

Milestone 4 Project Evaluation

Team Members:

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Faculty Advisor from CSE:

Dr. Phillip Chan –pkc@cs.fit.edu

Client Name:

Dr. Phillip Chan –pkc@cs.fit.edu

Affiliation: Florida Tech

Meeting Dates:

9/10/2024

9/24/2024

Scheduled: Tuesdays Bi-Weekly at 11am

Progress Milestone 4

Task	Austin	Jason	Jacqueline	Hunter
Group Recommendation with difference scenarios; Same time different location clusters; Could increase from 8 -> 16; 4 location clusters North - East - West - South of campus	0%	0%	0%	100%
Develop and Test long and short views for user profiles	0%	0%	100%	0%

Finding Friends, Add and Remove Friends	0%	0%	0%	100%
Interface for entering ratings and reviews	0%	100%	0%	0%
Integrate accept and deny group recommendations into the database; Once they decline show more recommendations if available	100%	0%	0%	0%
Rider confirmation, cancel; Section 3.5.1 of Requirement Document; Know the Driver 3.5.2 of Requirement Driver document	0%	0%	100%	0%

Discussion (at least a few sentences, ie a paragraph) of each accomplished task (and obstacles) for the current Milestone:

Task 1 (Carpool Group Recommendation Algorithm): We increased the number of different scenarios in which to test the Group Matching Algorithm. We tested, such as moving on to four groups of four instead of two, and testing the groups based on the location selected. In these new instances, the algorithm continued to work, creating the best possible groups with the ungrouped users remaining.

Task 2 (Profile Views): We continued to develop the long and short views for the profile. We focused on a more user friendly design. For the long view, we have incorporated more personal information such as the users address, phone number, email, and preferences. For the short view, we removed the personal information and only kept necessary information such as name, pronouns, bio, and reviews.

Task 3 (Ratings and Reviews): We have created an After Ride page with some functionality for reviewing your past carpooling trip. On this page, users are able to rate and leave reviews for the other members of their previous carpool group. Also on this page, users will be able to report other users for inappropriate behavior, which will be

visible for admins (us four members) to read and review. Ratings are able to be given and stored in the database, but need to be updated to reflect an “average” rating. Reports have been set up to be received in the database but still need to be set up within the application.

Task 4 (Carpool Group Interface): We created the interface for the carpool group management and added integration for showing the users current groups and groups that are already made that they could join. These records are retrieved from the database and are currently live on the website. We also created a way for drivers to create groups outside of the groups that the system will construct and recommend. We still need to create a toggle on this page to display system recommended groups.

Task 5 (Rider confirmation, cancel): We currently have a mockup of the Rider confirmation/cancellation page. The current set back is registering an email client for our application. This set back is due to implementation complexity with using an external API to send emails and with finding an email service that offers a free tier for low usage.

Discussion (at least a few sentences, ie a paragraph) of contribution of each team member to the current Milestone:

Austin Phillips: For this milestone I worked mainly on the group management page. For this I created both the interface and the backend integration into the database. This integration included creating new groups, leaving groups, joining existing groups, viewing current groups and viewing available groups. A key feature of this is the system will only recommend groups that have a matching schedule to the user.

Jason Smith: For this milestone I primarily worked on the ratings system and started on the After Trip page. Giving another user a rating can be done on the After Trip page and is updated in the database, although it needs to be updated to take the average rating. On the After Trip page, users will see a list of the group members from their previous carpool trip, which is where they can enter reviews and also report users for any inappropriate behavior.

Jacqueline Torres: For Milestone 4, I worked on the Long/Short profile views as well as the rider confirmation page. The modifications made on the Long and Short profile view were based on the requirements document. The main focus was to add information to the long view and not allow this information to be viewed by other users. The rider confirmation page displays vital information to the upcoming trip. This is currently only a mockup and is dependent on the group creation task. Once this has been implemented the page will need to be updated to read the correct information.

Hunter Smith: For Milestone 4, I worked on testing the group matching algorithm. We ran additional tests since the last milestone, such as moving on to 4 groups of 4 instead of 2, and testing the groups based on the location. Additionally, I altered the Friends List page to function with the database. Users can now send, accept, or reject friend

requests, and they can also remove friends from their friends list. Any actions taken by a user are also reflected in the corresponding user's page as well.

Task Matrix for Milestone 5

Task	Austin	Jason	Jacqueline	Hunter
Group Recommendation for 32 students, 8 east, 8 west, 8 north and 8 south	50%	0%	0%	50%
Develop and test a home page that displays the user's upcoming trips	0%	0%	100%	0%
Develop and test a group management page. Add toggle to view system, personal recommendations and a more detailed view of group recommendations.	100%	0%	0%	0%
Integrate a shortcut to the Florida Tech Safe website	0%	0%	100%	0
Develop and test after trip page (comments and reports)	0%	100%	0%	0%

Discussion of each planned task for the next Milestone:

Task 1: With this task we want to further implement different scenarios to test the group recommendation algorithm. Through this task, the algorithm will be exposed to 32 unique users which will allow us to optimize based on these situations.

Task 2: The objective of this task is to create a user-friendly homepage that will display the users upcoming scheduled trips. The current homepage only displays buttons that redirect users to other pages. The goal is to modify this to a more user friendly experience.

Task 3: The group management page will need to show the following key components, current groups, system recommended groups and current groups that match the user's schedule. The page also must be able to allow users to join, leave and view group detail information.

Task 4: As a safety feature on the carpooling application, users must have easy access to the Florida Tech Safe Website when carpooling.

Task 5: The After Trip page needs to continue to be developed to include Reviews along with the star-rating system already implemented and expand the Report User functionality. The page also needs to display members of the user's carpool group.

Date(s) of meeting(s) with Client during the current milestone:

- 4/1/2024
- 4/12/2024

Client feedback on the current milestone

- See Faculty Advisor Feedback below

Meeting 9 09/10/2024 -

1. Long view
 - a. add vital information - address, phone number, email
 - b. Make updates more visible, inside box
 - c. Implement an easier way to display and update profile information
2. Friends List
 - a. Search Names, not email address
 - b. Adding friends
3. Ratings System
 - a. Manage ratings within application
 - b. Add interface
4. For the long view, I suggest to display the profile information (not via a link) as well. That is, 3 sections:

Profile

Reviews

Driving/Riding Statistics

Then next to the Profile heading, add an "update" button. This way, it's clear that the profile section can be updated

Meeting 10 09/24/2024 -

1. Group Recommendation
 - a. Different addresses
 - b. Take into account
 - i. At least 1 member of the group must be a driver
 - ii. Schedules
 - iii. Vehicle - constraint
 - iv. Preferences
 1. Smoking
 2. Eating
 3. Gender
 - c. Revise algorithm
 - i. Heading to campus -> # of trees = # of group members
 1. Ending node = Campus
 - ii. Leaving campus -> 1 Tree
 1. Starting node = Campus
 2. Profile Views
 - d. Long View
 - i. Preferences
2. Add, Remove, and Finding Friends
 - a. Remove Friend
 - i. If a friend is removed, the other user should be removed as well
3. Ratings and Review
 - a. Average Star Rating
 - i. Submit button / Form
 - b. Text Review / Comments
 - c. Report
 - d. View user - left side
 - e. Review stars and comments together
 - f. Remove Email
4. Accept and deny group recommendations
 - a. 2 separate sections for
 - i. System rec
 - ii. Personal rec
 - b. Display current members
 1. Link to short view
 - c. Join instead of add group
 - d. Display Information
5. Rider confirmation, cancel

Update on "from campus"

To campus:

1. assume the starting point is A (driver), find the shortest path to

campus that visits the other 3 members.

2. repeat #1, with different starting points.
3. average the distance over the different starting points.

From campus:

1. starting point is campus, assume driver is A who is the end point, find the shortest path
2. repeat #1 with different end points

3. average the distance over the different end points.

Below we assume we know who A,B,C,D are and find out how close they are to each other. However, there are many possible A,B,C,D--e.g. we start with 100 users who would like to arrive at campus before 10am. The first group would have $(100 \cdot 99 \cdot 98 \cdot 97) / (4 \cdot 3 \cdot 2 \cdot 1)$ combinations.

To reduce the number of combinations, we can form fewer, but larger "communities", then we find "groups" in each community. For example, 100 users with 5 communities, about 20 in each community.

To find "communities," I suggest you to look into the k-means clustering algorithm. Given k, the algorithm finds k clusters.

ps. We can potentially use k-means to find groups, however, the alg needs to be modified to consider cluster size (e.g. 4).

Also, I suggest you to look into the Hierarchical Agglomerative Clustering algorithm. We can use it to form groups directly.

Within the alg, we can stop merging once the desirable cluster size is achieved.

Faster, but not optimal, since it's greedy.

For Milestone 5, I would like to see finding groups from 32 students--8 to the north, 8 to the south, ...

I suggest using Hierarchical Agglomerative Clustering (HAC). This way, you don't need to find all combinations of groups and evaluate each

Date(s) of meeting(s) with Faculty Advisor during the current milestone:

- 9/10/2024
- 9/24/2024

Faculty Advisor feedback on each task for the current Milestone:

Faculty Advisor Signature: _____ Date: _____