

Technologies Used

The Technologies Used table shows all of the different technologies we employed to develop our solution along with the reasoning being each choice (JavaScript, 2018; Bootstrap, 2018; PHP, 2018; jQuery, 2018; SQLite3, 2018).

5.1 Technologies Used Table

Technology	Reason
HTML/CSS/Javascript	Base for most current web pages
Bootstrap (CSS)	Mobile Friendly
PHP	Connecting front-end to back-end
jQuery	Simplifies client-side scripting
SQLite3	Database

Figure 5.1: Technologies Used Table

Chapter 6

Architectural Diagram

Our system runs using a client-server architecture (Tsui, 2016, p.133). Although the diagram below shows MySQL (MySQL, 2018) as the database, we used SQLite which allowed us to easily transfer our database between one another during the design process. We have a PHP back-end that then connects our database to our front-end. Administrators will populate the database by adding new events and then this data will be accessed by our SCU Events view. Clients can then visit the webpage, interact with the webpage and request different event information from the database. Figure 6.1 models our architecture.

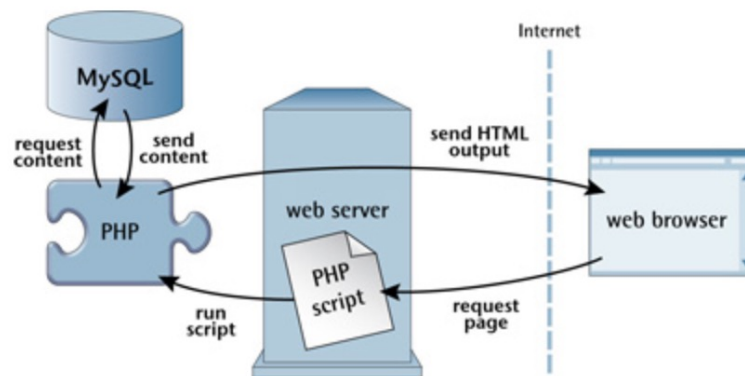


Figure 6.1: Architectural Diagram

Chapter 7

User Interface

The screenshot displays the Santa Clara University homepage. At the top left is the university's logo, a circular seal with the text 'SANTA CLARA UNIVERSITY' and '1851'. To the right of the logo is the text 'SANTA CLARA UNIVERSITY' in a large, red, serif font, with 'THE JESUIT UNIVERSITY IN SILICON VALLEY' in a smaller, grey, sans-serif font below it. Further right is a search bar with the text 'SEARCH' and a magnifying glass icon. Below this is a dark red navigation bar with white text for various categories: 'ABOUT SCU', 'ACADEMICS', 'ADMISSION', 'CAMPUS LIFE', 'ATHLETICS', 'GLOBAL', 'GIVING', and 'NEWS & EVENTS'. The main content area is titled 'Event Calendar' in a large, grey, sans-serif font. Below the title is a calendar interface. It features a date selector showing '05/11/2018' in a red bar. To the left of the calendar are navigation arrows, and to the right is an 'Add Event' button. Below the date bar is a table with three columns: 'Time', 'Event', and 'Location'. The table lists three events for the selected date. To the right of the table is a search bar and a list of filter categories, each with a checked checkbox: 'Academics', 'Athletics', 'Ceremonies', 'Exhibits', 'Information Sessions', 'Lectures/Seminars', and 'Other'.

SANTA CLARA UNIVERSITY
THE JESUIT UNIVERSITY IN SILICON VALLEY

SEARCH

ABOUT SCU | ACADEMICS | ADMISSION | CAMPUS LIFE | ATHLETICS | GLOBAL | GIVING | NEWS & EVENTS

Event Calendar

< > Add Event

05/11/2018

Time	Event	Location
10:00 AM	Friday Fun-Day Brunch	Dunne 217
10:30 AM	Photoshop CC: Essentials	Harrington Learning Commons, Lab 206
11:30 AM	Why ePortfolios Now? Connecting, Curating, and Creating Meaningful Learning Experiences	Learning Commons 205

Search..

- Academics
- Athletics
- Ceremonies
- Exhibits
- Information Sessions
- Lectures/Seminars
- Other

Figure 7.1: Homepage

Santa Clara University Events

Add Event

Name	<input type="text" value="Santa Clara Basketball vs. Gonzaga"/>
Description	<input type="text" value="SCU men's basketball plays Gonzaga in Leavey tonight!"/>
Start Date	<input type="text" value="01/11/2018"/> <input type="text" value="7:00 PM"/>
End Date	<input type="text"/> <input type="text"/>
Location	<input type="text" value="Leavey Center"/>
Event Type	<input type="text" value="Athletics"/>

Figure 7.2: Add Event Form



SANTA CLARA UNIVERSITY
THE JESUIT UNIVERSITY IN SILICON VALLEY

- [ABOUT SCU](#)
- [ACADEMICS](#)
- [ADMISSION](#)
- [CAMPUS LIFE](#)
- [ATHLETICS](#)
- [GLOBAL](#)
- [GIVING](#)
- [NEWS & EVENTS](#)

Friday Fun-Day Brunch

When: 10:00 AM - 10:00 AM
05/11/2018 - 06/01/2018

Where: Dunne 217

Category: Other

Description: Stop by for Friday brunch with SF Joey!

Figure 7.3: Event Specific Page

Chapter 8

Risk Analysis

The Risk Analysis section details potential problems which may occur during the software development process. Of course, the amount of problems which could possible occur is quite high, so this section has distilled the problems down to those which are likely to happen or have potentially severe impact. The Risk Analysis table displays potential pitfalls along with their probability, severity, and impact.

8.1 Risk Analysis Table

	Consequences	Probability	Severity	Impact	Mitigation
Time	Getting behind schedule would cause us to end up submitting late work resulting in an unhappy client and a bad company image.	0.3	7	2.1	Sticking to our development timeline will help us stay on track and stick to the timeline we created.
Bugs	There will be bugs throughout the process. Bugs will cause us to spend more time debugging.	1.0	2	2	A thorough testing procedure will catch most if not all of the bugs, decreasing the severity of having buggy code.
Data Loss	Data Loss is the most critical risk we face. Important data would be lost causing us to fall behind schedule.	0.1	10	1	Using a version control system like Github will make the loss of data less severe.
Sick Group Member	A sick group member would cause a temporary delay in the day to day progress of the project.	0.3	2	0.6	We plan to get enough sleep, eat healthy and exercise frequently to prevent from getting sick.
Learning	There will be points where we do not know how to do something. Learning how to properly develop a feature will cost us time.	0.6	1	0.6	Keeping an open mind when confronted with the issue of not knowing how to create a feature will allow for a more productive learning experience.

Figure 8.1: Risk Analysis Table

Chapter 9

Societal Issues

This section discusses the societal impacts of SCU Events and how it will affect the community.

9.1 Ethical

Our project aims to help the Santa Clara community by providing information to help bring more people together on and around SCU's campus. We are hoping to increase the ethical standards for the school's event calendar page by making school sponsored events available to all students, staff, faculty and guests of Santa Clara. Ethically, our project is interesting because we are giving members of the community power to post on behalf of Santa Clara University. Members of the community could use this power negatively by posting malicious events, for example.

9.2 Social

The social impact of SCU Events was one of our primary focuses. Our goal was to help instill a stronger sense of community on campus. SCU Events provides a resource that will allow more people come together to share some of the unique experiences that make Santa Clara such a special place.

9.3 Political

As long as the final webpage has a fully comprehensive list of events and does not discriminate against any groups hosting events, then there should be no political issues. This project aims to be strictly informative. Having said that, it's certainly possible that, as moderators, we provide admin rights to people who's ideas align with ours. This is something we hope to avoid, and ideally keep the page as informative as possible.

9.4 Economic

If our webpage is effective in increasing awareness and participation in on-campus events, then there should also be an increase in revenue generated by the school from people purchasing tickets. Additionally, helping to create a more

tangible sense of "school-spirit" that can be felt by people outside of Santa Clara can help positively increase others' perception of Santa Clara and help bring in more perspective students who want to be a part of the Bronco community.

9.5 Health and Safety

One safety concern that could be identified with our project is a lack of check for appropriate words in event titles and descriptions. Given that this is intended to ultimately be a fully-functioning website available to the public while representing Santa Clara, posts with inappropriate language would be a serious problem. Security could also be improved. As far as physical health and safety though, our product poses no risks.

9.6 Manufacturability

Since our project is entirely programs, manufacturability doesn't really related to our project. The code only needs to be written once to be available for use by anyone who wants to use it.

9.7 Sustainability

Our product is certainly not finished, but the currently implemented features are sustainable in the sense that they have been created with languages which have been used in industry for years. In a broader sense, our product is also sustainable because it can run on any machine so long as the project files are on the machine.

9.8 Environmental Impact

This is not really relevant to our project. Our project has minimal impact on the environment as it is completely digital.

9.9 Usability

Our product is highly usable. A big criteria for this project was to create something simple, straightforward and easy to use. We believe we have done that successfully.

9.10 Lifelong Learning

This project forced both of us to learn how to work with technologies. The process of learning how to learn was the most difficult part of the process. It is also the most rewarding part of the process because we can both now use these technologies we've learned in other areas and on other projects. We can also continue to build on our knowledge of the languages we developed with to become even better programmers as life goes on.

9.11 Compassion

We feel compassion towards users who are currently struggling to find information. A big part of this project is to relieve people from the struggle of not being able to access information. Through our project, we hope to relieve some of the suffering that stems from an inability to get accurate information. This is less of a sort of suffering and more of an inconvenience, but nonetheless our project aims to make people's lives easier.

Chapter 10

Conclusion

In summary, our project created a proof of concept for a simpler, easy to use, non-third party event calendar and event creation system. We learned how to build websites that use php and SQL to dynamically create and delete content. Additionally, we learned a lot about the current state of affairs for SCU technologies and their use of third party vendors.

The solution we developed is lacking in many areas to become a fully functional website. Our security could be improved as we only use htaccess, there is no search functionality, there is no way to filter events based on their type. These were all parts of the project that we had as goals but did not get to.

Future work is very closely tied to the features just listed that are yet to be implemented. I would suggest to anyone taking on this project to start by adding on such features one by one to make the product more robust and higher quality.

Chapter 11

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