Lipid-Lator Final Report

BY: TEAM TRIPLE J

12/4/2017

Team Members

Team Triple J consists of three Software Development II students taking Dr. Cengiz Gunay class in the Fall semester of 2017. The team members of Team Triple J are:

- **Jessica Sok** – UI/UX Design / Documentation Lead
- **Joseph Tsegaye** – Code Architecture / Testing Lead
- **Jose Moreno** – Team Manager / Data Modeler

Jessica Sok (left), Joseph Tsegaye (middle), Jose Moreno (right)

Client

Dr. Jon Rees is a part-time chemistry faculty at Georgia Gwinnett College (GGC) with a Ph. D in Applied Chemistry. In addition, he is a full-time employee at the Center for Disease Control and Prevention (CDC). At the CDC, he does research. One of his current research requires him to use information regarding the monoisotopic molar mass of lipids. Dr. Jon Rees requested Team Triple J to develop an offline Android application to retrieve data on lipid ions.

Description

Lipid-Lator is a mobile application for the Android platform currently available on the Google Play Store. This application was designed for Dr. Jon Rees who needs this application to be able to perform daily tasks at his current employment. Due to the nature of the app, it can also be of use to many people around the world as it is a utility application. With Lipid-Lator, one is able to calculate the abbreviation, formula, and monoisotopic molar mass of over 97 million different combinations of lipids. All of the data is completely offline so there is no need for any internet connection at all. This application can and will help many chemists easily and rapidly find the information they need.

Features Implemented

Currently the application does the following:

- Calculate the abbreviation of a lipid
- Calculate the formula of a lipid
- Calculate the monoisotopic molar mass of a lipid
- Able to retrieve data for over 97 million different combinations of options

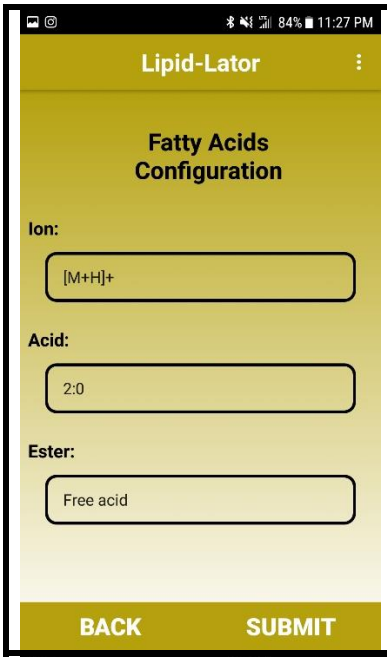
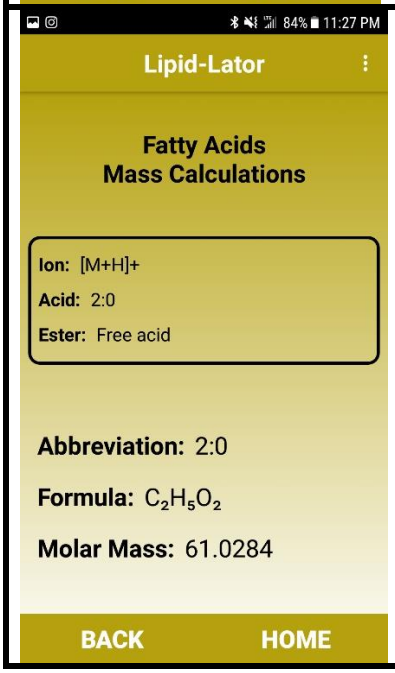
Future implementations:

- Graph of the isotopic distribution for each of the lipids being calculated
- Create an iOS version of the app

Functionality

- The home screen consists of nine image buttons which represents the nine lipid classes.

- On the top right corner of the screen, there is a more options icon. This will lead users to access the help, contact us, more info, and about screen.

	• The configuration screen consists of spinners and two buttons. The spinners are drop-down menus that allow the users to indicate a specific choice. • The submit button will transition the screen to the result screen. • The back button will transition the screen to the home screen.
	• The result screen consists of labels that displays the desired results to the users. • The home button will transition the screen to the home screen. • The back button will transition the screen to the configuration screen.

Known Issues

Fatal issues (Makes the application unusable):

- None

Minor issues (simple grammar, looks, or functionality issues):

- Glycerolipids has misspelled abbreviation for Diglycerides and Monoglycerides. We plan to fix this in the next update to Google Play Store.

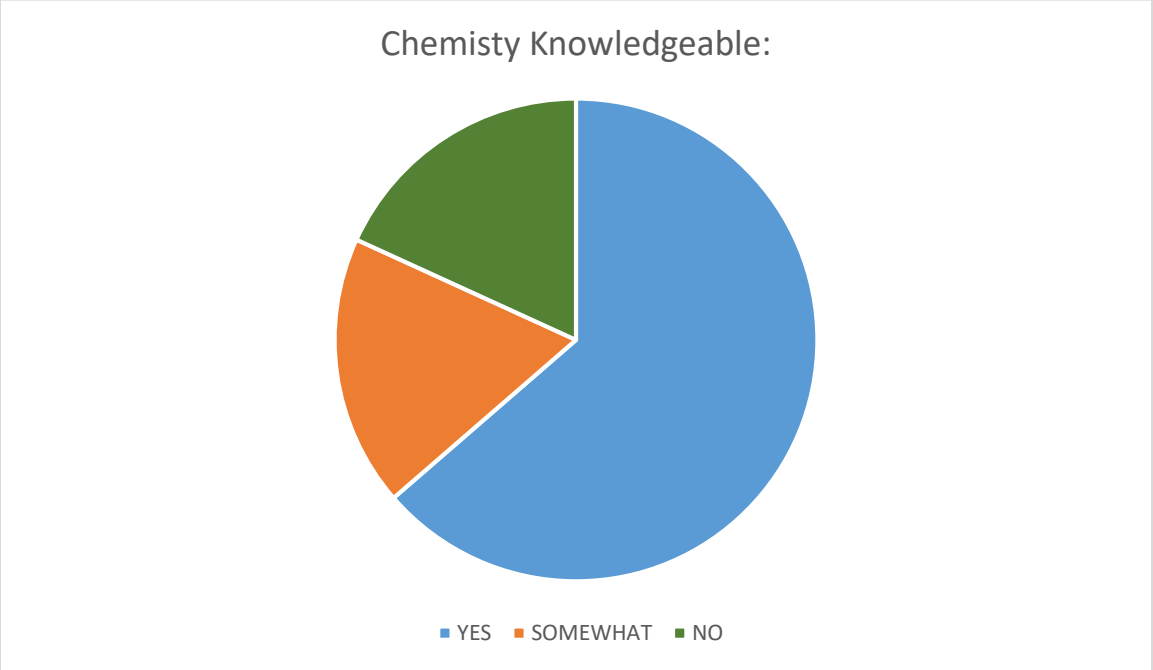
Documentation

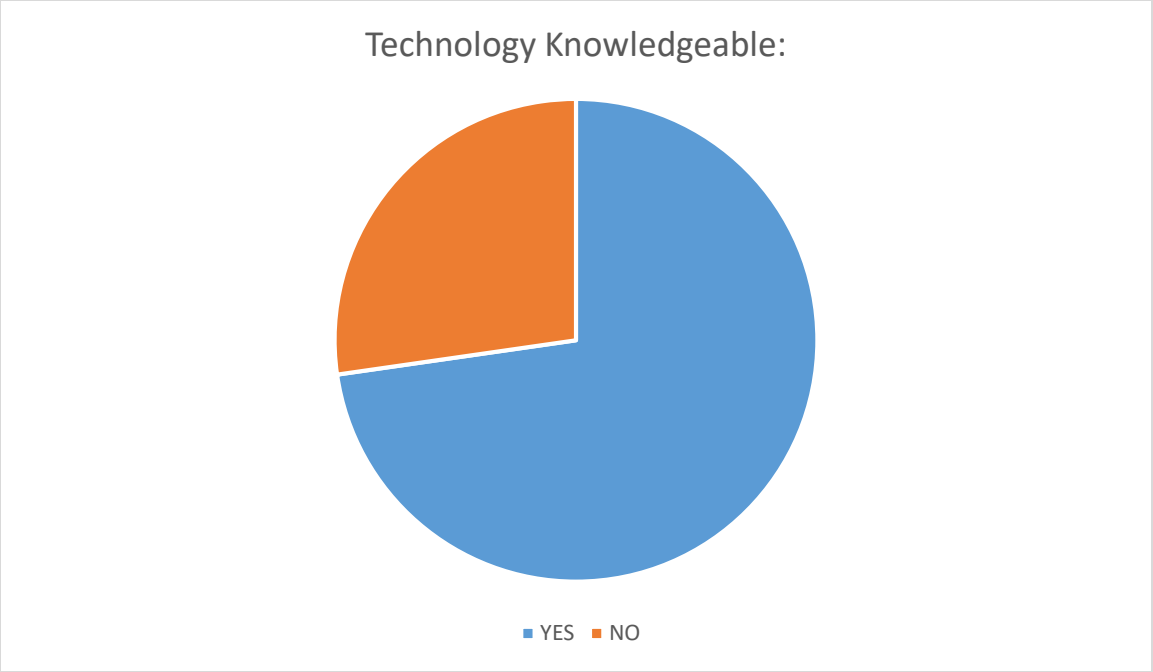
For further documentations on Lipid-Lator, view our github:

https://github.com/soft-eng-practicum/lipid-lator

Testing

During the CREATE symposium, we had eleven users test our mobile app. Before the testing session, we record the tester name, date, if they are technology knowledgeable, and chemistry knowledgeable. For the testing session, we had them find the molar mass for nine different lipids. Once the results were recorded, we were glad to know that all the tests passed with no assistance from Team Triple J!





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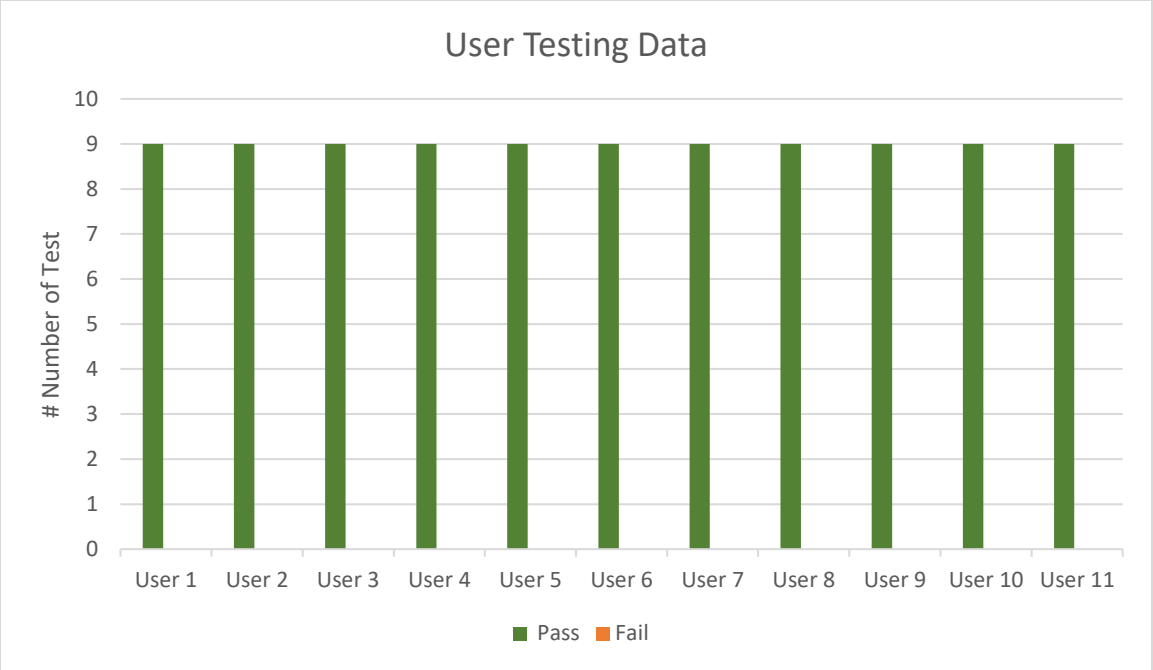


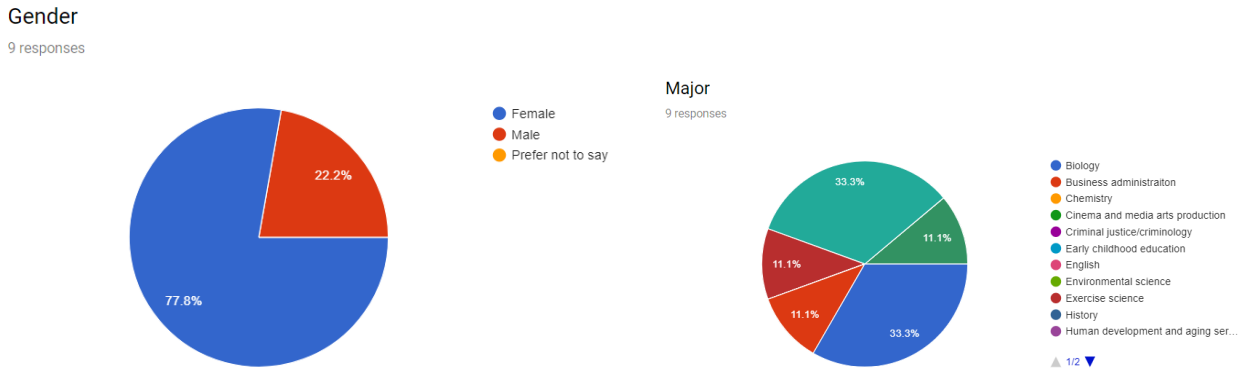
For the testing coverage, we have unit tests for the launch of the app, for the home screen, for all nine configuration screens, and for the nine result screens. The unit test composed of selecting image buttons, spinners, submit button, back button, and home button. There is also integration testing. For this, we see how the app's home screen transition to the configuration screen, then from the configuration screen to the result screen, and finally the result screen to

the home screen. Our results from our test coverage is passing for everything. Throughout the project, the testing improved and all group members were able to participate.

Survey Results

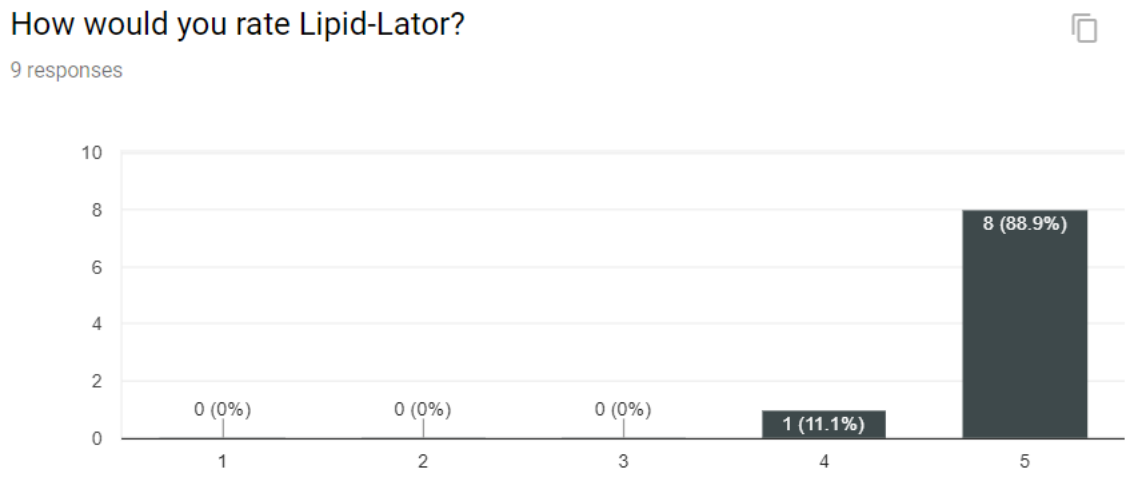
During the CREATE symposium, attendees were surveyed after trying out Lipid-Lator. A total of nine attendees responded to our survey. The survey link is: [Survey Link]

Of the nine respondents, 77.8% were females and 22.2% were male. They were from many different majors ranging from Information Technology to Biology.

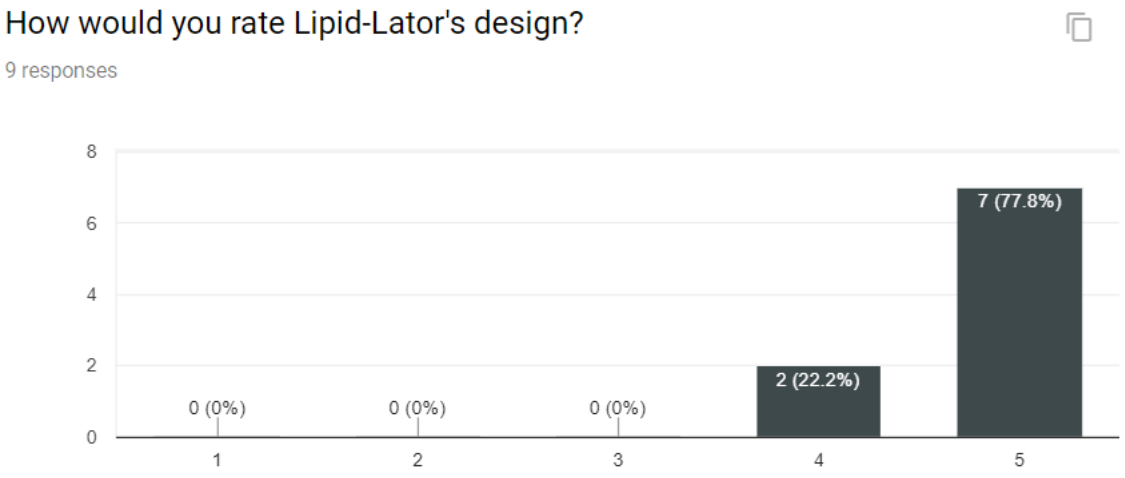


They were surveyed about Lipid-Lipid. These are there responses:

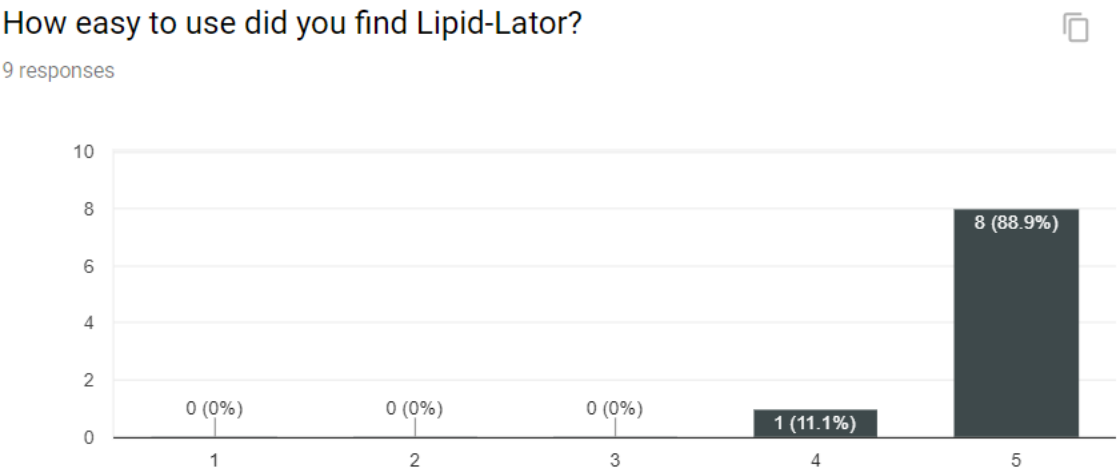
All respondents rated Lipid-Lator between four and five out five with 88.9% of the respondents giving Lipid-Lator a five out of five.



77.8% of the respondents gave Lipid-Lator's design a five out of five. The other 22.2% gave Lipid-Lator's design a four out of five.



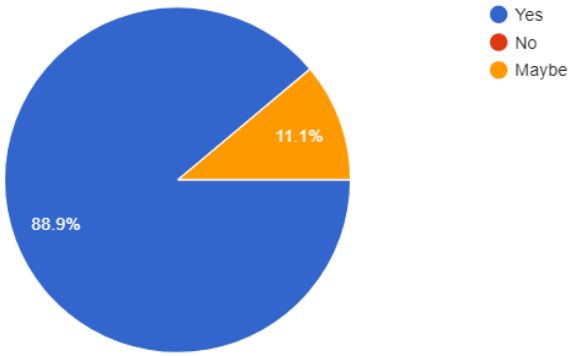
All respondents found Lipid-Lator very easy to use with 88.9% of the respondents giving Lipid-Lator ease of use a five of five rating.



88.9% of the respondents would recommend Lipid-Lator to their friend. 11.1% might recommend the app to their friend.

Would you recommend Lipid-Lator to a friend who needs to calculate the monoisotopic molar mass, formula, and/or abbreviation of different lipids?

9 responses



The respondents were also asked to describe Lipid-Lator, inform us what they liked best and least about Lipid-Lator, and to provide any additional comments. They responded as follow:

In one word, how would you describe Lipid-Lator.

8 responses

easy
Amazing
Magical
great
easy to use
Cool
Awesome!
Useful

What do you like best about Lipid-Lator?

8 responses

simple
Molar mass
It's sufficient to use
its easy to use
different categories and drop down menu
Chemistry made easy.
Very user friendly
the math was on point

Any additional comments?

5 responses

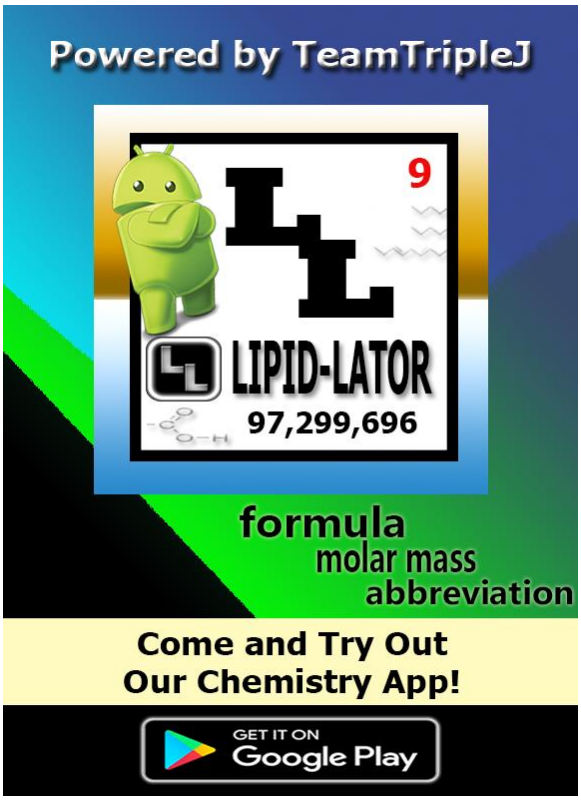
none
N/A
It's an awesome app.
I admire the team who develop this cool app!
n/a

What do you like least about Lipid-Lator?

6 responses

none
everything is okay
It's not available on an iphone yet
Nothing
Make the colors for different lipids to be more distinct
n/a

CREATE Flyer



Where to Get Lipid-Lator

In order to download this application, the first and most important thing is one must have an Android device (preferably a mobile phone). Go into the Google Play Store and search for Lipid-Lator and download from there. You can also follow this link to take you directly there https://tinyurl.com/yccnc453 and you can download from there. Also, if you need further assistance you can view the following video (screencast) for step-by-step instructions:

https://www.youtube.com/watch?v=B8mQj-wBI9A

Another option to access the download page of Lipid-Lator is to scan the following QR code:

License and Agreement

Intellectual Property and Licensing Agreement

This Intellectual Property Contribution and Assignment is made as of November 20, 2017 by members of Lipid-Lator (Team Triple J - Jose Moreno, Joseph Tsegaye, Jessica Sok), Jon Rees (Client), Cengiz Gunay (Instructor).

1. Intellectual Property Assignment.

All parties have agreed that the members of Team Triple J will each receive thirty-three percent (33%) of intellectual claim, the client has denied any ownership of the work and therefore the remaining one percent (1%) will be given to Cengiz Gunay. Intellectual claim includes entire rights, title and interest in and to any and all of the properties that exist as of the date hereof.

2. Licensing Agreement.

THE WORK (Lipid-Lator) IS PROVIDED UNDER THE TERMS OF THIS CREATIVE COMMONS PUBLIC LICENSE ("CCPL" OR "LICENSE"). THE WORK IS PROTECTED BY COPYRIGHT AND/OR OTHER APPLICABLE LAW. ANY USE OF THE WORK OTHER THAN AS AUTHORIZED UNDER THE ATTRIBUTION-NONCOMMERCIAL-NODERIVATIVES 4.0 INTERNATIONAL (CC BY-NC-ND 4.0) LICENSE OR COPYRIGHT LAW IS PROHIBITED. BY EXERCISING ANY RIGHTS TO THE WORK PROVIDED HERE, YOU ACCEPT AND AGREE TO BE BOUND BY THE TERMS OF THIS LICENSE. TO THE EXTENT THIS LICENSE MAY BE CONSIDERED TO BE A CONTRACT, THE LICENSOR GRANTS YOU THE RIGHTS CONTAINED HERE IN CONSIDERATION OF YOUR ACCEPTANCE OF SUCH TERMS AND CONDITIONS.

IN WITNESS, WHEREOF, the parties hereto the drawn agreement and will be executed the day and year first above written.

X
Jon Rees
Client

X
Joseph Tsegaye
Code Architecture/Testing Lead

X
Jose Moreno
Team Leader/Data Modeler

X
Cengiz Gunay
Instructor

X
Jessica Sok
UI Design/Documentation Lead