Connected Campus Crew

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Deliverable 2
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1A:

Name of Interviewee: Steven Hanna

Position of Interviewee: Forward Deployed Software Engineer (FDSE) @ Splunk

Date & Time of Interview: March 26th @ 10pm EST

Name of Interviewer: Mark Girguis

List of Questions:
1) Describe your understanding of the role of an FDSE in the development of Connected Campus.
2) What constraints do you need to be aware of in order to complete a project?
3) How will you handle changes in requirements?
4) Based on the current functionalities of the app, what desirable features would you recommend be implemented to ensure better data analytics?
5) Which features of the application have permission limitations? How would you maintain access control?

Summary of Interview: Steven gave very detailed answers as to what processes occur on the backend of Splunk. As an FDSE, Steven gets feedback from the customers regarding specific custom changes they would like to see in already existing Splunk applications. After he gets the feedback, he does a feasibility analysis with his customers to ensure understanding on the amount of time it will take him and his team to accomplish those additions. Also, if the additions being asked for from the customers are not feasible based on the resources, money, time or software, Steven looks for alternative solutions to make sure his customers have a pleasant experience. While talking about Connected Campus, Steven did suggest we add a dashboard overseeing ticketing as he's a huge sports fan. The dashboard could include an analysis of online ticket sales, a stadium heat map with the most popular entrances clearly being defined. We touched on permissions lightly as he wasn't 100% familiar with the concept. He said access controls do exist within the UI and the backend. There are 3 types of access controls, each with separate capabilities. First, we have the *User* role. Users can create and edit its own saved searches, run searches, edit its own preferences, create and edit event types, and other similar tasks. **Power Users** have all the functionalities as users do, and a couple more additions. Power Users can create and edit its own saved searches, run searches, edit its own preferences, create and edit event types, and other similar tasks. Finally, we have **Admin** roles. Admins have all the capabilities as power users, and they also can grant access to other users. As I said before, Steven was very detailed.

Name of Interviewee: Rohith Chintallapaly

Position of Interviewee: Sales Engineer @ Splunk

Date & Time of Interview: March 27th @ 4pm EST

Name of Interviewer: Mark Girguis

List of Questions:
1) What has been the most prominent use case your customers have asked for out of Splunk?
2) What components of Splunk does the average user need to be aware of when understanding data flow?
3) What are the different parts of Splunk architecture?
4) How do you calculate the different types of license pricing?
5) When troubleshooting errors with Connected Campus, who would I reach out to?
6) What necessary skills are needed in order to operate the UI?

Summary of Interview: Rohith gave me a better perspective from a customer/sales point of view. From speaking to his prior customers, he explained that the most prominent use cases for Splunk have been for Security and IT operations. He also went in depth about how data flows in Splunk. He explained this using the Splunk architecture. The Splunk **Forwarder** is the component which you have to use for collecting the logs. He explained that you can install several such forwarders in multiple machines, which will forward the log data to a Splunk Indexer for processing and storage. Next, we have the Splunk **Indexer**. The indexer is the Splunk component which you will have to use for indexing and storing the data coming from the forwarder. Lastly, we have the Splunk **Search Head**. The Search head is the component used for interacting with Splunk. It provides a graphical user interface to users for performing various operations. You can search and query the data stored in the Indexer by entering search words and you will get the expected result. Understanding the architecture is a huge step in troubleshooting errors if some arise. Rohith assured me that if anything becomes challenging or confusing that we could reach out to him.

Name of Interviewee: Collin Sullivan

Position of Interviewee: Specialist Windows Administration, UMBC DoIT

Date & Time of Interview: March 27th @ 2pm EST

Name of Interviewer: Mark Girguis

List of Questions:
1) What has UMBC been using Splunk for?
2) What data sources have you been pulling in?
3) If you were to have 1 dashboard with the 10 most important reports to you, what would you like to see on that dashboard?
4) How does your current Splunk architecture look?
5) How big is your current Splunk license?
6) How many people are managing the reports daily?

Summary of Interview: While speaking to Collin, he gave me a rundown on how he uses Splunk at DoIT whenever he comes into work. He told me the university is currently pulling a variety of data sources however most of them include student swipe data, syslogs, application logs, message queues, and sensor data. I wasn't able to see the dashboards he monitors on the day-to-day but I could assume he monitors student volume in areas on campus during specific times in the day using the sensor data. Also, he probably collaborates with BlackBoard and monitors the application logs that come from student engagement on the learning management system (LMS). Collin wasn't able to tell me how the current Splunk architecture looks sense he wasn't all too familiar. He said the Splunk reports are generated once in the morning, and once before the COB (close of business).

Name of Interviewee: Jack Suess

Position of Interviewee: VP of Information Technology, UMBC

Date & Time of Interview: TBD

Name of Interviewer: Mark Girguis

List of Questions:
1) How large is your department? How many employees do you oversee?
2) Do you currently use any tools to gain visibility into their daily progress?
3) Do you use Splunk for any purposes outside of data monitoring?
4) Would it interest you in getting all your employees Splunk certified?

Summary of Interview: Will be interviewing once we have a time slot available for the both of us.

1B:
"As-Is" System:

      The current system in place today is an extremely simple way to authenticate students for entering a building or room. The most common areas where students are required to show their student ID is the RAC and the RLC in the library. In each case students either hand their ID over to be swiped and authenticated or they swipe their ID themselves for them to gain access to the respective area they are trying to get into. These simple magnet strip readers are versatile hardware that are only being used to authenticate and give access to students.

Problems/Improvements to the "As-Is" System:

      The current system works great for its intended purpose, but it is capable of much more. The magnet strip readers are capable of sending a students information to a computer which then can be processed to put into a database in real-time. With this information the system will be able to track students locations within the campus as each magnet strip reader will have a location associated with it. This new and improved system will allow students, faculty, and administration to track busy hours. One personal example, as a student, is that I will be able to see when the RAC is busy and plan my workouts around non-busy times. A business improvement the system could make is that it could help in staffing. Administrators are able to make better decisions on how to allocate staff to best service the students. Not only can this system be used to track, but it will also be used to send out important alerts specific to an individual's location.

"To Be" System Concept:
This project has been initiated in an effort to use student swipe data more efficiently to promote business decisions. Currently,

- Areas on campus are overstaffed during times of little to no traffic
- All students, including alumni, are receiving broadcast campus alerts for areas that don't concern them
- LMS Engagement scores are being recorded but not used to trigger alerts to struggling/barely active students

Business/User Requirements:
Using this system as a Web-based application, UMBC (specifically DoIT) will have access to dashboards of student activity on campus in real-time. The specific functionality that the system will have will include:

- Alerts that would be triggered once an area gets overpopulated, to inform users in the area about high-traffic
- Alerts that would be triggered if a facilities issue occurs
- Option to make the alert located to a geographic location (using WAP data) or to trigger a broadcast alert to every student in the database
- Posting Alerts to Organization website and Mobile Application.
- Ability to correlate student LMS engagement to grade distributions
- Permission-based interface
- Agile and flexible dashboard updating in real-time
- Easy to learn UI

Functional Requirements:

Functional Requirement	Description	Examples
Process-Oriented	A process system must perform; A process system must do	- The system must display an easy to learn UI where they can take analyze the data - The system must allow users to send alerts based on location
Information-Oriented	Information the system must contain	- The system must track students/faculty on campus from information obtained through the magnet swipe readers. - The system has a database of each individuals swipe from each respective building.

Non-Functional Requirements:

Non-Functional Requirements	Description	Examples
Operational	The physical and technical environments in which the system will operate	- The system will run on a web-based application - The system will integrate existing magnet strip readers - The system will be compatible with multiple web browsers
Performance	The speed, capacity, and reliability of the system	- The data should be flowing in in real time - There should be little to no delay when a user swipes to the data being integrated into the UI
Security	Who has authorized access to the system under what circumstances	- Only admin will be able to have access to all the data - Students/ Faculty will not be able to view specific individual logs
Cultural and Political	Cultural and political factors and legal requirements that affect the system	- Personal information will be protected

1C:
With our questionnaires, we tried to cover the purpose and drive for creating an application like Connected Campus Crew. We discussed with individuals who developed the application, called Splunk, and who their targeted consumers were. We also interviewed individual who utilized the application and how the application improved their daily life or work style. For an example, we interviewed an UMBC DoIT employee to get a better understanding on how the application can be utilized. The interviewee mentioned how he uses the Splunk on a daily basis when coming into work. He also mentioned that the application is gathering a variety of data to monitor high volume of students in different areas throughout campus. Based off the interview responses, the application seems promising and can be utilized in a variety of ways to gather certain statistics.
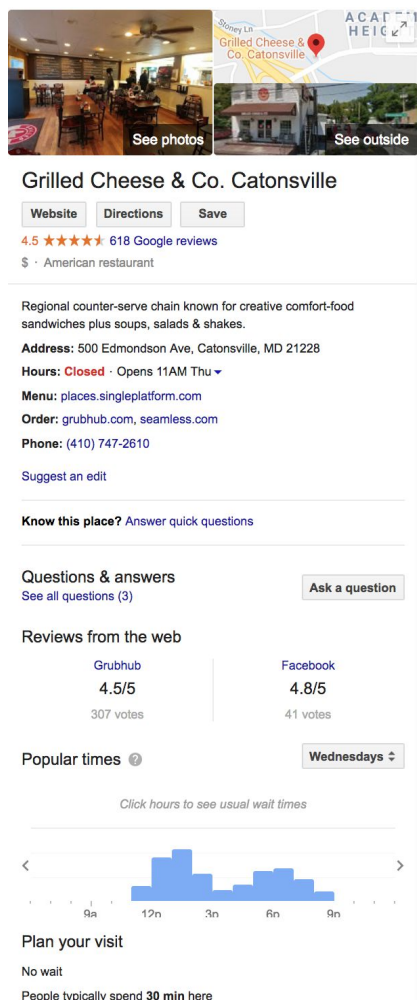
1D:
Document Link:
https://www.icrossing.com/uk/ideas/googles-new-popular-times-feature-explained

        Google has came out with a feature in their search engine in 2015 that lets the user know the probability of how busy the certain venue will be by breaking down its popularity on different days of the week. For an example, the likelihood of a bar being busy on a Saturday night is rather high based off of statistics. Google has gathered the statistics by pulling traffic data from people's tracking location systems on Google Maps. A feature like this can be useful when trying to go to a restaurant or grocery store when it is not crowded and to avoid wait time.

        This document about Google's popular times feature goes well with our innovative project because we hope achieve what Google has achieved with this feature onto our application. With our application, we can view where students and faculty mostly visit throughout campus and create new innovations around the populated areas. Also the application will be able to let other students and faculty know the type of environment a specific area will be at a specific time.

2:

Use Case 1: Student Logs into database to see if the building they are visiting has high traffic at given time.
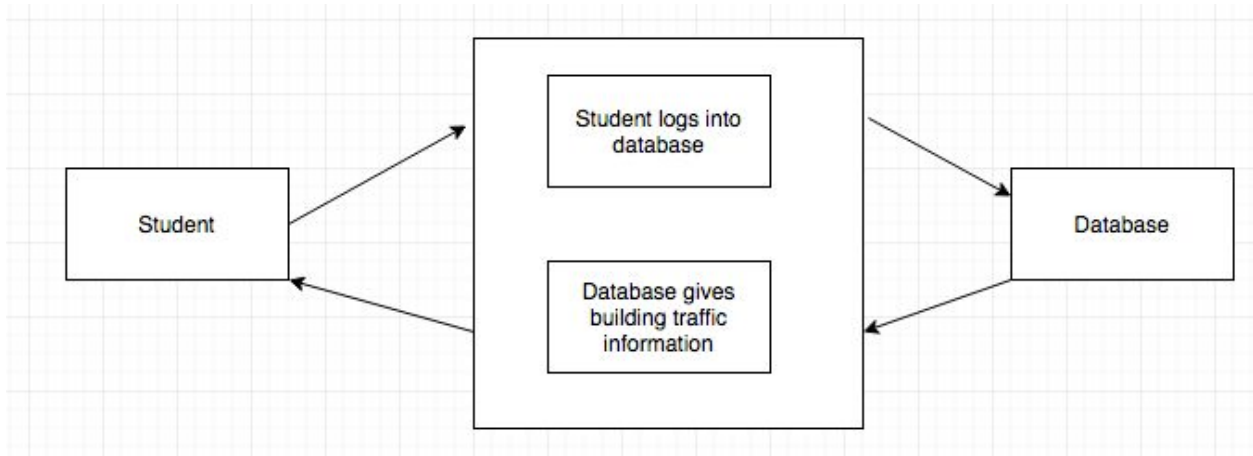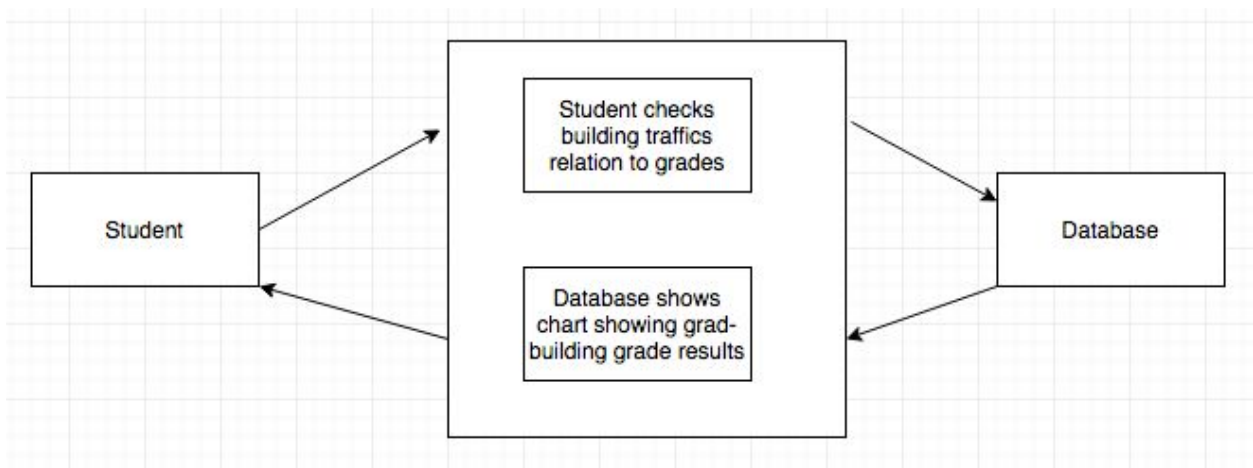

Actors:

- Student
- Database

Flow of Events:

- Use case starts when Student logs in
- The system searches traffic information from swipe data
- Student checks traffic information
- The Database gives traffic info
- Use Case ends.

**Use Case 2:** Student checks what time visiting a building is resulting in higher grades

Actors:

- Student
- Database

Flow of Events:

- Use case starts when Student searches correlation between building traffic and grades
- The system searches data for traffic and grades of students and finds which building is resulting in higher grades
- Student checks report
- Use Case ends.

Use Case 3: Students Checks what events and alerts are happening around the school at a given time.
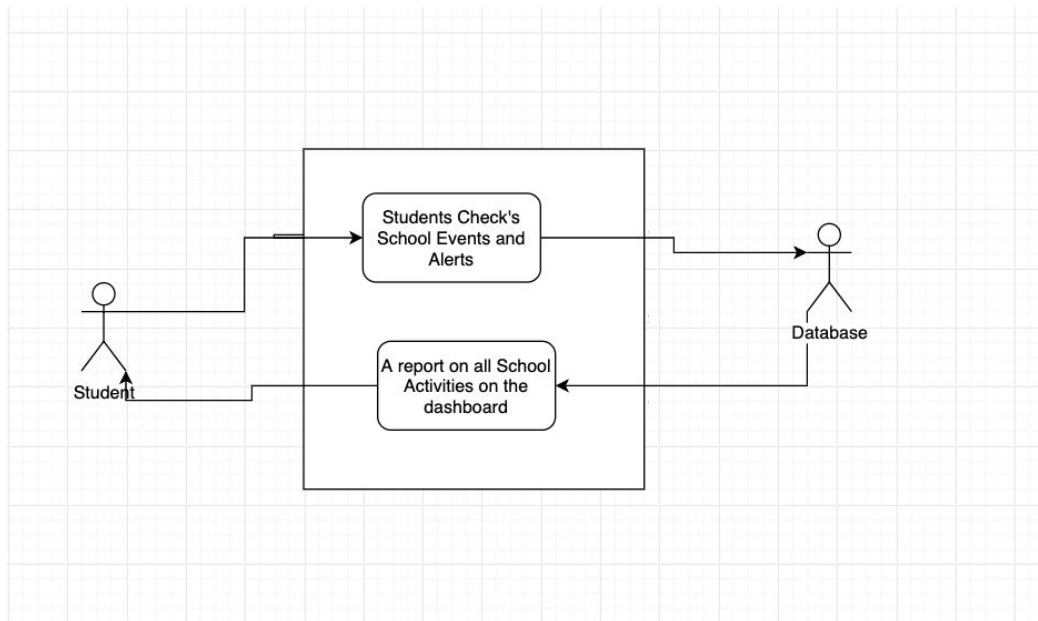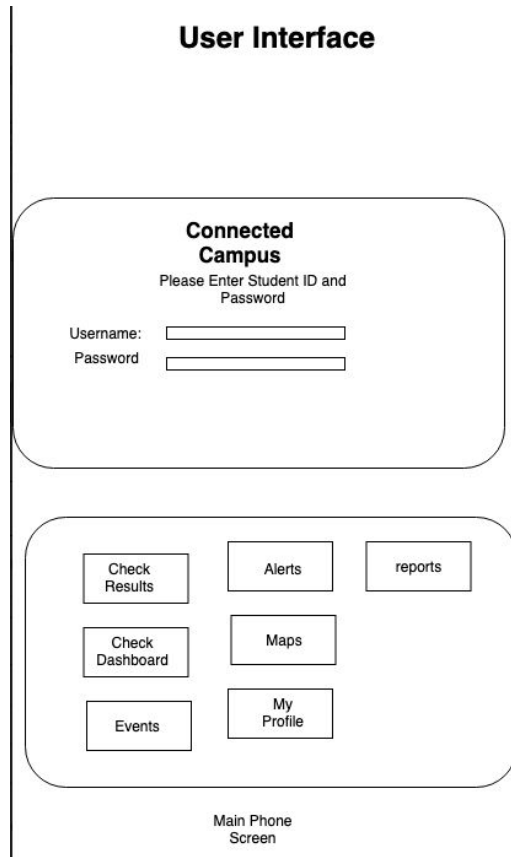

Actors:
- Student
- Database

Flow of Events:

- Use case starts when Student swipes card.
- The system then records student record.
- Student checks school events and alerts
- The Database retrieves reports
- Use Case ends.

Use Case 4: (Log in) Proposed User Interface for mobile application version of Connected campus

User Interface

Connected Campus
Please Enter Student ID and Password

Username:
Password

Main Phone Screen

Check Results · Alerts · reports

Check Dashboard · Maps

Events · My Profile

Actors:
- Students
- Admin

Flow of events:
- Use Case Starts when Student Opens the Mobile Application
- Student then log in with ID and password
- Student then selects the different application options.
- Case use end.

Scenarios
· Bad User Name
· Bad password
· Too many attempts to log in, account on hold
· Admin has the control for students logins.

Check Results
· Gives feedback on Learning Management style.
Check Dashboard
· A visual feedback of learning Management.
Events
· List all the school events

· Filter's out the events that are relevant to the user.

My profile

· User can adjust settings, update events and alert system on the phone.

Alert

· Gives a notification on the state of school events

Maps

· Graphical representation of which areas of campus are congested

· Give suggestion for the employer in which area is needed for more workers.

Reports

· Daily reports about the school and the user.

Use Case 5: (Administrator View) As students swipe to check-in, administrators can log in and view real-time data through the dashboard and check reports on all areas of the camp