SI Attendance Tracking

PROJECT PLAN

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Revised: 10/04/2016

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1 Introduction

1.1 Project statement

With this project we are implementing a solution that will transfer data from Iowa State's A-track system into an Excel template stored on CyBox. A-track is an application designed internally by ISU Web Development.

1.2 PURPOSE

This project is designed to speed up the process of attendance tracking for Iowa State Supplemental Instruction leaders. Currently the process of moving the data from the A-track application to the Excel template in CyBox is handled manually, which is obviously tedious and slow. If we are able to speed up this process, SI leaders will be able to put their efforts towards their lessons instead of data entry.

1.3 GOALS

First and foremost, we would like to accomplish the project task, automating the process of data conversion from A-track to CyBox. Along the way of achieving this goal we will be learning lots of different web development skills, most specifically a form of web development scripting. All members of the group have some form of web development experience but no one is at a mastery level, yet.

There are a few different avenues we could do down, and depending on the route we choose alters our learning goals for this project. Ideally we will be accessing A-track's database directly. If we are granted access to this, we will all be improving our database querying techniques.

If we are not able to do that we will definitely be improving/refining our skills in scripting as we will use a script to transfer the data. Another skillset we have talked about is creating a Google Chrome plugin to perform the transfer of data.

Or we might also be creating a brand new application for the SI leaders to use, but that is currently the least favorite of our goals as we do not want to require SI leaders to have to download another application.

2 Deliverables

Depending on the level of access we are allowed into A-track, Iowa State's attendance tracking system, we have several different deliverables planned.

OPTION 1. DIRECT A-TRACK ACCESS

If we are given direct access to A-track's database we will be developing a web application that SI instructors can use to transfer all of the relevant data from their SI instruction section into the SI department's analysis tool. If we are given enough access we would like to modify A-track's database slightly to give slightly more detailed information about the time a student spent at a certain event. The web app will query A-Track's database to find attendance data for the events specified by the user. Since some SI leaders don't use individual events for each session there will also be the option to query attendance by specific dates. The web app will then take the query result and format it for insertion into the SI analysis spreadsheet, download a copy of the existing spreadsheet from CyBox as a CSV and insert the changes before uploading the revised copy to CyBox.

OPTION 2. API LEVEL ACCESS TO A-TRACK

This option is very similar to option 1 except we will be more limited. For example we will not be able to directly query an event by date, so in order to accommodate the users who don't make new events for every SI meeting the web app will need to perform an additional layer of processing to filter the JSON results (from the A-track API) by dates.

OPTION 3. MOBILE APPLICATION

This is the least likely option we have considered. It requires us to create our own attendance tracking system that works with the ID card swipers purchased by the SI departement. We would essentially be rebuilding A-track from scratch and then connecting a mobile app which handles card swipe data to our revised version of the A-track database in order for attendance data to be kept up to date. One benefit of this approach is that we will have complete control, so any time new data is added to the database it could also be inserted into the SI analysis document.

3 Design

Include any possible methods and/or solutions for approaching the project at hand. You may want to include diagrams such as flowcharts to, block diagrams, or other types to visualize these concepts.

3.1 PREVIOUS WORK/LITERATURE

In this project, we already have the card reader and A-Track app. So what we need to do is connect to the data-base from A-Track and read the information. There is a app called tracksmart that can record the attendance. So after we get the information from data-base, we just need manage those information and output a execl table to the client as they need.

Detail any similar products or research done on this topic previously. Please cite your sources and include them in your references. All figures must be captioned and referenced in your text.

3.2 PROPOSED SYSTEM BLOCK DIAGRAM



3.3 Assessment of Proposed methods

Due to the confidential data in the A-Track database, we are doubtful about gaining complete access. This makes our initial method unobtainable. The existence of an API to interact with the database however, makes the second method the most likely one to succeed. The mobile application is still in consideration though, potentially as an add-on to give our clients multiple ways to solve the problem.

3.4 VALIDATION

Our Project will be run in iterations that last 3 weeks each. We will be giving a demo of the project at the end of iteration to both our advisor and client. These demos will be good times to discover potential faults of our solution, or problems that could arise in the next iteration. We are also planning on running trials where several groups of SI leaders will use our system. We feel that these trials will reveal any problems with our design. These trial runs will most likely take place during the spring semester.

4 Project Requirements/Specifications

4.1 FUNCTIONAL

- The system should access attendance Data stored in the A-Track system.
- Attendance data should be processed and prepared for insertion into the analysis spreadsheet stored on CyBox.
- Interface with CyBox to keep Iowa State's SI analysis spreadsheet up to date with student attendance as needed.

4.2 Non-functional

- Speed up the data transfer: When using our solution, the time to transfer the data from A-Track to CyBox needs to be significantly faster.
- No installs: SI leaders do not need to install any new programs onto their computers.
- Play to our strengths: utilize and refine skills we already have.
- Security: Due to the sensitivity of the data we will need to be accessing all data in a secure fashion.
- Reach all of our goals.
- Scalability: The solution needs to work for all different SI courses, not just one and if SI courses are added it must still work.
- Reliability: The system works at all times.
- Usability: The user interface is easy to operate and very intuitive even for non-tech savvy SI leaders

5 Challenges

Include any concerns or details that may slow or hinder your plan as it is now. These may include anything to do with costs, materials, equipment, knowledge of area, accuracy issues, etc.

One of the major challenges with this project is the sensitivity of the data we are working with. Data could potentially include student names and ID numbers, which brings up the possibility of violating the Family Educational Rights and Privacy Act (FERPA). We will have to ensure that our solution is secure and that we don't have any FERPA violations.

6 Timeline

You may want to include a Gantt chart/something similar to help visualize your timeline to complete the project.

6.1 First Semester



6.2 Second Semester



7 Conclusions

Dave Lowry will work on this section

Sum up your project plan. Briefly re-iterate your goals for the project and the plan your team has put in place to achieve these goals.

By the time of graduation we plan to have a working project that utilizes the A-Track API to convert the attendance data from A-Track's system to the CyBox attendance spreadsheet.

To do this, we will be working in multiple, three-week long iterations with a demo to both our Advisor and Client at the end of each iteration. To start we will need to be able to process the data that is received from A-Track. Once we are able to parse the data, we will then need to input data into CyBox spreadsheets.

In conclusion, there are two main steps. First, process the data from A-Tracks's API and second, input the data into the correct CyBox spreadsheet.

8 References

This project is in collaboration with the Supplemental Instruction program, the Attendance Tracking program, and our advisor, Simanta Mitra, a Senior Lecturer for software systems.

More information about the A-Track database and API can be found at <u>https://atrack.its.iastate.edu/api</u>.