GT ORG ANALYTICS

PROJECT PROPOSAL, CS 4365 SPRING 2017

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MOTIVATION

There are more than 400 active student organizations at Georgia Tech, excluding Greek organizations and honor societies [1]. Many of these organizations are actively seeking to attract and retain new members, but find it difficult to track how successful their efforts in this area are. I plan to build a tool for rapid, easy analysis of how an organization's events are performing in this area.

Two recent changes in the technology use of student organizations at Georgia Tech will enable my project. First, Georgia Tech has adopted the OrgSync platform. This service provides student organizations with a centralized hub for scheduling events, managing membership, recording event participation, and many other frequent tasks in the operation of an organization. Second, some student organizations have begun to use USB BuzzCard readers to track attendance at events. This has allowed them to record attendance at all organization events without a significant loss of time or disruption to activities. Together, these two technologies are producing a young but increasingly rich store of data relating to students' event attendance. OrgSync does not provide even minimal analytical tools for student organizations, but does provide the option to export data manually.

The GT Org Analytics tool will fill this gap in functionality. It will enable organizations to see which events are pulling in new faces and all those that keep members coming back. The tool will measure engagement with the organization and help leaders to understand how they can make improvements. It will grow more effective with time as a longer-term dataset becomes available in this area.

RELATED WORKS

This project will make use of the OrgSync API to access organization's data, and will benefit from the OrgSync platform's data collection functionality and increasing success at Georgia Tech. OrgSync does include a "Dashboards and Reports" [2] feature, but this functionality is targeted towards campus administrators, rather than student leaders. It does not support any analysis of event success or in-depth views of membership growth.

PROPOSED WORK

The central aim of my project is to provide a tool for student organizations to analyze the attendance of their events and reach actionable conclusions. To this end, it will include support for a number of analyses of events and keep track of important statistics. It will ideally feature an attractive UI and employ data visualizations that are clear to its users. It will initially target Georgia Tech student organization leaders.

FEATURES

The GT Org Analytics tool will support at least the following tasks:

- Presenting total, member, and nonmember attendance numbers for individual events
    - Out of this number, listing nonmembers who have since joined the organization on OrgSync
    - Comparison of this event to previous events in the same category
- Viewing trends in event attendance, examining event category, weekday, time, and other event attributes.
- Identifying events that win and retain regular, loyal attendees
- Identifying events whose attendees afterwards begin attending events with the organization more frequently
- Identifying the most successful event overall, or by groups such as category and day of the week
- For some of the above, identifying the opposite group of events: those that are abject failures, rather than the most successful in the organization.
- Importing and synchronizing data from GT OrgSync
- Performing these tasks using a graphical interface on a laptop or desktop

ARCHITECTURE

The program will consist of several primary components:

- **Interfacer to OrgSync API:** This component will provide a python wrapper around the necessary functions in the OrgSync API specification [3], particularly pulling down information about new events as they occur. This component will process the returned JSON and enter it to the local data store in a more structured format.
- **Local Data Store:** Will maintain a local copy of information available from OrgSync.
- **Data Processor:** This component will query the local data store to perform the various analyses and functions of the program. This component will consist of a python program. Where applicable, results will be stored in the local data store to prevent wasted computation
- **Controller:** high-level direction of interfacer and data processor; ensure information is up-to date and manage overall operation of the program. This component will consist of a python program.
- **User Interface:** graphical display of analytics results and bindings to program controller component. This piece of the program will most likely be implemented as a web interface, or as a QT python interface.

FORESEEN RISKS

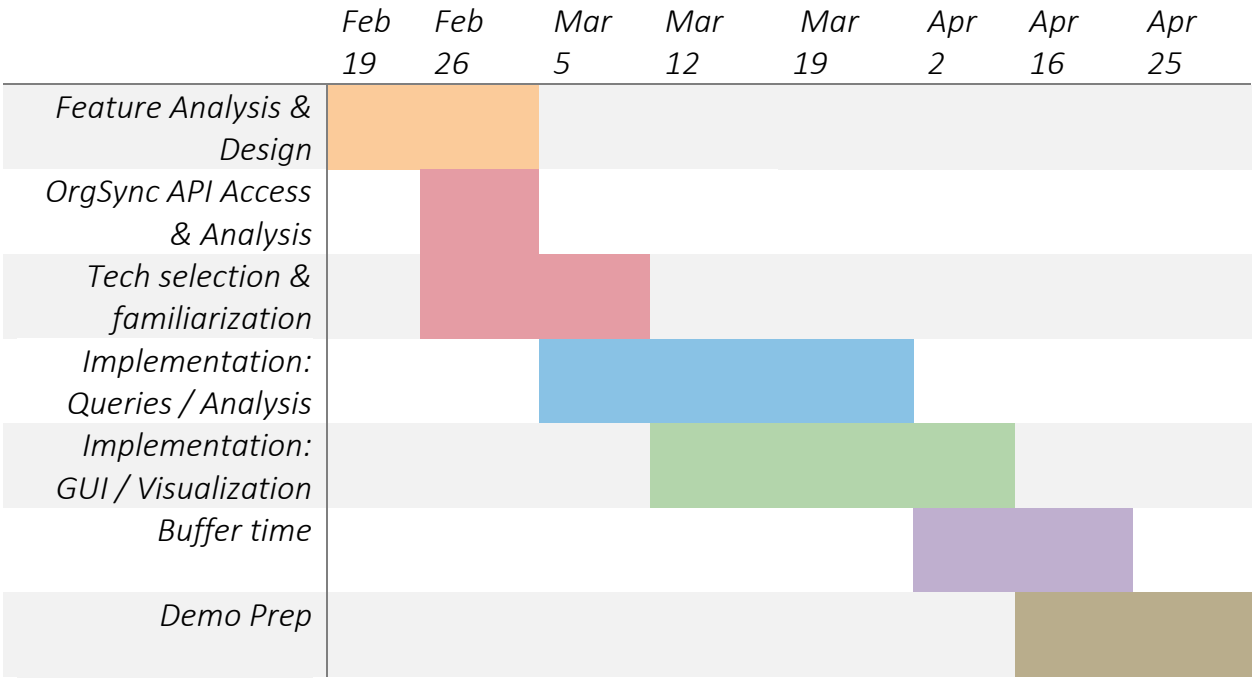
- **OrgSync API Access:** I currently do not have automated access to OrgSync data, and must download individual event data sets. I do not expect securing API access through GT to be particularly difficult, but inability to do so would weaken the project.
- **Incomplete Implementation:** In the event I am unable to complete all aspects of the project, I intend to complete the analytics component and leave the graphical interface in a minimal state- or, in a worst-case, implement a command line interface. My prior experience with GUIs for python is limited to a CRUD app using QT, so I expect at least minor difficulty with this component.

- **Insufficient Data:** OrgSync is a fairly new platform at Georgia Tech, and the use of sign-ins and/or BuzzCard readers at events is further limited. There is no major historical listing of sign-ins. The GT Catholic Student Organization is an early adopter of both systems; I have permission to use their event data and believe it will be sufficient. I am exploring other clubs to contact; many College of Computing clubs, which require sign-ins in order for students to receive free pizza, are strong candidates. In the event that I do not acquire access to sufficient data, I will explore the option of a mock data set for demo purposes.

Deliverables

- Project source code
- Presentation materials
- Final Report & supporting appendices

Work Schedule



Future Work

Provided this project is successful in its aims and produces an effective minimal product, I would likely look to build this work into a more generalized service. This expanded project would include support for any OrgSync campus's events, and make it easy for student leaders to sign up (the project deliverable will most likely require an API key). Further analyses could be included in this product, including a "success rating" for events, easily shareable graphical reports, and an overall organization event success overview.

REFERENCES

[1]"Student Organizations - Georgia Tech", Gatech.edu, 2017. [Online]. Available: http://www.gatech.edu/life/clubs-organizations. [Accessed: 17- Feb- 2017].

[2]"Student Assessment and Co-Curricular Involvement Dashboards and Reports", Orgsync.com, 2017. [Online]. Available: http://www.orgsync.com/features/dashboards_reports. [Accessed: 18- Feb- 2017].

[3]"OrgSync API", Api.orgsync.com, 2017. [Online]. Available: https://api.orgsync.com/api/docs. [Accessed: 18- Feb- 2017].