CEN 4010 Principles of Software Engineering

Fall 2019

Milestone 3: More Detailed Requirements, Architecture, and a Vertical Software Prototype

Team name: Team 13

Project name: Owl Eyes

Team number: 13

Names: Saïd Blanc, Caren Youssef, Olusola Fatade, Benjamin Blakely

Emails: saidblanc2016@fau.edu, cyoussef2017@fau.edu, ofatade2015@fau.edu, bblakely2017@fau.edu

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History Table

Revision Dates	Documented Changes
9/23/2019	Initial Submission
10/2/2019	Updated data definition and non-functional requirements sections to meet suggestions made by TA.
10/26/2019	Updated the functionality on the GUI and resubmitted to meet the suggestions made by the TA.
11/4/2019	Milestone 3 Update

Executive Summary

The goal of this project is to create a platform that will allow FAU students, organizations, and faculty members to share important information with each other in an efficient way. Our web app, Owl Eyes, will accomplish this using two main structures: a news feed and a reporting tool. The news feed will be populated with posts made by organizations and staff. Organizations will include groups such as honor societies, fraternities/sororities, university departments, and any other bodies that students would expect to host events or deliver news. Administrative staff refers to the decision making body of FAU. Students will be able to choose which organizations' posts will show on their feed. The reporting tool will allow students to directly report any issues on campus that need addressing to administrative staff. Using these structures, we plan to create an application that can inform students, organizations, and staff of events in a way that is more personalized, efficient, and attractive than current alternatives (such as fauevents.com and department-wide email lists), while also being more streamlined and focused than other social media websites.

Competitive Analysis

Features:			
myFAU Events	Event List	Search Function	Saved Events
Owl Eyes	Event Feed	Report Function	Subscriptions

- While not bad, myFAU's event page currently does not live up to its full potential. It offers a list of the events on campus, allows you to bookmark the ones you want, and search past events. The functionality is there, however it is not very user friendly. In contrast, our product will mirror a template much more familiar to, and sought out by, college students. We will have a live feed of events on campus, posted by organizations, and students will have the ability to see updates from the organizations that they're subscribed to. Students will also have the ability to report things on campus that they feel deserves the attention of campus administration, thus bypassing the usual disconnect between administration and student body. Finally, our product will also include a search function, allowing for easy access to any available information that might otherwise get swept away.

Data Definition

A. Main Data Elements

1. **Feed:** The feed is the page that displays events from different organizations. It will display data that shows what the overall campus status is. The data displayed will include: campus news, clubs, and activities. The feed requires log-in to be accessed by a user of the website.

2. **Reports**: The report page will display reports that students can submit. Each report will display an issue for FAU administration to be alerted to. The report page requires log-in to be accessed by a user of the website.

3. **Log-in/Sign-up:** The log-in/sign-up page will be used to ask users to log in or create an account for the website. Different users will have different privileges and will be able to perform different actions throughout the system.

B. User-Types

Users will primarily be partitioned into three broad types in order to sort them into categories of intended use and correctly assign system privileges based off their categorical affiliation. These user types will be: students, staff, and organizations.

1. **Students:** As mentioned in the project specifications, students utilizing our website will be able to report any issues or problems happening on campus. Students will be able to upload pictures and text to better explain their submission and will be able to view the status of their report (reported, in process, resolved, etc.) Additionally, students will be able to view positive events that are taking place on campus, such as exciting games, outdoor concerts, and students' activities.

2. **Organizations:** Organizations will have the same privileges as the students with the addition of being able to post and advertise their own events and activities. This can include organizations' events, competitions, meetings, etc. This privilege will not be allowed to students in order to avoid flooding the website with different uploads from each student. Organizations will also be able to respond to reports that relate to an organization's activity or event.

3. **Campus Staff/Administration:** Campus Staff will have the highest level of control over the website. They will be able to make changes to the

feed, view, address, and resolve submitted reports, and send alerts or important messages to the students. These privileges are intended to aid the University's Campus Staff in assessing the status of the campus and providing the help needed accordingly.

C. User-input Data

1. **Account information:** This will be the data collected from students when they log into or first create their account on Owl Eyes. This information can include: First name, last name, FAU email, etc.

2. **Feed data:** Feed data is defined as the data that will be posted on the main page of our website. Each feed entry is displayed as a block that contains information such as the date, location, description, and image of a particular event.

3. **Report data:** Submission data is the data collected when students submit reports about a problem on campus. This data will help Administration better manage and accommodate the campus needs. Each report entry is displayed as a block that contains information such as the urgency, location, description, and image of an issue.

Overview, Scenarios and Use Cases

Students and faculty need a pipeline that can consistently connect them to one another, as well as one that offers better overview and easier access to campus happenings.

Students

- Using Owl Eyes, students should be able to view public postings and events, report incidents (either doing so anonymously or otherwise by logging in), and further connect with organizations on campus.

Faculty

- For faculty members, this system would offer access to the same tools given to students, but with elevated status - allowing them to send and receive priority tickets to other staff members, view relevant student requests, and create public postings that students can view.

- Staff members will also be given the authority to create and manage organizations within the Owl Eyes system, which will function as separate entities that students and staff can follow to get access to group specific postings - helping to keep users informed about events which they indicate would be most relevant to them, as well as helping to keep feeds organized and succinct.

High-level Functional Requirements

This is a list of high-level functionality that our team will develop to the best of our knowledge to accommodate the project requirements.

Easy-to-navigate Feed - **Priority: High**
- Our website's feed shall be user-friendly and easy to navigate. Users shall be able to click a button and be directed to one of the "Log in", "Main", or "Report" pages.

Report and Upload - **Priority: High**
- Our website shall allow students and organizations to upload pictures and text to report the problems on campus. They will be able to indicate the urgency of the report(low, medium, high).

Display status report - **Priority: Medium**
- Our website shall allow users who have submitted a problem to see the status of their request (reported, in process, resolved).

Organizations' privileges to post - **Priority: High**
- Our website shall allow Organizations to post and advertise information about their events and activities and this information shall be merged to display on the main page Feed.

Campus staff privileges to control - **Priority: High**
- Our website shall allow Campus Staff to respond to reports and change their status. Our website shall also allow Campus Staff to post alerts and important messages to the Feed as needed.

List of Non-functional Requirements

A. The Owl Eyes service must be able to process data and handle requests from a large number of users distributed across a wide network without impacting the service's reliability - ideally, without impacting the user experience either.

B. Owl Eyes is only meant to be accessible to the students and faculty of FAU, which means that an authentication protocol must be in place that can verify a potential user's connection to the school before their account is created.

C. Our service must have some means of effective administration - so that possible abuse of the system can be easily and actively mitigated.

D. Security is of the utmost importance, as unsecure accounts leave students vulnerable to a wide range of possible attacks. As such, it's highly advisable that all traffic is encrypted and user accounts are by default at least protected by some sort of 2FA (two-factor authentication).

High-level System Architecture and Database Organization

Front-end

- The front end of this web application will be made using HTML, CSS, and Javascript. We will also be using the Bootstrap 4 framework to help make the website well-designed and responsive. Finally, we will use AJAX to make calls to our server-side scripts when needed.

Back-end

- This application will be deployed using a LAMP stack. It will be hosted using Apache Web Server. The server-side scripting will be in PHP, and mySQL will be used for database manipulation.

Further Information:

- Our database is deployed on FAU's LAMP stack. In it, we use a few different tables (users, reports, feeds) to keep track of user information, filed reports, and feed items.
- User information is currently basic, consisting of a username, password, and account permissions.
- Reports currently consist of information about its location, its priority, the information contained within the report, and where it's associated image is located.
- Feed items currently consist of information about its location, its intended date, the information contained within the feed item, and where it's associated image is located.
- Our system allows users to upload images to complement the associated report/feed item. The image is uploaded and stored in our filesystem, while its location is passed to the database for future retrieval.

Project Peer Evaluation:

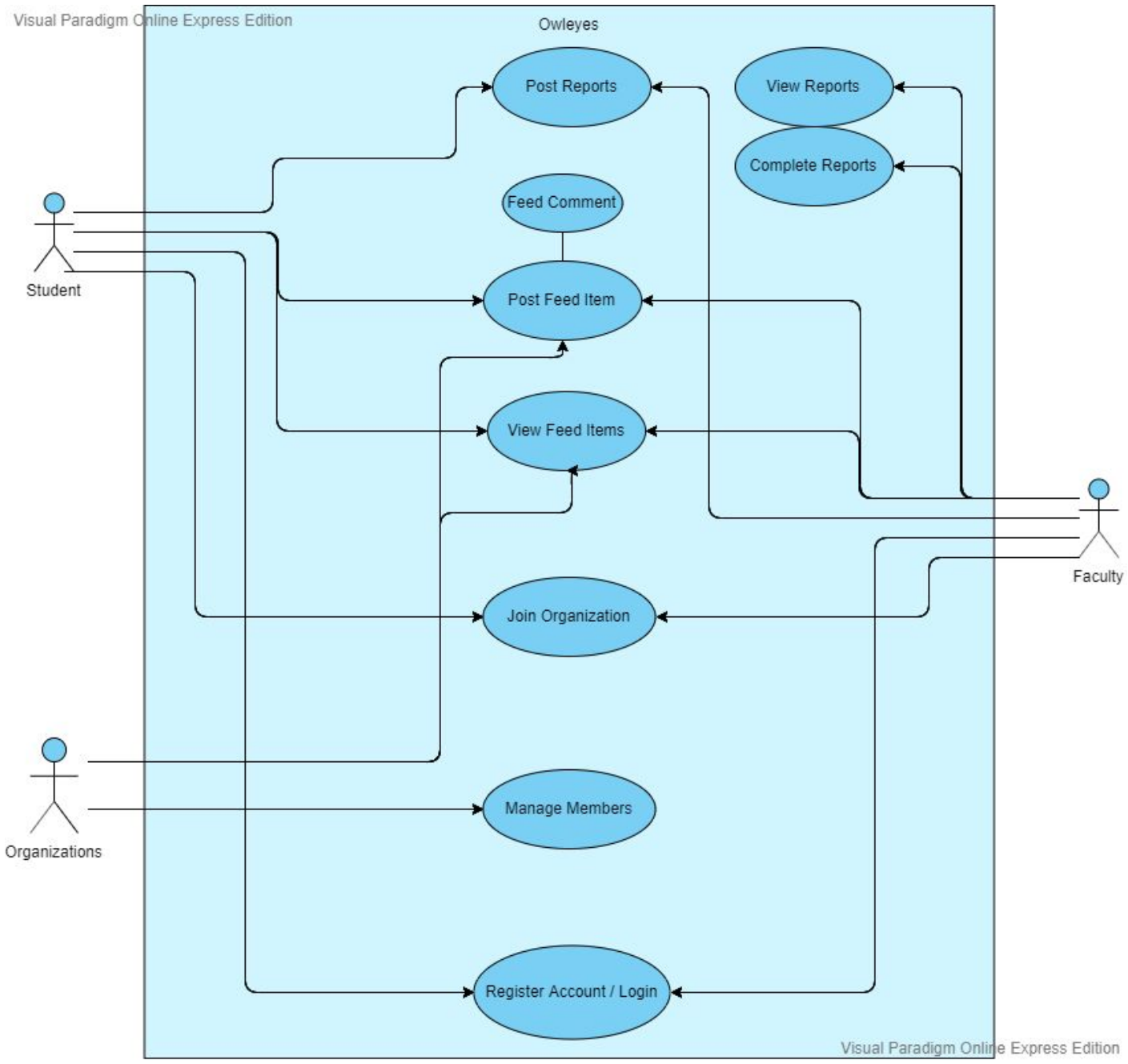
Caren: 25%

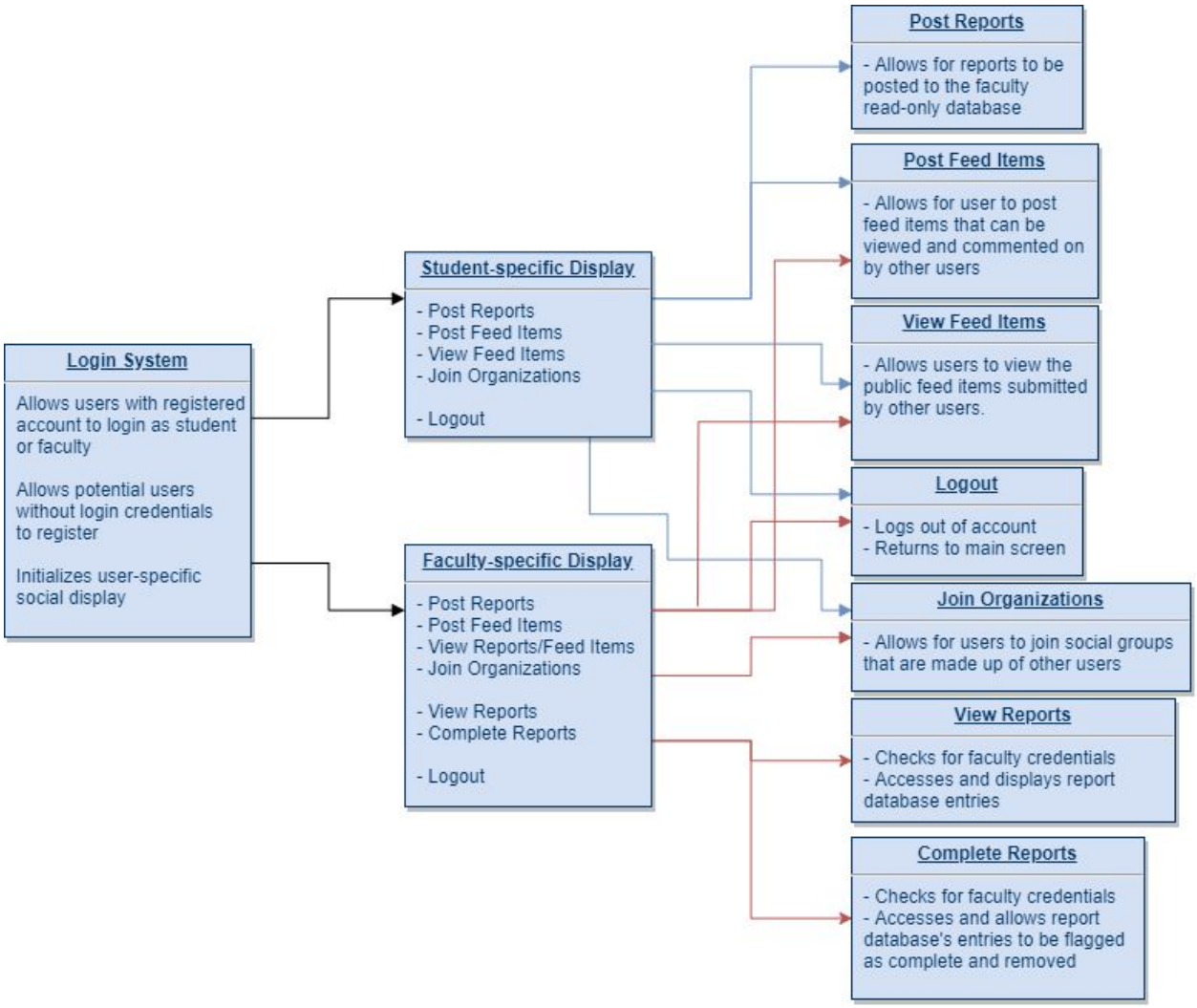
Said: 25%

Sola: 25%

Ben: 25%

High-Level UML Diagrams


Visual Paradigm Online Express Edition
Owleyes
Post Reports
View Reports
Complete Reports
Feed Comment
Student
Post Feed Item
View Feed Items
Faculty
Join Organization
Organizations
Manage Members
Register Account / Login
Visual Paradigm Online Express Edition


Login System
Allows users with registered account to login as student or faculty
Allows potential users without login credentials to register
Initializes user-specific social display
Student-specific Display
- Post Reports
- Post Feed Items
- View Feed Items
- Join Organizations
- Logout
Faculty-specific Display
- Post Reports
- Post Feed Items
- View Reports/Feed Items
- Join Organizations
- View Reports
- Complete Reports
- Logout
Post Reports
- Allows for reports to be posted to the faculty read-only database
Post Feed Items
- Allows for user to post feed items that can be viewed and commented on by other users
View Feed Items
- Allows users to view the public feed items submitted by other users.
Logout
- Logs out of account
- Returns to main screen
Join Organizations
- Allows for users to join social groups that are made up of other users
View Reports
- Checks for faculty credentials
- Accesses and displays report database entries
Complete Reports
- Checks for faculty credentials
- Accesses and allows report database's entries to be flagged as complete and removed

Project Risks

We feel that at this point, risks are few and far between:

- Our prototype is fully functional – most of the components that are intended for the full release are already included and most of everything else that we plan to work on are either easily added or simply cosmetic.
- For technical risks, many of the things that we are intending to add are user-facing components to allow for more/better interaction with the site without needing to refresh the page – such as animated elements. This is something that we know is possible, but isn't immediately within any of our respective skill sets and so requires some amount of research to implement.
- As we've built up pretty much all of the framework of the site, future work into the project mostly goes towards the further addition or fixing of more optional components. For instance, we have some more user categorization planned – with more differentiation between the students and faculty roles – as well as further incorporating social elements such as the ability for users to join and post from collective organizations.
- Schedule and teamwork risks are pretty much non-existent at this point – obviously the group has time concerns: the project is due within a month, we're all computer science students with our own schedules, and exams will certainly take away a good portion of time near the end of the semester. Regular scrum meetings are difficult to schedule, but we're mitigating this factor by covering as much as possible during the meetings we can schedule. Also, heavy coding effort is being split between multiple people, so there has been some confusion over exactly what each team member is covering. However, at this point many of our core systems are already in place and most of the work that we need to put into the project is cosmetic, so we feel adequately prepared moving forward..
- We haven't used any outside sources of multimedia, so there shouldn't be any concerns over content copyright or other legal issues. We do use some images that are probably owned by FAU, but given that this is non-commercial product aimed at being developed for the school, there shouldn't be any concern there.