

# AbArticulus

*"What cannot be avoided must be endured"*

(Time Management - Web App)

Mobile and Desktop



Team Insomnia

*"squeeze in they said, look comfortable they said"*

## Team Biography

### Allen

Allen is in his final year majoring in computer science at U of T. He has just completed his PEY internship at 407 ETR and had a very enriching experience working as a developer. Allen is most experienced working with Java through his internship at 407, mostly doing works involving automating workflows and data querying. At 407 Allen mostly worked on existing data querying frameworks using JDBC, and implemented automated regression test frameworks using Testng and Selenium. Allen likes to apply the things he learns, he enjoys building web apps in both frontend and backend related implementations. Allen is

very enthusiastic about learning new technologies and taking on new challenges. During his free time Allen enjoys playing guitar, reading new books, and learning both programming and human languages. He dreams to one day have the financial stability to travel the world and possibly work abroad.

### Felipe

### Joseph

About to graduate and in his final semester, Joseph is about to embark upon the world of software development. After working at [Waveapps](#) for a sixteen month internship, he now works part time during school with plans to transition into full time shortly after graduating. While at [Waveapps](#), he spent his time in several roles focusing on a mix between front-end and back-end feature development. Joseph spends his free time watching TV shows, movies or writing code. He currently spends a lot of spare development time learning to use provisioning tools (mostly [Ansible](#)) and focusing on system architecture. You can find out more information about some of the projects he has worked on or read his blog at <http://josephkahn.io>.

### Lyon

As a 4th year computer science student Lyon keeps busy working on various course projects as well as studying interview questions to prepare himself for his first foray into the industry this summer. Knowing a few languages, including Java, Python, Racket, Haskell, and C, and having worked on only a few large scale projects, Lyon is working on expanding his programming skills in the coming months. Besides interest in computers he also holds interests in design, art, music and a lifelong engagement with martial arts. The last of which he teaches part-time.

### Mateus

### Michelle

Michelle is in her 4th year in University of Toronto pursuing a degree in the realms of Computer Science and Psychology. She has worked for a Global EMS Company called [Celestica](#) during her internship period as a Global System Developer for a QMS web-application called EtQ Reliance. She is currently taking courses related on Software Development and Databases. She hopes to expose herself in the realm of Artificial Intelligence and contribute to an experimental study about the Human Brain some day. On her free time, Michelle loves to binge-watch TV shows, and do marathons on the 'best B&W movies of all time' to make her feel young. She also has a deep appreciation for food, and loves to bake pastries, and cakes. During her most insightful moments, she likes

to compose songs and play them on her guitar. She also spends her waking hours trying to appreciate the little things in life.

### Taras

4th year ~~inmate~~ student at U of T who's given up his misguided goal of a degree in Bioinformatics after completing an awesome 16 month software development internship at [Points](#). He's currently ~~doing time for~~ in his last year of a specialist in Computer Science instead. After spending 16 months writing back-end infrastructure, being involved in numerous architecture discussions, and integrating massive corporations to the Points Loyalty Commerce Platform, Taras got to see enough of the vast array of options available within the software development world to decide he wants to fill a niche in data analytics. Taras spends his free time playing Pathfinder, competing in an [axe-throwing league](#), working with a friend to write software to [catalogue Magic the Gathering cards](#) from photographs, lifting heavy pieces of metal at the Athletic Centre, and speaking in third person.

### **Why did we choose this project? (max 200 words)**

We chose to build the time management application because, as university students, all of us know the burden of managing our own schedules. While some of us use a calendars and personal organization tools and softwares to manage our time, it requires a lot of effort to set up such systems and keep them up to date as possible. Besides having to enter your lecture times manually by hand, there's the burden of adding upcoming deadlines as they are announced. Often we find that burst of laziness takes over and we tend to neglect the schedule we originally started with. Therefore when we read the initial options, we all gravitated towards the time management application available at our disposal. We have access to Piazza in a lot of classes and there's no other task we could think of that was as crucial to our success than being aware and prepared for deadlines. After we began discussing the idea of weighing assignments and other obligations, it became clear that providing suggestions about relative time to spend on assignments based on complexity would be a very useful service, because sometimes we fail to prioritize many things as they exponentially grow. The decision was made by consensus, as was the decision to make this a web application.

## Personas

### **Lazy larry**



Larry is a full-time student in his last year of university, who commutes on a regular basis. It takes him a couple of hours to get to school everyday and even longer during rush hours. During the exhausting hours of commuting, Larry finds it difficult to work in a cluttered environment, and instead listens to music or watches videos on his smartphone. He has limited time in his schedule for working and therefore must carefully decide what to work on each day while allotting time for his social life in order to maximize his productivity. Larry is currently taking back-to-back courses to graduate early. As such, Larry often find himself falling behind in his classes while having to do all his work in the last minute. He enjoys doing his work in cafes and other noisy places which also leaves him open to distractions such as friends and other things. After doing his internship, Larry got re-hired for another six-month part time contract in which he must also balance his time with his school work. Larry also has very little patience planning up his schedule beforehand and therefore, relies on technology to help him keep track of his to-dos in a simple and snappy list format with links to details.

### **Perky Pat**



Pat is a very outgoing, energetic and detail-oriented person who likes to carefully organize all of her tasks and schedules in a delicate manner. At the beginning of every semester, she creates a very detailed schedule of her study time, while being aware of all of her due dates. She makes sure to add and adjust her schedule as she goes in order to make sure she always knows what she should be working on. She participates on all the discussion boards for her classes as well as the the subreddit for UofT. She bikes to campus everyday and because of her proximity to campus, she likes to take part in a lot of the opportunities offered at the university. She is a very active person who goes to the gym in a daily basis after class. When at the gym, she tries to attend most classes being offered there, ranging from Yoga, Pilates and Boxing classes. Her bubbly personality made it easy for her to create a network of friends between school and outside school. She also adds these events to her calendar to make sure she budgets enough time for all her work before anything else. Pat is currently involved in a couple of dance clubs and loves going to Comedy bars, and other fun events happening around her city. Pat loves to connect and mingle with her friends during her free time. She uses google calendar to store her schedule so that she can view and update on the fly using her android phone.

## User Stories

Difficulty scale: **easy**/**medium**/**hard**

Requirement Priority:

- 1 - Part of the MVP, we must have this feature, without it our product has no value to our users.
- 2 - Future enhancement we really want to implement, but we can still release a product without it.
- 3 - Nice to have, possible future feature, not a priority

### **Lazy larry**

1. As lazy Larry, I don't have a lot of time to plan out my day. I want my to be notified of upcoming deadlines without having to enter them manually  
Difficulty: **Medium**  
Requirement: 1
2. As Lazy Larry, I am very busy, but I don't like to spend too much time on one assignment. I want to see estimates of how long and how difficult each assignment is, so that I know which ones to prioritize.  
Difficulty: **Hard**  
Requirement: 1
3. As Lazy Larry, I want there to be a distinction between tests, assignments and other types of school work so that I know what types of deadlines are coming up.  
Difficulty: **Easy**  
Requirement: 1
4. As Lazy Larry, I want to know what I should be spending my time on as I've only got a limited amount of time, so that I don't waste it.  
Difficulty: **Hard**  
Requirement: 2
5. As Lazy Larry, I'm always rushing and I want there to be location details on events so that I know where to go.  
Difficulty: **Easy**  
Requirement: 1
6. As Lazy Larry, I have a heavy course load because I want to graduate early. I need to distinguish events in my schedule that are school related from other events so that I make sure I'm doing enough of each.  
Difficulty: **Easy**  
Requirement: 1
7. As Lazy Larry, I want adding new deadlines and events to be easy, so I don't have to hunt them down from 5 different sites  
Difficulty: **Hard**  
Requirement: 1
8. As Lazy Larry, I want to be able to easily enter my estimates for how difficult and how long I expect an assignment to be  
Difficulty: **Medium**  
Requirement: 3



9. As Lazy Larry, I want there to be a fast signup process so that I can get started and see the benefit right away, I don't have time to spent trying an application that might not work out.  
Difficulty: Easy  
Requirement: 1
10. As Lazy Larry, I want there to be an easy way to set up my lecture schedule because otherwise I won't bother with it.  
Difficulty: Medium  
Requirement: 1
11. As Lazy Larry, I don't want to have to enter any information about my courses at all, not even their course codes. I gave the app my student number, it should figure it out.  
Difficulty: Hard  
Requirement: 2
12. As Lazy Larry, I want to be notified of all changes to deadlines so that I know what I should be working on as I don't frequent discussion boards or course websites.  
Difficulty: Easy  
Requirement: 1
13. As Lazy Larry, I don't want to have to log in to this webapp every time I want to check my calendar, persist my session for when I come back later.  
Difficulty: Easy  
Requirement: 1
14. As Lazy Larry, I don't want to have to log in to this webapp unless I need to make changes to public events, all my events should get synced to my Google account.  
Difficulty: Medium  
Requirement: 1
15. As Lazy Larry, I don't want to have to log in to this webapp ever. I should be able to do everything I want from my Google account and that info should be automatically synced in the background  
Difficulty: Hard  
Requirement: 3
16. As Lazy Larry, I want there to be no duplicate events in my schedule so that I don't get tricked into thinking a test is on the wrong day days or go to the events at the wrong time.  
Difficulty: Medium  
Requirement: 1

## Perky Pat

1. As a club president, I need to be able to allow my members to subscribe to events of the club so that they can be notified about upcoming events.  
Difficulty: Easy  
Requirement: 1
2. As an avid user, when I make changes to events, I want the subscribers to be instantly notified about the change and to be notified about changes from other users.  
Difficulty: Easy  
Requirement: 1
3. As a student with a social life, I like to host parties and events for my club. I want to be able to invite users in and outside of the app so that I can invite all of my friends.  
Difficulty: Medium  
Requirement: 1 (Brings users in)
4. As an avid user, I want to comment on the events, and let other subscribers comment on them as well, so that I can get the most out of application.  
Difficulty: Medium  
Requirement: 1
5. As a club president, I want the platform to allow me to let my members vote for the time and day of events so that a majority of them can show up.  
Difficulty: Medium  
Requirement: 1
6. As an avid user, I want others to verify the times for deadline that I enter so that we can all benefit.  
Difficulty: Easy  
Requirement: 1
7. As an avid user, I want to improve at estimating how complex deadlines are, show me stats about how my estimates compare to those of others  
Difficulty: Hard  
Requirement: 3
8. As a user with a social life, I want social events and deadlines to be distinguishable so that I know what's coming up.  
Difficulty: Easy  
Requirement: 1
9. As a user concerned with privacy, I do not want non-students to be able to see this information so that I can be sure that anything I post is private.  
Difficulty: Medium  
Requirement: 1
10. As a user concerned with privacy, I only want those I invite/explicitly allow to be able to see my private events and tags  
Difficulty: Medium  
Requirement: 1

## **MVP**

Our project is a time management system designed to help students work together to budget their time regarding upcoming academic deadlines through crowdsourced schedule and deadline creation. Each deadline (event) is tagged with a class, group, or organization. Events are also categorized as assignments, tests, clubs, or other social campus events. Users can populate their personal calendar by creating their own personal events as they would in any other calendar, or by subscribing to publicly visible tags of their choosing. When users share events, other users can verify the correctness of the event using a voting system. For example, if there are duplicate events, but for different times, the event with the most up-votes is shown ahead of the others.

One of the most exciting, and complex to implement features of our MVP will be a two-step signup process. We'll ask users for their Google account and either ROSI credentials or a list of their enrolled course codes. Upon account creation, a user's schedule will be automatically subscribed to courses they are enrolled in on ROSI and will be populated with all event lectures related to their studies as well as any user added events. As we are leveraging Google calendar in our MVP we will be limiting our initial user-base to UofT students with Google accounts.

Another novel feature we've planned will allow users to rate the complexity of assignments. From this aggregated data, we will let users have a one button solution to automatically generate 'study time' events in their personal calendar that correspond to the estimated amount to time the assignment will take. Our product will also make it easy to transform this estimation: a user can easily add, move, expand and delete these study-times in their personal calendar.



## CRC Cards

<b>Event</b>	
<b>Responsibilities</b>	<b>Collaborators</b>
Store information about time, location, complexity estimates	
Stores meta information about user votes on the accuracy of the above	
Store information about which users it is visible to	
Allow users to edit and agree upon event contents in a collaborative manner	
Store user comments about the event	
Notify subscribed users when new activity occurs	
Be easily persistable	
Be easily retrievable from a database	

<b>User</b>	
<b>Responsibilities</b>	<b>Collaborators</b>
Keep track of which Events and Calendars have been subscribed to	
Keep track of a user's notification settings	
Keep track of a user's visibility settings	
Keep track of a user's comment history	
Keep track of a user's notification history	
Securely Keep track of Google Account sign in info	
Be easily persistable	
Be easily retrievable from a database	

<b>Calendar</b>	
<b>Responsibilities</b>	<b>Collaborators</b>
Store information about which Events to display	
Store information about which users it is visible to	
Be easily persistable	
Be easily retrievable from a database	

<b>GoogleAccountWrapper</b>	
<b>Responsibilities</b>	<b>Collaborators</b>
Given an Event or Calendar, use Google Calendar's RESTful API to export our data to a Google account	Event
Given a Google Account, import Google Calendars into Calendar and Event objects.	Calendar
Performs OAuth login in and log out when given a User	User

<b>ApplicationServer</b>	
<b>Responsibilities</b>	<b>Collaborators</b>
Consume HTTP GET requests of user's navigation	Event
Format objects into correctly renderable HTML/CSS content to it into our HTML templates	Calendar
Handle HTTP form POST queries found on relevant pages such as searching for events or users	User
Return correctly formatted HTML, CSS, and Javascript following said HTTP events	DataAccessObject
	GoogleAccountWrapper

<b>DataAccessObject (please use an ORM)</b>	
<b>Responsibilities</b>	<b>Collaborators</b>
Persist User, Calendar and Event objects as PSQL rows	ApplicationServer
Implement functions for easy retrieval of persisted User, Calendar and Event objects from Database and converting to our Objects	Event
	User
	Calendar

## Played out User Story scenarios:

### User story 2:

As Lazy Larry, I am very busy, but I don't like to spend too much time on one assignment. I want to see estimates of how long and how difficult each assignment is, so that I know which ones to prioritize.

When Larry, the User navigates to our webapp, the ApplicationServer sends him to the correct page where he can log in. The ApplicationServer uses the GoogleAccountWrapper to verify his credentials and return a page containing the correct User, Calendar and Event information. Of the Event information displayed on his Calendar, the Events which correspond to project deadlines should display some measure of complexity from data other Users have supplied on the same Event.

### User story 14

As Lazy Larry, I don't want to have to log in to this webapp unless I need to make changes to public events, all my events should get synced to my Google account

When Larry is done subscribing to his Events, and navigates to a page with a "Sync to Google Account" button, pressing that button tells the ApplicationServer to use the GoogleAccountWrapper to update the current state of the Events Larry is subscribed to to his Google Account with RESTful API calls that either create, delete or modify the relevant Google Calendar events on his personal Google Calendar.

### User story 16

As Lazy Larry, I want there to be no duplicate events in my schedule so that I don't get tricked into thinking a test is on the wrong day days or go to the events at the wrong time.

When Larry, the User looks for Events with the tag 'csc301' and the DataAccessObject returns two Events titled "assignment 1", the ApplicationServer should sort them based on the voting information stored in the Events which has been entered by other Users

### Tech:

- We are using Django for our source web-app framework
- AngularJs for our front-end
- [FullCalendar](#) as a starting point for our Calendar UI

## **Release and Iteration Planning**

### **Week 1 (Oct 14-20) Project Phase 2 Start:**

- Bare-bones Django Application that returns an HTML template
- Simple deploy script to run a local server instance
- User, Calendar, and Event value objects
- DataAccessObject and DB persistence
- GoogleAccountWrapper OAuth log in to authenticate users
- Log-in Page
- Menu Page
- Sign-up Page
- Online account creation and validation of new Users

### **Week 2 (Oct 21 - Oct 27) Project Phase 2 Release:**

- Event Creation Page
- Online Event creation
- Calendar Page
- Online Calendar creation
- Searching for Events
- Event subtypes and distinguishing between them in the Calendar
- Adding Events to personal Calendar
- GoogleAccountWrapper Calendar RESTful API export of our data

### **Week 3 (Oct 28 - Nov 3) Project Phase 3 Start:**

- Voting on Events
- Events notifying Users when changes are made
- Inviting Users and people outside of the App (emails) to Events
- Commenting on Events
- Estimating Event complexity

### **Week 4 (Nov 4 - Nov 10) Project Phase 3 Release:**

- Supporting map view of Event Locations
- Filtering visible Events in Calendar
- Filtering visibility of events you can search for based on privacy
- Automatically (or semi automatically) filling out lecture schedule given course codes (or ROSI info)
- Duplicate Event merging/prevention
- Event time voting (event creator gets all Users subscribed to vote on best available time for it)

### **Week 5 (Nov 11 - Nov 17) Project Phase 4 Start:**

- UI improvements, code refactoring, testing, focus on extra QA

### **Week 6 (Nov 18 -Nov 24) Project Phase 4 Release:**

- Buffer week for when stuff inevitably takes longer than expected

## Phase 2 Deliverables In More Detail:

The first iteration is mostly back-end work for our webapp which doesn't correspond well to user stories. Setting up our application server, database, and writing classes. Of the work which our users would actually see, we plan to tackle account creation:

### Lazy Larry:

9. As Lazy Larry, I want there to be a fast signup process so that I can get started and see the benefit right away, I don't have time to spent trying an application that might not work out.

//Validate a gmail and a utormail account and you're good to go, login via the former

10. As Lazy Larry, I want there to be an easy way to set up my lecture schedule because otherwise I won't bother with it.

//Enter a list of course codes you're enrolled in and pick which lecture section you are in, and we do the rest

13. As Lazy Larry, I don't want to have to log in to this webapp every time I want to check my calendar, persist my session for when I come back later.

//Persisting the OAuth session when logging in through the google account

### Perky Pat:

9. As a user concerned with privacy, I do not want non-students to be able to see this information so that I can be sure that anything I post is private.

//This one is a freebie through our sign-up process. We'll just force users to validate a utormail account

By the time we get to the second iteration (the first release), we add some of the core features and calendar functionality:

### Lazy Larry:

3. As Lazy Larry, I want there to be a distinction between tests, assignments and other types of school work so that I know what types of deadlines are coming up.

5. As Lazy Larry, I'm always rushing and I want there to be location details on events so that I know where to go.

6. As Lazy Larry, I have a heavy course load because I want to graduate early. I need to distinguish events in my schedule that are school related from other events so that I make sure I'm doing enough of each.

7. As Lazy Larry, I want adding new deadlines and events to be easy, so I don't have to hunt them down from 5 different sites

14. As Lazy Larry, I don't want to have to log in to this webapp unless I need to make changes to public events, all my events should get synced to my Google account.

### Perky Pat:

2. As an avid user, when I make changes to events, I want the subscribers to be instantly notified about the change and to be notified about changes from other users.

## Postponed Deliverables outside of Phase 2

### - Advanced Event Features

// Voting and comments are too large to fit into the first project phase

Related User Stories:

Lazy Larry:

1. As lazy Larry, I don't have a lot of time to plan out my day. I want my to be notified of upcoming deadlines without having to enter them manually
2. As Lazy Larry, I am very busy, but I don't like to spend too much time on one assignment. I want to see estimates of how long and how difficult each assignment is, so that I know which ones to prioritize.
16. As Lazy Larry, I want there to be no duplicate events in my schedule so that I don't get tricked into thinking a test is on the wrong day days or go to the events at the wrong time.

Perky Pat:

4. As an avid user, I want to comment on the events, and let other subscribers comment on them as well, so that I can get the most out of application.
5. As a club president, I want the platform to allow me to let my members vote for the time and day of events so that a majority of them can show up.

### - Automated ROSI schedule generation

// Nice to have, but outside the scope of our MVP

Related User Stories:

Lazy Larry:

11. As Lazy Larry, I don't want to have to enter any information about my courses at all, not even their course codes. I gave the app my student number, it should figure it out.

### - User access and restriction

// Permission and visibility systems are also too large to fit into the first phase

Related User Stories:

Perky Pat

8. As a student with a social life, I like to host parties and events for my club. I want to be able to invite users in and outside of the app so that I can invite all of my friends.
11. As a user concerned with privacy, I only want those I invite/explicitly allow to be able to see my private events and tags

In Phase 2 we concern ourselves with implementing the basic functionality of our application, which is interfacing with Google Calendar and allowing users to manipulate events. This includes creating, deleting, and subscribing to events; having a working calendar UI, and of course searching for relevant events. We also have to tackle user authentication, and ensure the account sign-up is smooth, it's a prerequisite for everything else.

To avoid biting off more than we can chew, more complex event functionality, such as voting, commenting, and permissions are scheduled for later phases. Though these features may be crucial to our product, they aren't reasonable to include in our first milestone. This obviously also includes features that have dependencies on the above, such as complexity estimation, duplicate prevention, and democratic event scheduling.