

# uCal: Incremental and Regression Testing

Matt Kramer, Eli Scherrer, Maneesh Tewani, Ben Collier, Drew Bostock, Hector Trevino Amaro

## Classification of Components

### Module description: Frontend

#### **AppModule**

Container for other components to make sure parts of the application are separated. Crucial part of the application that bootstraps other components.

*Inputs:* AppComponent, NavBarComponent, CalendarComponent, LoginComponent, GroupComponent, LoginSuccessComponent, SettingsComponent, TokenHandlerService, AuthGuardService, AuthService, AppRoutingModule,

*Output:*

#### **AppRoutingModule**

Encompasses logic for client-side routing of the angular application.

*Inputs:* RouterModule.forRoot(routes)

*Output:* RouterModule

#### **AuthService**

Checks if the user is authenticated by checking JWT and if it has expired.

*Inputs:* JwtHelperService

*Output:* isAuthenticated boolean

#### **GroupComponent**

Displays group information.

*Inputs:* None

*Output:* None

#### **LoginComponent**

Handles validation and logging in of users through email/password and Google OAuth Login.

*Inputs:* TokenHandler

*Output:*

#### **LoginSuccessComponent**

Intercepts the token credentials and stores them in localStorage.

*Inputs:* TokenHandlerService

*Output:*

### NavBarComponent

Displays navbar and handles navigating to different client-side routes.

*Inputs: tokenHandler*

*Output: clearing token for tokenHandler*

### SettingsComponent

Manages settings of user profile and group information.

*Inputs: none*

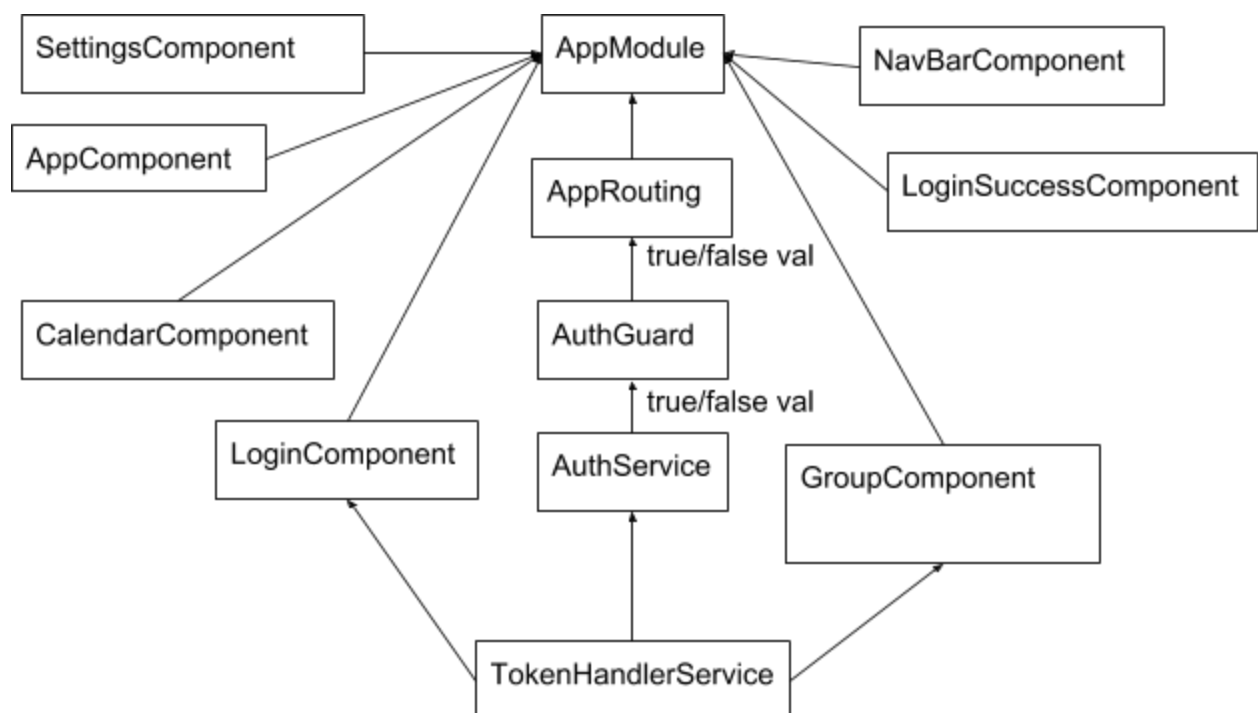
*Output: none*

### TokenHandlerService

Sets and clears tokens for JWT authentication and interception of HTTP Requests.

*Inputs: Token*

*Output: Local storage setting and removing tokens*



Module description: Backend

### **Users Manager**

Module in charge of adding, deleting, and modifying users and their information in the database.

*Inputs:* user information like email, password, and/or id

*Output:* confirmation message or the user object

### **Friends Manager**

Module in charge of adding, deleting, and accepting new friends and updating the database accordingly.

*Inputs:* user id, friend id

*Output:* confirmation message

### **Groups Manager**

Module in charge of creating, modifying, and deleting groups in the database. Also in charge of adding / removing users from the groups.

*Inputs:* group id, user id

*Output:* group information or confirmation message

### **Calendars Manager**

Module in charge of creating, modifying, and deleting calendars in the database.

*Inputs:* user id, group id, calendar id

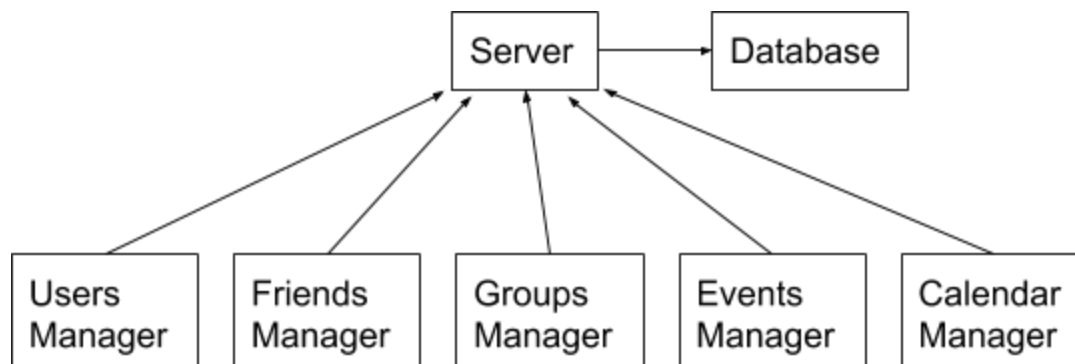
*Output:* calendar object or confirmation message

### **Events Manager**

Module in charge of creating, modifying, deleting events in the database.

*Inputs:* relevant event information

*Output:* event object



The front-end and back-end modules are connected through the endpoints which are called by the front-end.

### Incremental testing technique

We used the Bottom-up testing technique. When creating our project we created each individual components that we tested on their own, then we began working on integrating them all together, and testing them together. We used drivers to simulate the functionality outside of the manager we were currently testing until the other managers were completed.

### **Incremental Testing**

<b>Module</b>	<b>Calendar Manager</b>		
<b>Defect No.</b>	<b>Description</b>	<b>Severity</b>	<b>How to Correct</b>
<b>1</b>	Cannot get list of current calendars	3	Implement /get-calendars
<b>2</b>	Calendar not returning location/startTime/endTime nested objects	3	Updated CalendarComponent to send data using getDate()

<b>Module</b>	<b>User Manager</b>		
<b>Defect No.</b>	<b>Description</b>	<b>Severity</b>	<b>How to Correct</b>
<b>1</b>	Cannot utilize default calendar	3	Created a calendar upon signup

<b>Module</b>	<b>EventManager</b>		
<b>Defect No.</b>	<b>Description</b>	<b>Severity</b>	<b>How to Correct</b>

1	When creating an event, the associated calendar does not update	3	Updated \$pull property to have the right value
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Module	CalendarComponent		
Defect No.	Description	Severity	How to Correct
1	Component doesn't verify that endTime > startTime	3	Updated CalendarComponent to check ms before adding event
2	Component doesn't use the default id, uses a hardcoded value	3	Created an observable that returns calendar id's to subscribe to

### Regression Testing

Module	Defect No.	Description	Severity	How to Correct
Login Component	1	Signup doesn't include session when logging in	3	Use passport local
Calendar Manager	2	When a calendar is created for a user the user is added as the owner but not also as a member	3	Before saving the calendar object to the database include the user's id in the users field
Calendar Manager	3	When a calendar is deleted the calendar is not removed from all of the users who subscribed to that calendar's list of calendars	2	Before deleting the calendar go through the calendar's list of users and remove the calendar id

				from their list of calendars
Events Manager	4	When update event is called it has to be called with a JSON object that includes every part of an event object or it will fail	3	Have the route check which attributes exist before updating the object in the database
All	5	With merging of front & back-end, some tests will fail due to lack of authentication	2	Update tests to include authentication
Events Manager	6	Events aren't getting removed from the calendar they belonged to when they get deleted	2	Find and remove the event reference from the calendar it belonged to after deleting it from the database
Friends Manager	7	Declining a friend request will still result in the friend being accepted	3	Change the check for the value of "accept" to be === "true"
Groups Manager	8	A user can be invited to a group even if they are already in that group	3	Make a check to see if the user is already a member of the group before sending them an invite
Groups Manager	9	When a group is created it is not added to the owner's list of groups	2	Add the group id to the owner's list of groups