

Project Final Report

RateMyCaf

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RateMyCaf Page 1 Mobile/Web Applications

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Report Creation History

Approvals should be obtained for project manager, and all developers working on the project.

Course Name	Team Members Name	Department	Date of Creation	Date of Submission
Mobile/Web Applications	Grayson Crawford	Computer Science	4/27/2023	05/04/2023
Mobile/Web Applications	Rob Aguero	Computer Science	4/27/2023	05/04/2023

1. Introduction

1.1 Motivation

Grayson and Roberto both love using the applications that allow for dining at JBU's cafeteria such as the Eatable app on the app store and the FDMealPlanner.com website for looking up cafeteria menus. However, we found these applications to be clunky and slow. They are also not interactive and user-driven, which is not the way that an application geared towards a university audience should work. To solve this problem, we decided to integrate the technologies we learned throughout this course (PHP, CSS, JS, SQL) in order to create a full-stack user-driven web application that allows for user interactivity. These technologies allowed us to give the user freedom to create events and leave reviews that are directly saved to our database which creates a sense of enjoyment and interaction for the user. We did some research on how rating sites work and a majority of them work in such a way that the user has a scale to rate on, with the option to leave a comment. We wanted to take it further and make sure that only students/professors associated with their respective university could review theirs. We envision that RateMyCaf would be a student-led cafeteria review web-application containing reviews of certain cafeterias, menus, and events for the campuses.

1.2 Problem Statement

University students and faculty members often struggle to find dining options that fit their preferences and schedules, leading to frustration and decreased satisfaction with their overall campus experience. While there are existing review platforms for individual university cafeterias such as Google Reviews, there is currently no centralized platform that aggregates reviews and provides users with access to cafeteria menus and university events as well as interactivity for the user. Therefore, we developed 'RateMyCaf', a web application with the intention of facilitating the dining process for university students around the country by providing a reliable platform to enhance these experiences. Through our learned web technologies combined with research, we aim to solve the problem by giving freedom to the user (since other websites are very restrictive) while still maintaining control of the user capabilities. This will be accomplished through a proper establishment of rules between the front-end of our application and the back-end.

1.3 Problem Description

RateMyCaf works as a search engine for university cafeterias inside our database. The homepage consists of a search bar that autocompletes and routes users to whatever university they type. It also provides information about the website and cards showing possible cafeterias they can search for. There is a log-in system that allows users to create accounts using their .edu email for their respective university in order to begin their rating process. Whenever the user searches for a university, they are routed to the respective page. The pages for each university are created dynamically through routing and database manipulaiton. The core of the application is rooted within the review/events pages, that lets the user leave comments that get saved depending on their university as well as the ability to read the menu and schedule of cafeterias. In order for a user to create a review or an event for their respective university, they must register and log in with a valid university email address. Otherwise, users who are simply guests or are not logged in are allowed to only view the website and its reviews, menus, and events.

2. Modules

2.1 List of Modules

Module-1: Search Module

Module-2: Authentication Module

Module-3: Reviews Module Module-4: Events Module Module-5: Information Module Module-6: Utility Module

2.2 Modules Explanation

2.2.1 Module-1: Search Module

This module consists of the home page as well as every file that facilitates both the routing and the searching process. The home page is styled with the aim of looking user-friendly and easy to use, which is the reason for the simple UI. Through the use of a form, the home page works as a search engine that can auto-complete what the user is typing through the use of JQuery. The AutoComplete.php file gets all of the university names from the universities_tab in the database and puts them all into an array. This array is then encoded into a .json format, from which we simply use JQuery's javascript file in order to bring functionality and link it with both the json encoded format of the array and our search bar using a javascript function. To provide a good experience for the user, we added some styling to JQuery to fit our website's theme and increase interactivity. Whenever the user presses enter, their string is taken and then routed to the university page respective to the string they typed in. If the university is not found in our database, the user will not be able to access this page.

Files in this module: index.php, auto_complete_process.php, cafeteria_process.php

2.2.2 Module-2: Authentication Module

Since RateMyCaf is a user-driven platform, we wanted to provide a personal experience for the users, which indicates a need for a login system. The authentication module oversees any process that relies on the user either creating or logging in to our web application. The login page provides the user with a captcha to enhance security within our website. They also have the option to sign up for an account if they do not have one. The register page contains fields for the user's email, name, university, and a password of their choosing. If the email does not contain an "@" sign and a ".edu" at the end, the user is not allowed to sign up. Normally, we would also send a verification email once signed up, but we have no way of actually doing so. The "university" field also checks to make sure that the university the user enters is actually within our databases. The files inside this module are programmed in such a way that only people with .edu domains can register to use RateMyCaf as stated earlier. Additionally, only people with a respective domain can register to their university. For example, someone with a @jbu.edu email can only register under John Brown University. Once registered, an alert will pop up indicating success and will now allow the user to log

in. This module also constantly checks if a user is logged in or not in order to provide them access to certain operations inside our website, such as creation of reviews/events and schedule viewing. Once logged in, the top-menu.php "login" button will also change and display "Welcome, <users name>". The user is also provided with the option to log out by clicking said button.

Files in this module: login.php, register.php, login_process.php, register_process.php, logout.php and captcha.php

2.2.3 Module-3: Reviews Module

As stated previously, the reviews module is the core of the RateMyCaf web-application. The front-end of this page consists of a simple banner layout which displays the respective universities name and location. Then, two different panels are laid out next to each other which display the useful information for the user. The pages for each university are created dynamically, using the cafeteria.php file as the template. Using the .htaccess file, which is a configuration file that works on Apache based web servers (we used XAMPP), we modified the behavior of the /cafeterias/ subdirectory to route to the page depending on their ID. Thus, our pages are created on the fly and provide a lightweight experience. If the ID is found inside our database, the user will be directed to the respective page, but if not, they are directed towards the "not found" page. This makes sure to not give the user too much control over what they can see behind the scenes of the front-end. Inside the cafeterias.php page, former comments, menus and schedules are all pulled dynamically from our database. Users are given the option to read the former reviews left on the page of the university and then leave their own. They must be signed in to leave a review, and part of the respective universities' domain. The user is not able to leave a review unless they fill out each part, which consists of a title (cafeteria name), rating (out of 5 stars), and the description. This review is then processed and added to the database as soon as the user hits the button, which stores it for future reference. This module will use services from both the authentication module and the utility module for certain operations.

Files in this module: cafeterias.php, cafeterias adding.php, notfoundpage.php

2.2.4 Module-4: Events Module

Similar to the reviews module, the events module also works on a dynamic directory. There is a button on the reviews page that uses the university's ID to route them to their respective events page once it is clicked. The layout is a pretty standard div that contains all the fields for entering the information, followed by an empty field where all the events would go under. The main component of this module is the events.php file, which provides the template for adding events. These events are then posted into the database, and stored there so that any other user can see the respective university's events. The user can add a title, location, date, time, description and even change the color of how the event is displayed onto the screen. We intended to give the user the permission to remove events, but we realized that this could get out of control as the user would probably remove every event that they might not have created. While this might be the smallest module of the application,

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events were not the main focus of RateMyCaf and rather a side-project. Future implementations can include a modified event system with a more accessible user interface.

Files in this module: events.php, events_adding.php, notfoundpage.php

2.2.5 Module-5: Information Module

The information module is the most simple out of the modules given that it is static and mainly an information based module. All of the files inside this module reside inside the footer of our web-application so that the user can access them throughout the whole project. First, there is a help page where the user can find help on how to search for schools, add comments, check events, and much more. In this module, there is also an about page which explains the purpose for creating RateMyCaf and also more about us the developers. Then, we also have a privacy and policy page as well as a terms and conditions page that lets the user know that their information is all secure within our database and that none of their information would go anywhere. This is important whenever building a user-driven fullstack application because if the user knows they can trust the product, they are more likely to not only interact with it but also share it with known people. These pages also mention how none of the university information is our own in order to avoid any legal conflicts. There is also a contact page in which the users can contact us, the developers, in case they have any question regarding the website. Communication with the customer is important in order to figure out how to improve said product and to further create a connection with the user base. Finally, inside the information module there is a page that consists of a list of all the schools in our database. This transparency between the developers and the users is what separates RateMyCaf from other cafeteria review applications because we put the community first.

Files in this module: about.php, contact.php, help.php, term_conditions.php, privacypolicy.php, school-list.php

2.2.6 Module-6: Utility Module

Every application consists of files that get used over and over again, thus it is hard to include them into each different module. This is why we came up with the utilities module, which allows us to group all those reusable files into one. These files are what make or break the web application because their services are used all throughout our project. The top banner and the footer of our application are mainly there for aesthetic and informational purposes, but they do have some built in functionality. The RateMyCaf logo in the top menu routes the user back to the home page, and the sign in button leads them to the login page (or if they are already signed in, the logout). The footer contains anchors to all the pages inside the information module, while also showing our RateMyCaf logo. The other two files inside of this module (db_connection and id_connection) are both essential for all the operations since our web application works dynamically. The db_connection file uses a mysqli function to connect to our database (in this case hosted in localhost server). The id_connection file just retrieves the ID from the url and then makes a query to our database for the respective university inside the universities table that has the matching ID. This is used all throughout our application whether to pull images, text, or even emails from respective universities.

Additionally, since our pages are rendered dynamically based on ID, we needed to include this file all over the project.

Files in this module: top_menu.php, footer.php, db_connection.php, id_connection.php

3. Technologies Used

Explain the unique, innovative ideas, and problem-solving logic you used in this project.

3.1 HTML5

While a majority of the code inside RateMyCaf is written in PHP, we used HTML5 embedded inside our PHP files to add structure and functionality to our website. The <div> provides a lot of structure with the layout options and thus we wanted to use it as much as possible. The compatibility of divs with images and text makes it easy to structure and then further style these components. Then, we had a lot of input boxes such as the main search bar of the application, or the input boxes for entering a review of a cafeteria. Additionally, various anchor elements were used for routing within certain parts of the application. In order to process the events and the reviews being added by the users, we used <form> which provides a way to POST the values that the user types and easily pass that into our database through our processing file.

3.2 Javascript

Throughout our application, JavaScript was used to provide functionality to certain components of the product. There are multiple JavaScript files found within the project, but only one of them is created by us. The RMCcode.js is our own JS file which contains two functions. The first function links the search bar on the homepage with the JQuery JS code in order to give functionality to the autocomplete process. It filters out the text typed into the search bar by the user with what is inside the array. The second function inside this JS file is for refreshing the captcha in case that the user cannot read the initial captcha given in the login. The other two JS files in this project are JQuery JS files which are used for the autocomplete function. We added styling to the components of this file, but do not claim the code of the JQuery as our own.

3.3 **CSS**

The CSS is what really makes our application unique because it is simple, but effective. We used a theme of purple and white, which fits our personally made logo. We used two style sheets to primarily style, but looking back, we should have made multiple CSS files to make sure that one file does not get too bulky. The primary CSS file of this whole project is the RMCstyles.css. It consists of various classes, which consist of a general styling. Most divs inside this project were styled with a flex layout, which allows for a dynamic adjustment to our website no matter the size of the screen of the user. This provides portability to our web application because everything will look good no matter where. A lot of the buttons and clickable anchors have styling for their hover animation because it makes it more user friendly to indicate what is clickable and what is not. Most of the structuring and layout was moved around using margins, which we realized deep into the project that is bad practice since we were working with pixels. Pixels change depending on the size of the screen, which is bad whenever dealing with multiple user platforms.

The LOGstyles.css file on the other hand consists of the styling for our login and registration pages. They are both geared towards the overall theme, purple and white, while remaining simple and easy for the user to use.

One thing we tried to incorporate through our CSS is border-radius because we feel like making buttons and holders look nice adds to the aesthetic. We also tried multiple fonts that would increase the readability of certain fields, and we found that Cambria would be the best for this. Additionally, since we were working with a white background, we used a lot of shadows to contrast our content with the background further making it easier for the user. Although our CSS could have been more organized, it got the job done for us which is to create a friendly user interface and user experience. A lot of our images are vector arts, which fit the theme of our application and allow for a simple view. Overall, the basic CSS that we incorporated into our project helped us make our structure more appealing and professional.

3.4 PHP

While PHP was not used for any front-end activities, it was the biggest part of our project as it added both functionality and connectivity. Mainly, we used PHP to connect to the tables inside our MySQL database, which was used all throughout the interface. Since our website is focused on being a dynamic full-stack application, for every piece of information inside the database we used PHP to retrieve it. One example of this is through the banners displayed for each university. The names of these images are stored inside the database, and thus depending on the ID of the university their respective image is displayed once the user reaches the cafeteria review page. For the user reviews and events, we created the db connection.php file to connect to the database, and started a session on every page in order to track what the user has been doing, then further used both "GET" and "POST" methods in order to retrieve text from the URL and to retrieve text from forms within the HTML files. On each php page we made many "SESSION" variables such as checking to see what page the user is on, if the user is logged in, etc. Apart from just data processing, we used PHP to gather university names to put in our array of universities for our auto-complete function within the search bar. Also, the PHP parts of our application allowed us to apply certain conditions to styling. For example, we stored a "color" variable inside one of our tables, which dictates the color of the event's holder div depending on the value inside the database. Creative ways of styling and enhancing user interactivity like this is what made us successful with PHP throughout our project.

3.5 MySQL

No of Database Tables: 6 tables

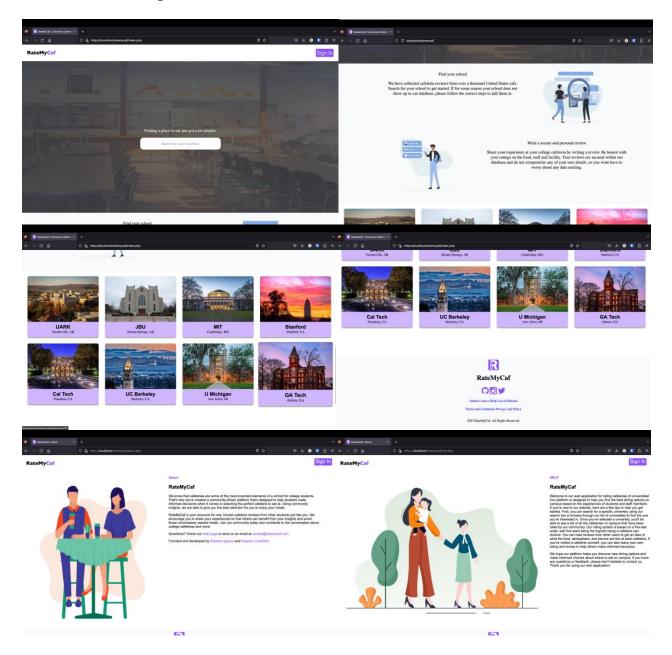
- menu tab
- registration tab
- universities tab
- hours tab
- events tab
- cafreviews tab

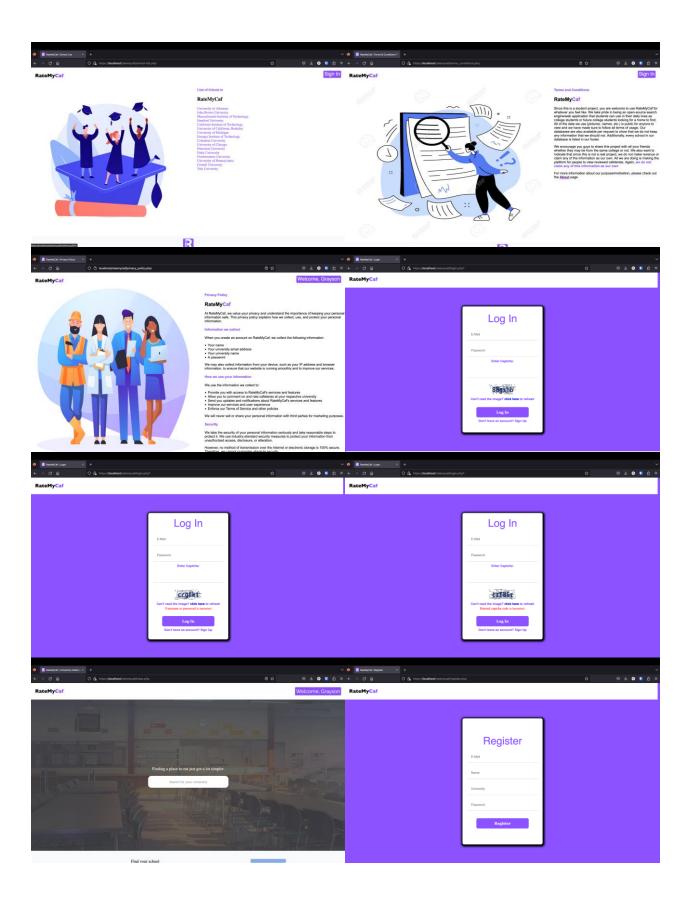
Average no of Columns across the tables:

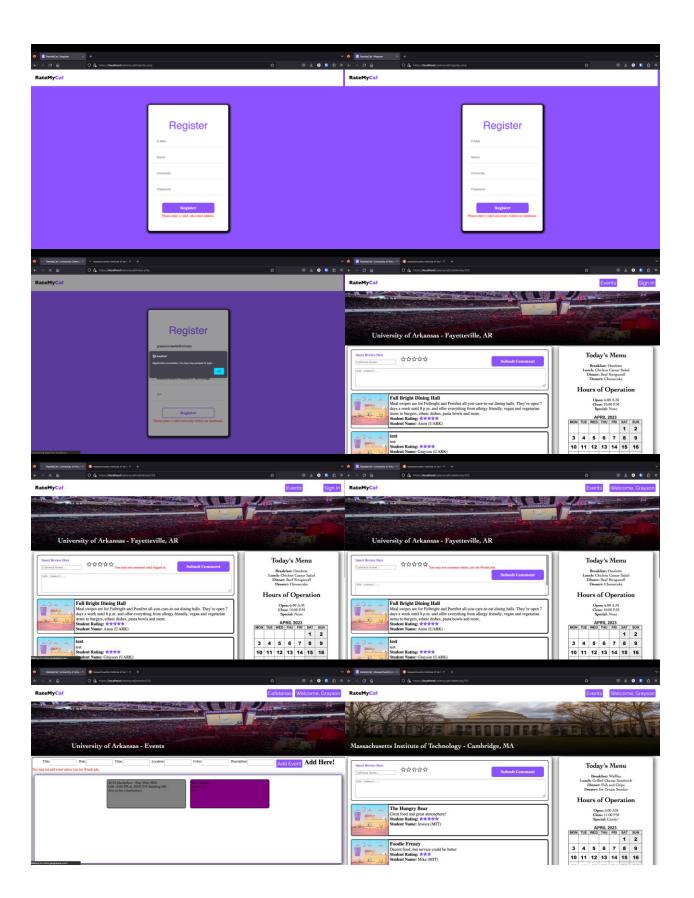
- We averaged about 5.5 columns
- menu tab: 6 columns
- registration tab: 5 columns
- universities tab: 8 columns
- hours tab: 5 columns
- events tab: 8 columns
- cafreviews tab: 7 columns

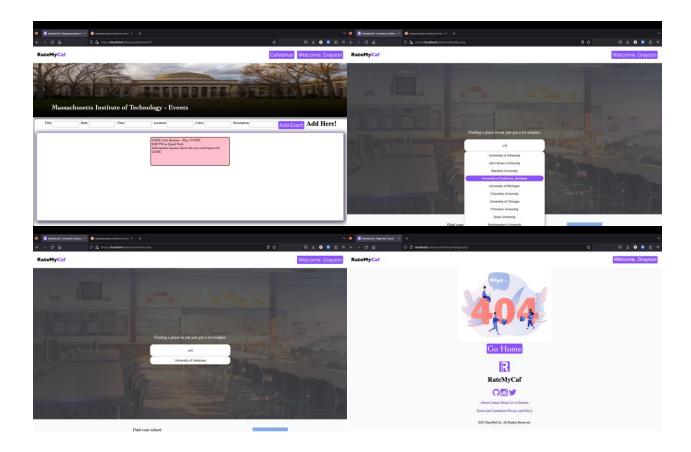
4. Output Screenshots

4.1 Forms Outputs

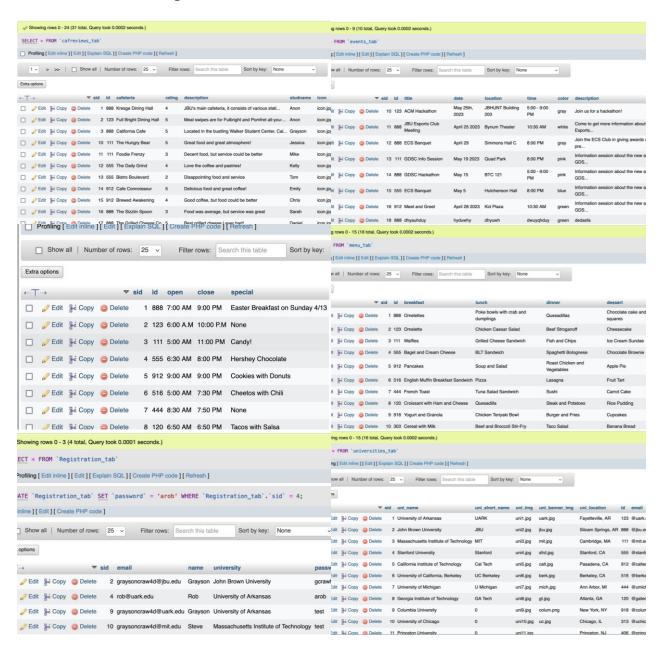


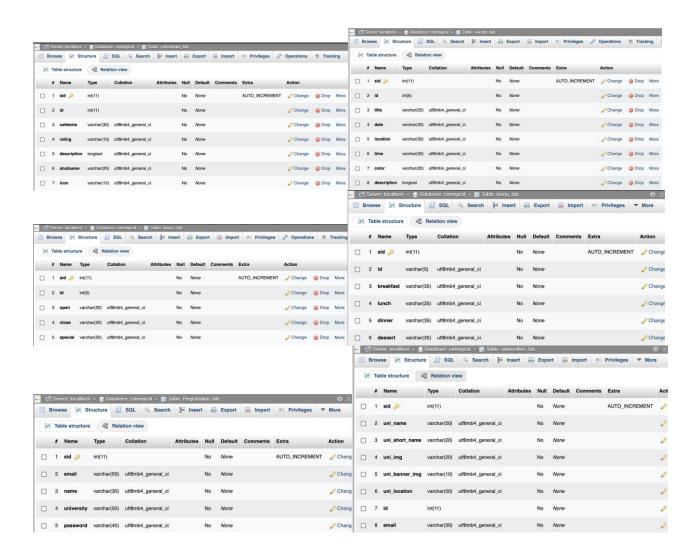






4.2 Database Outputs





5. Conclusion

To conclude this project, we finished exactly what we sought after to begin with: to create a user-friendly and fun cafeteria/reviews/events website for college students and the public alike. In the beginning, it was a little overwhelming with how much we had to add and do, and quite frankly, we weren't even sure how we were going to accomplish some things, such as the dynamic pages and auto-complete search bar. Once we were able to split up the work between the both of us and by using our unique skill sets to our advantage, we were able to complete this project successfully. We realized that Mobile/Web Applications equipped us with the perfect skillset to fully take this project to its max potential, and so once we put in the time to make it nice we realized how far we could take it. Some of the main things that we learned throughout this project were certain parts of JQuery and how it works, how dynamic pages can be created, methods of styling and overall, a deeper dive into the potential of PHP, JS, HTML and CSS. We had to do a lot of research since this was our first attempt at a full-stack application, but by challenging ourselves with such a complicated project we were able to learn and apply so much. It is true what people say: you learn more while getting hands on work, and we feel like RateMyCaf has taught us a lot about web development.

One Bible verse that we can apply to our entire project experience would be Isaiah 64:8, which says "But now, O Lord, you are our father; we are the clay, and you are our potter; we are the work of your hand." The reason as to why this verse stuck out to us is because in the same way that God was patient and carefully crafted all our insides and out, we must do the same to our project. If we rush and try to just get through it, the end product would be bad. That is why God took His time to make all of us in his image, like a potter. He is proud of us His children because we are the work of his hand, and thus this project is the work of not only our hands, but all the skills we have learned throughout the semester and the time we have invested into it. The usability of this project for the community can be related to providing a platform for everyone. Not everyone is extroverted and wants to openly talk to other people, but through an online platform it is easier for everyone to go out of their comfort zone and interact with others. The entire goal of RateMyCaf is to boost user-to-user interactivity through our user-friendly interfaces, and thus by giving the users a platform to connect with other university students (either cafeteria reviews or events), we are helping bring the community closer to each other.

6. APPENDIX:

GitHub: https://github.com/robPTY/ratemycaf

README.md: https://github.com/robPTY/ratemycaf#readme