

Team Assignment #2:

Design and Specification

of MCSTS

Part 2

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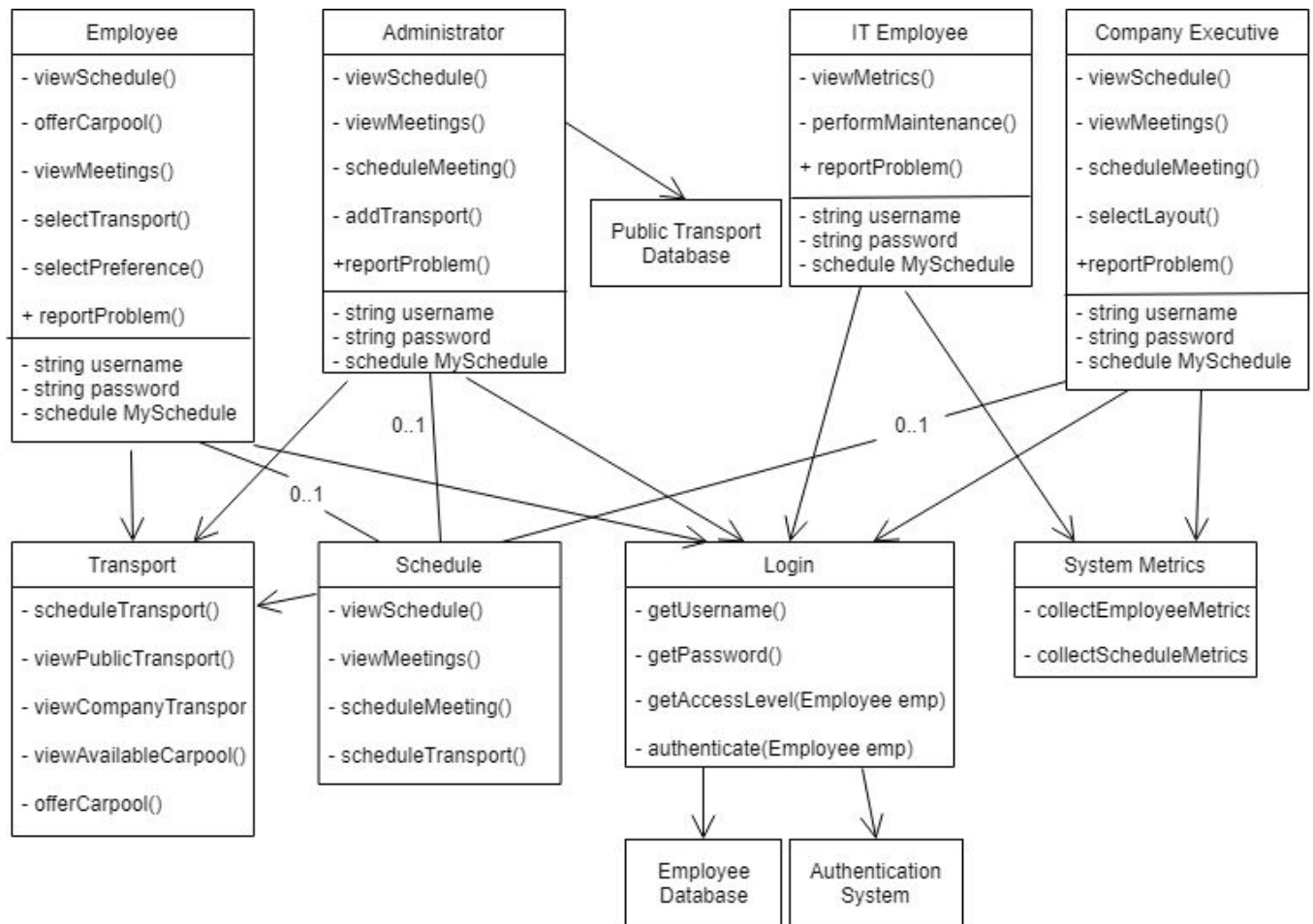
(The Brogrammers)

Dr. Murali Sitaraman

CPSC 3720-002

29 March 2019

Class Diagram(s)



Classes: High Level Descriptions

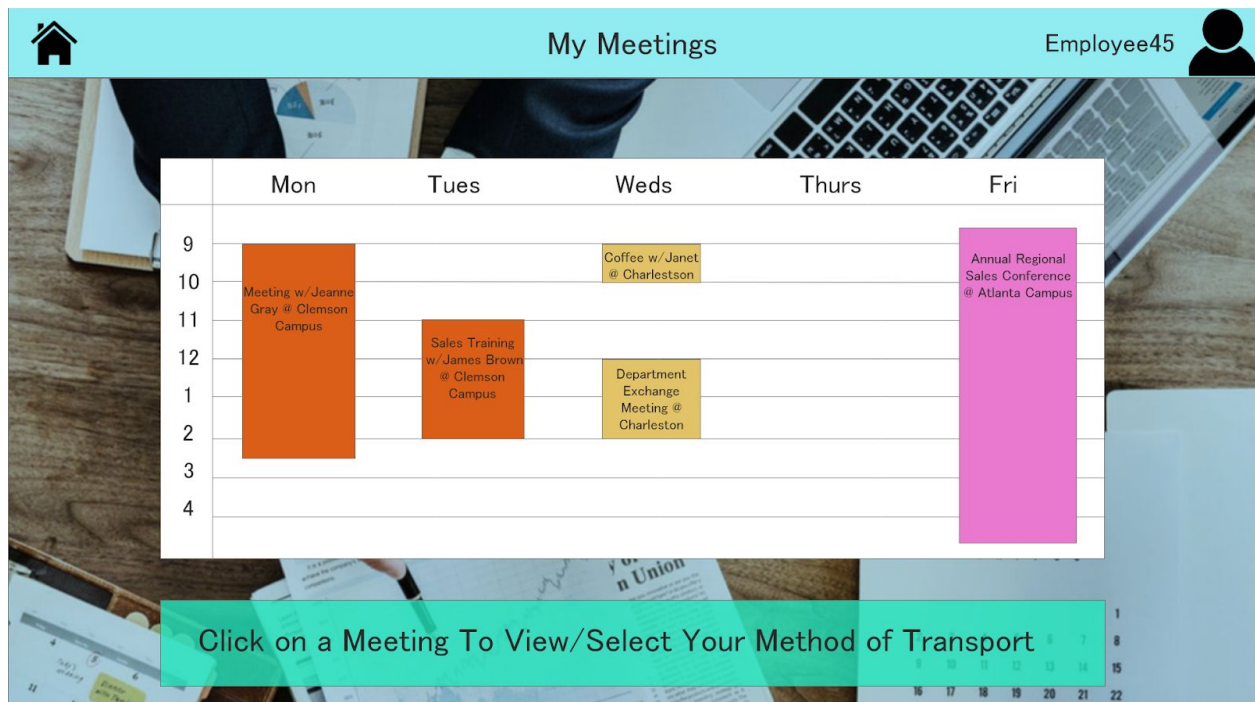
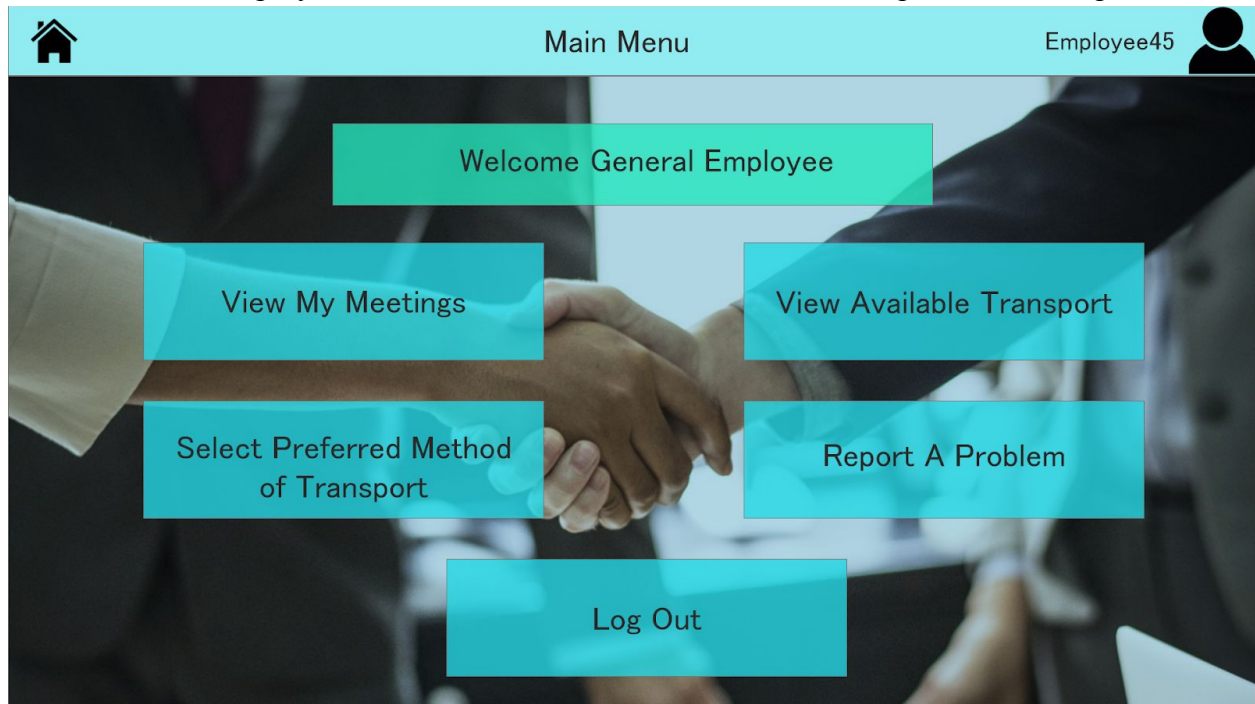
- Employee
 - Description: *This class represents the employee actor that will be using the system. This class should have access to the Schedule, Transport, and Login classes. It should have the following functionality: view schedule, offer carpool, select transport, select preference, and report problem.*
 - Have access to:
 - Schedule Class
 - Transport Class
 - Login Class
 - Functions:
 - viewSchedule();
 - offerCarpool();
 - viewMeetings()
 - selectTransport();
 - selectPreference();
 - reportProblem();
- Administrator
 - Description: *This class represents the administrator actor that will be using and modifying the system. This class should have access to the Schedule, Transport, and Login classes. It should also have access to an external Public Transport schedule. It should have the following functionality: view schedule, edit schedule, and report problem.*
 - Have access to:
 - Schedule Class
 - Transport Class
 - Login Class
 - (External) Public Transport Schedule(s)
 - Functions:
 - viewSchedule()
 - viewMeetings()
 - scheduleMeeting()
 - addTransport()
 - reportProblem()
- IT employee
 - Description: *This class represents the IT employee actor that will be using and modifying the system. This class should have access to the System Metrics and Login classes. It should have the following functionality: view metrics, perform maintenance, and report problem.*
 - Have access to:
 - System Metrics Class
 - Login Class
 - Functions:
 - viewMetrics()
 - performMaintenance()
 - reportProblem()



- Company Executive
 - Description: *This class represents the company executive actor that will be using and modifying the system. This class should have access to the Schedule, System Metrics, and Login classes. It should have the following functionality: view schedule, view meetings, schedule meeting, view metrics, select system layout, and report problem.*
 - Have access to:
 - Schedule Class
 - System Metrics Class
 - Login Class
 - Functions:
 - viewSchedule();
 - viewMeetings();
 - scheduleMeeting();
 - selectLayout();
 - reportProblem();
- Transport
 - Description: *This class represents the transport that employees will be able to view and select within the system. This class is accessed by other classes. It should have the following functionality: schedule transport for meeting, view public transport schedule, view company transport schedule, view available carpool, and offer carpool.*
 - Functions:
 - scheduleTransport();
 - viewPublicTransport();
 - viewCompanyTransport();
 - viewAvailableCarpool();
 - offerCarpool();
- Schedule
 - Description: *This class represents the schedule/scheduling employees, administrators, and company executives will be able to view and select within the system. This class should have access to the Transport class. It should have the following functionality: view schedule, view meetings, schedule meeting, and schedule transport for meeting.*
 - Have Access to:
 - Transport Class
 - Functions:
 - viewSchedule();
 - viewMeetings();
 - scheduleMeeting();
 - scheduleTransport();
- Login
 - Description: *This class represents the login function used by the system to authenticate users and classify what level of access each of them have depending on their employment level. This class should have access to the Employee Database and Authentication system. It should have the following functionality: enter username, enter password, forgot password, forgot username.*
 - Have access to:

- Employee Database
 - Authentication System
- Functions:
 - getUsername();
 - getPassword();
 - getAccessLevel(Employee emp);
 - authenticate(Employee emp);
- System Metrics
 - Description: *This class represents the system's collection of various metrics including but not limited to transport usage data and reported problems. This class should have access to all other classes. It should have the following functionality: collect employee/schedule/etcetera metrics, display metrics graphically, and display reported error submissions.*
 - Functions
 - collectEmployeeMetrics()
 - collectScheduleMetrics()
 - Collect...
 - ...
- External classes:
 - Employee Database
 - Description: *This is the company database containing all employee information.*
 - Authentication System
 - Description: *This is the authentication system that stores usernames and passwords for a single company.*

Design Verification: UI Sample

What a General Employee would see in terms of how and where transportations take place:




Available Transport
Employee45


Public Transport

Greyhound Buses

Clemson to Charleston

- +5:30 AM – 10 AM
- +6 AM – 10:30 AM
- +8 AM – 12:30 PM
- +10 AM – 2:30 PM

Charleston to Clemson

- +2PM – 6:30 PM
- +4PM – 8:30 PM
- +5:30PM – 9:45PM
- +6 PM – 11 PM
- +7 PM – 12 AM
- +9 PM – 1:30 AM

Carpool Options

Fred J.

Departure: 8 AM

ETA: 12:30PM

Seats Open: 1/5

+Expand

Jess T.

Departure: 10 AM

ETA: 2 PM

Seats Open: 2/3

+Expand

Raymond D.

Departure: 7 AM

ETA: 10:30 AM

Seats Open: 3/5

+Expand

Offer Carpool

Company Transport



Company Shuttles

Clemson to Charleston

- +7 AM – 12 PM
- +8 AM – 1 PM
- +9 AM – 2 PM
- +10 AM – 3 PM

Charleston to Clemson

- +3 PM – 8 PM
- +4 PM – 9 PM
- +5 PM – 10 PM
- +6 PM – 11 PM


Offer Carpool
Employee45


Vehicle Details

Make

Model

Color

Other Details

Transport Details

Departure Time

Estimated Time of Arrival

Number of Passengers

Other Details

Contact Information

Company Email Address

If You Are Finished:

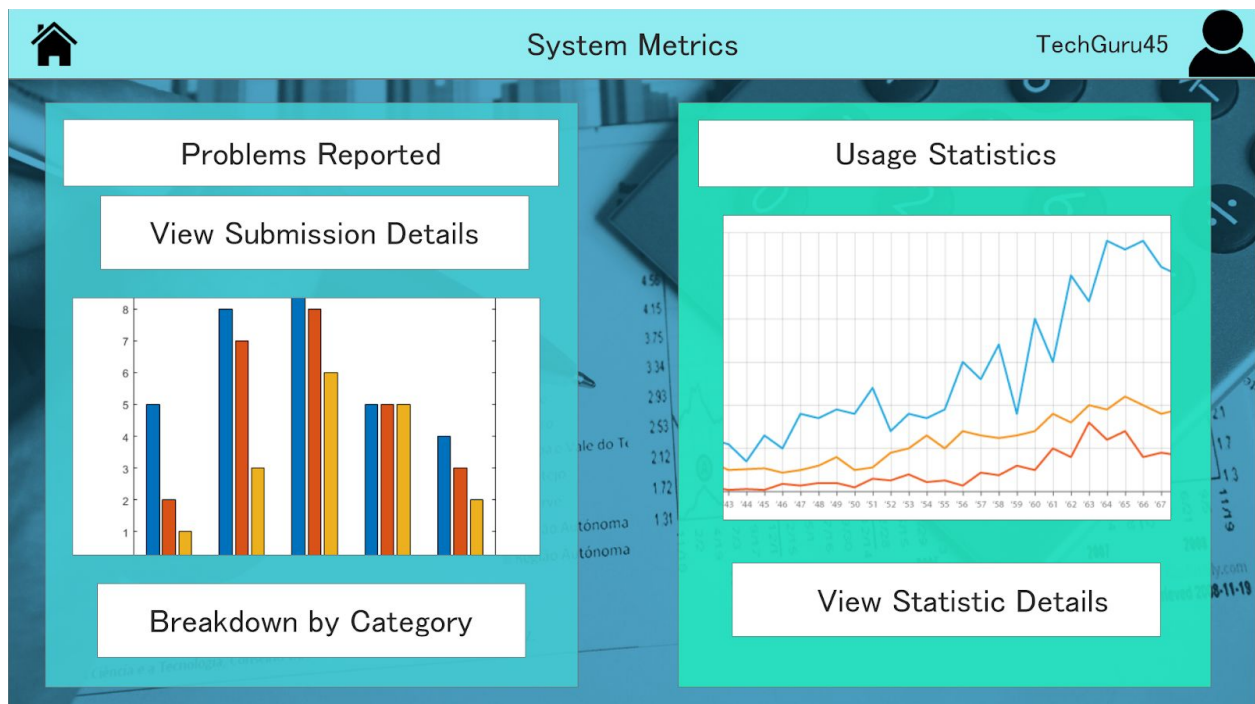
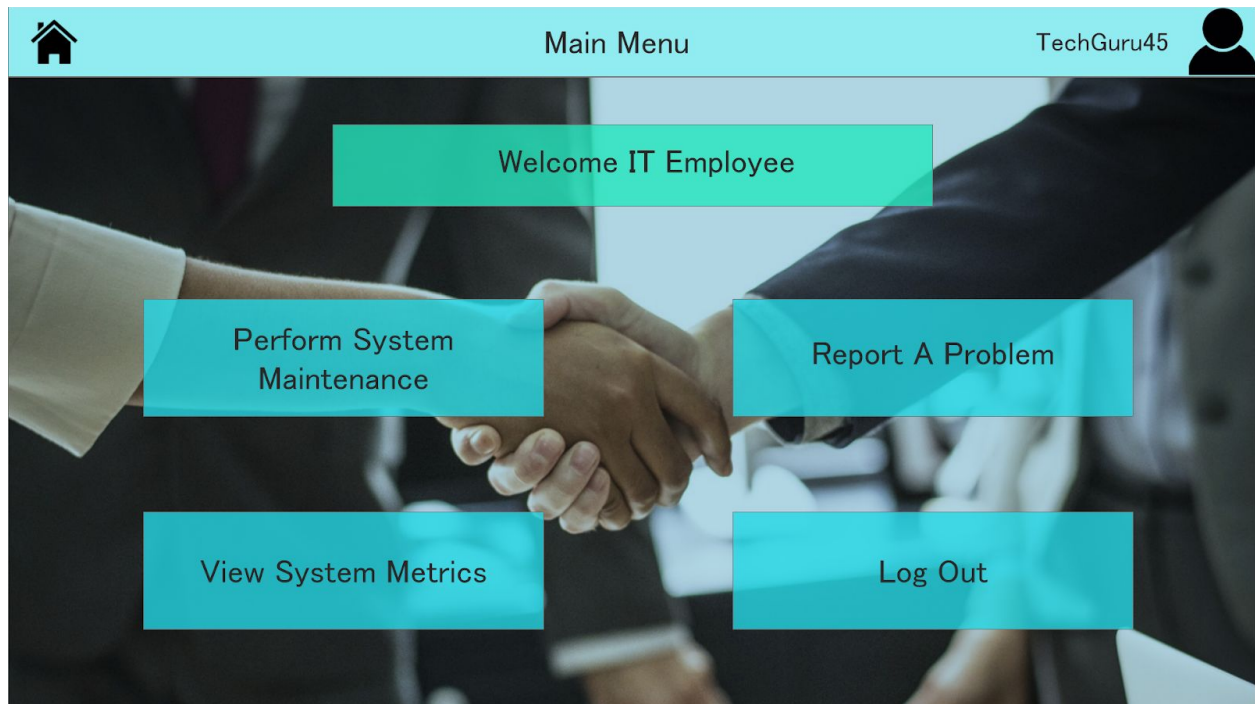
Confirm

Cancel

Explanation:

The portion of the system that holds the most important features for general employees is the section dealing with the scheduling of transportation and carpool in relation to a meeting. These preliminary visuals match scenarios outlined within the scenario portion of the requirements documentation. The overall layout matches the UML diagram in relation to what is accessible in each page.

What an IT Employee (someone who manages the system) would see in terms of where the demands of the system and transportation are:

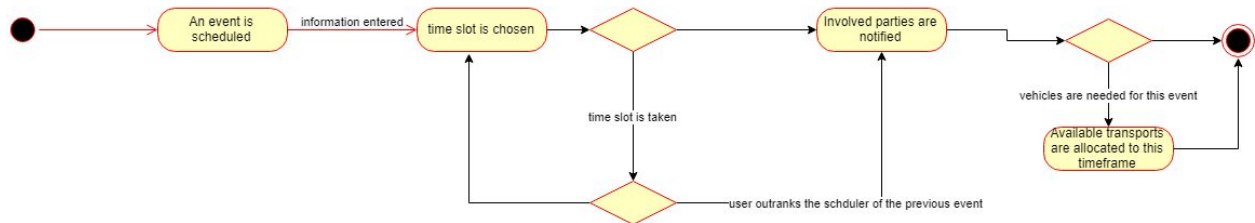


Explanation:

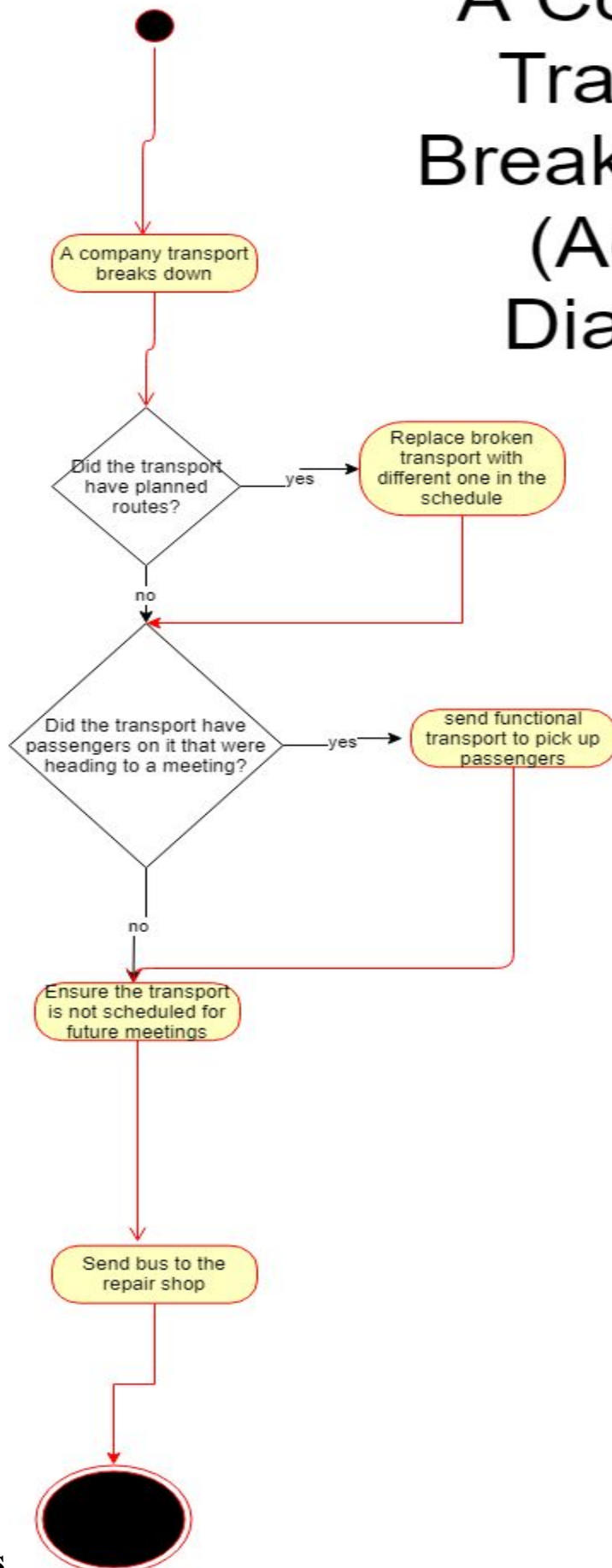
The portion that allows for IT employees (who maintain the system daily) to view transport demands is the System Metrics page. Usage statistics is a category that shows the frequency of what portions of the system are used the most as well as what types of transport were used the most on certain days. This information aligns with what was described in the requirements document and it should be noted that company executives who dictate financial decisions would have access to this portion of the system. IT employees also have the ability to view the different types of errors reported as well as the exact details typed out within the reports - as outlined in the requirements document UML diagram and scenarios - which allows them to make adjustments to the system to make it more efficient.

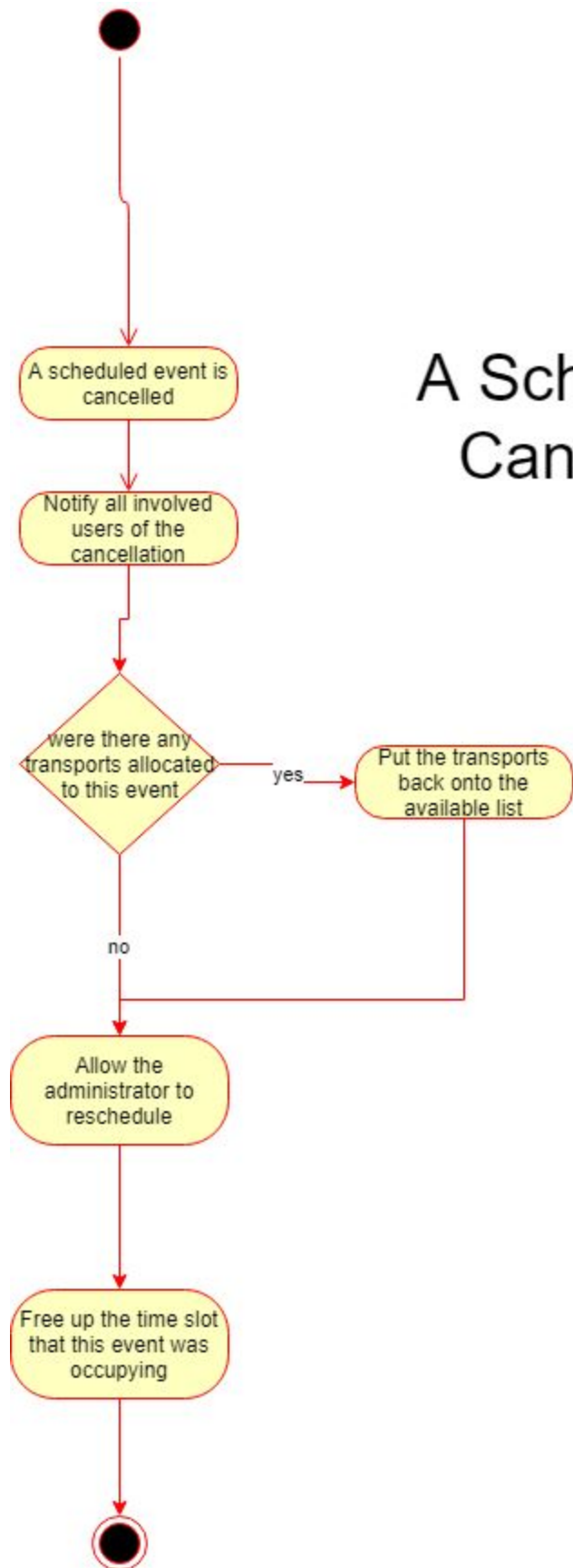
UMLDiagrams

An Event is Scheduled (State Diagram)



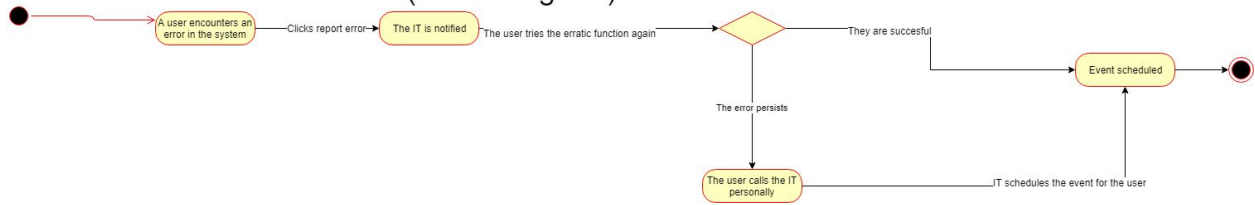
A Company Transport Breaks Down (Activity Diagram)



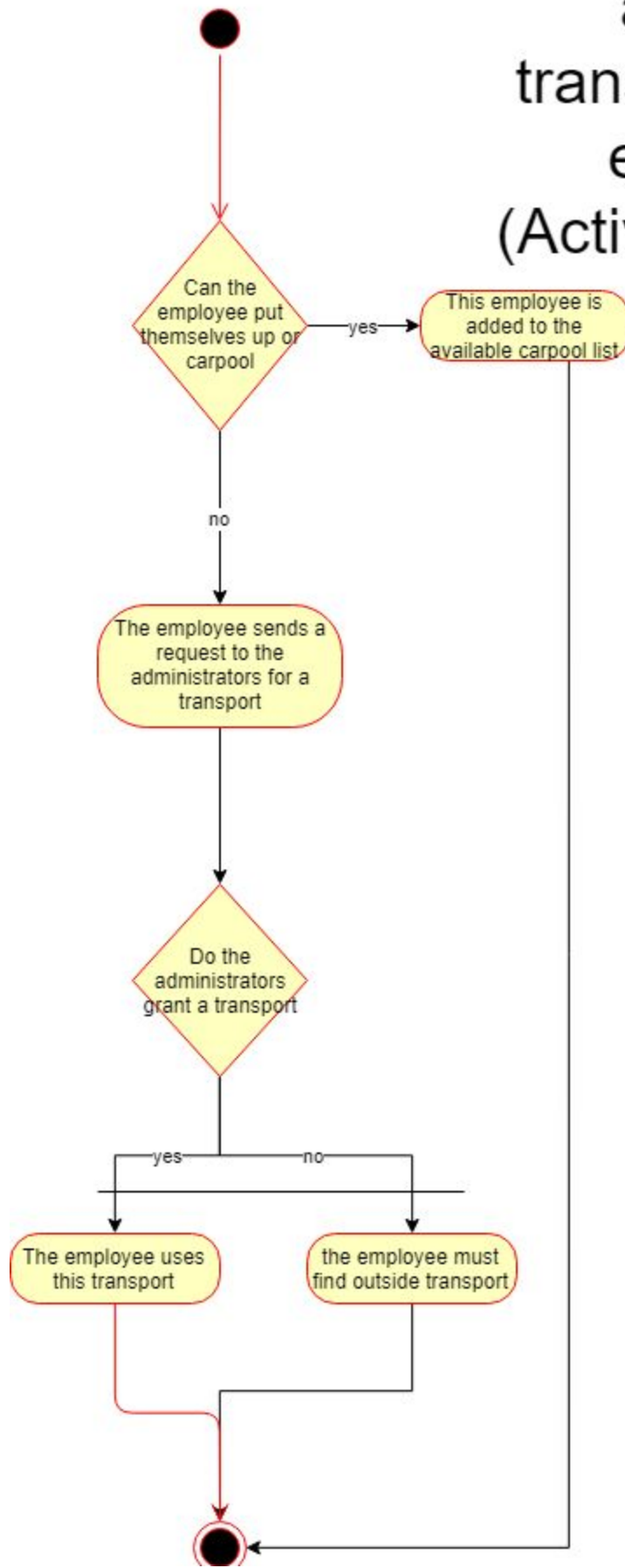


A Scheduled Event is Cancelled (Activity Diagram)

A User Encounters an Error in the System (State Diagram)

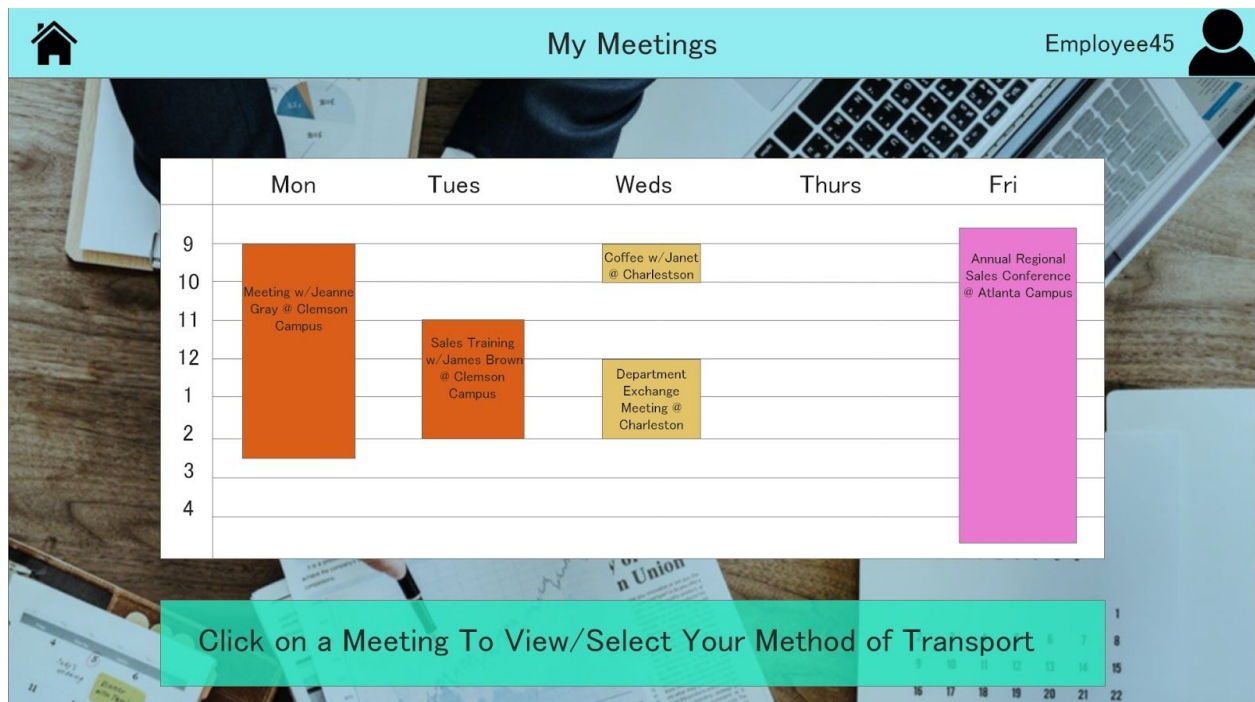
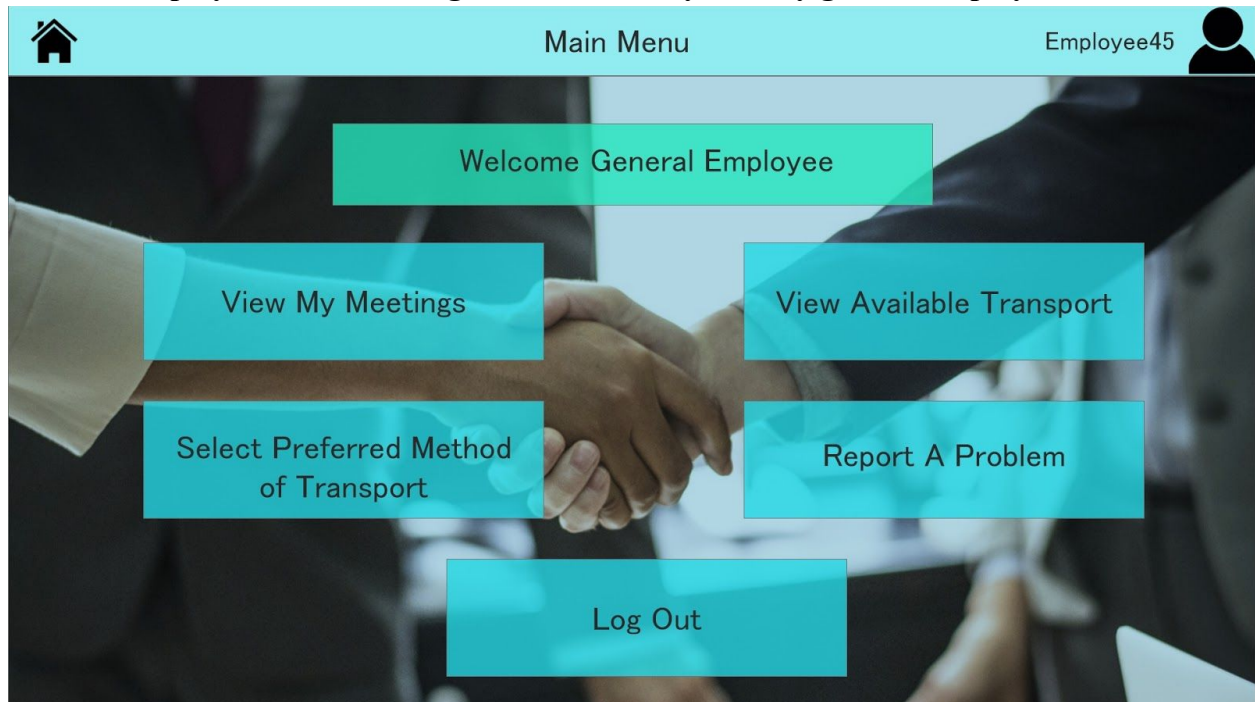




There are no
available
transports for an
employee
(Activity Diagram)



User Interface Design

General Employee: The following features are only used by general employees




Available Transport
Employee45


Public Transport

Greyhound Buses

Clemson to Charleston

- +5:30 AM – 10 AM
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- +8 AM – 12:30 PM
- +10 AM – 2:30 PM

Charleston to Clemson

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- +9 PM – 1:30 AM

Carpool Options

Fred J.
Departure: 8 AM
ETA: 12:30PM
Seats Open: 1/5
[+Expand](#)

Jess T.
Departure: 10 AM
ETA: 2 PM
Seats Open: 2/3
[+Expand](#)

Raymond D.
Departure: 7 AM
ETA: 10:30 AM
Seats Open: 3/5
[+Expand](#)

Offer Carpool

Company Transport



Company Shuttles

Clemson to Charleston

- +7 AM – 12 PM
- +8 AM – 1 PM
- +9 AM – 2 PM
- +10 AM – 3 PM

Charleston to Clemson

- +3 PM – 8 PM
- +4 PM – 9 PM
- +5 PM – 10 PM
- +6 PM – 11 PM


Offer Carpool
Employee45


Vehicle Details

Make

Model

Color

Other Details

Transport Details

Departure Time

Estimated Time of Arrival

Number of Passengers

Other Details

Contact Information

Company Email Address

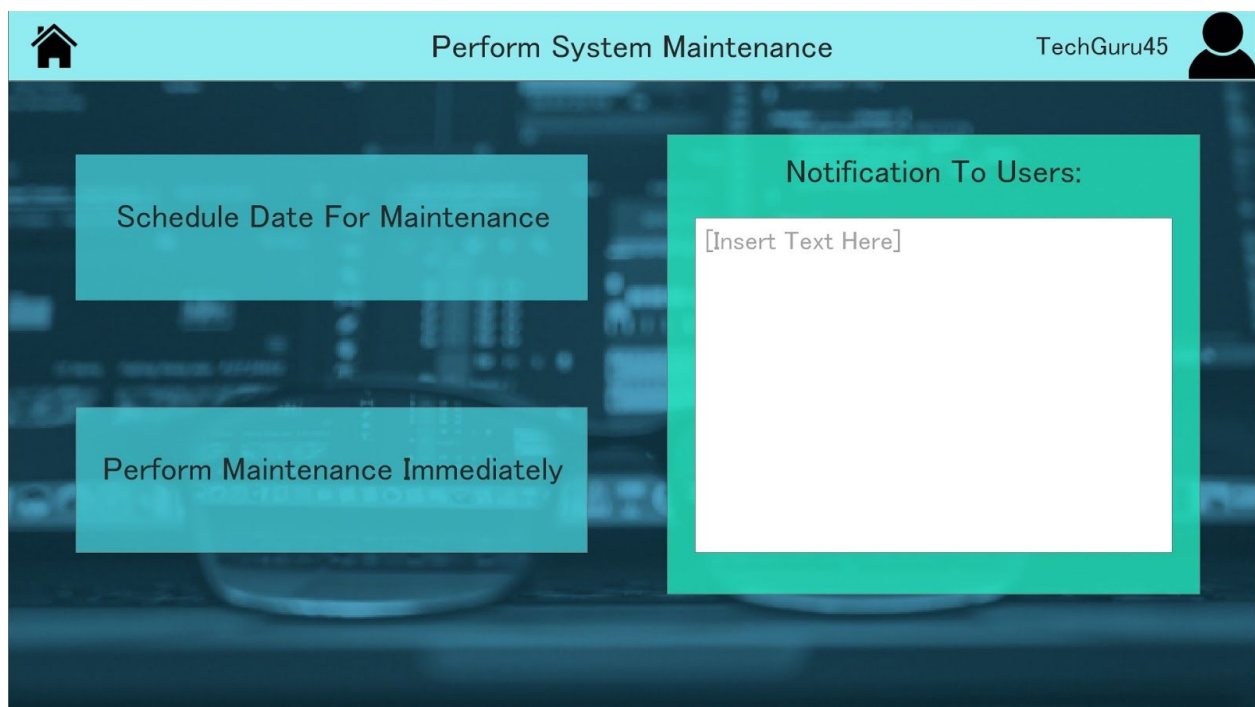
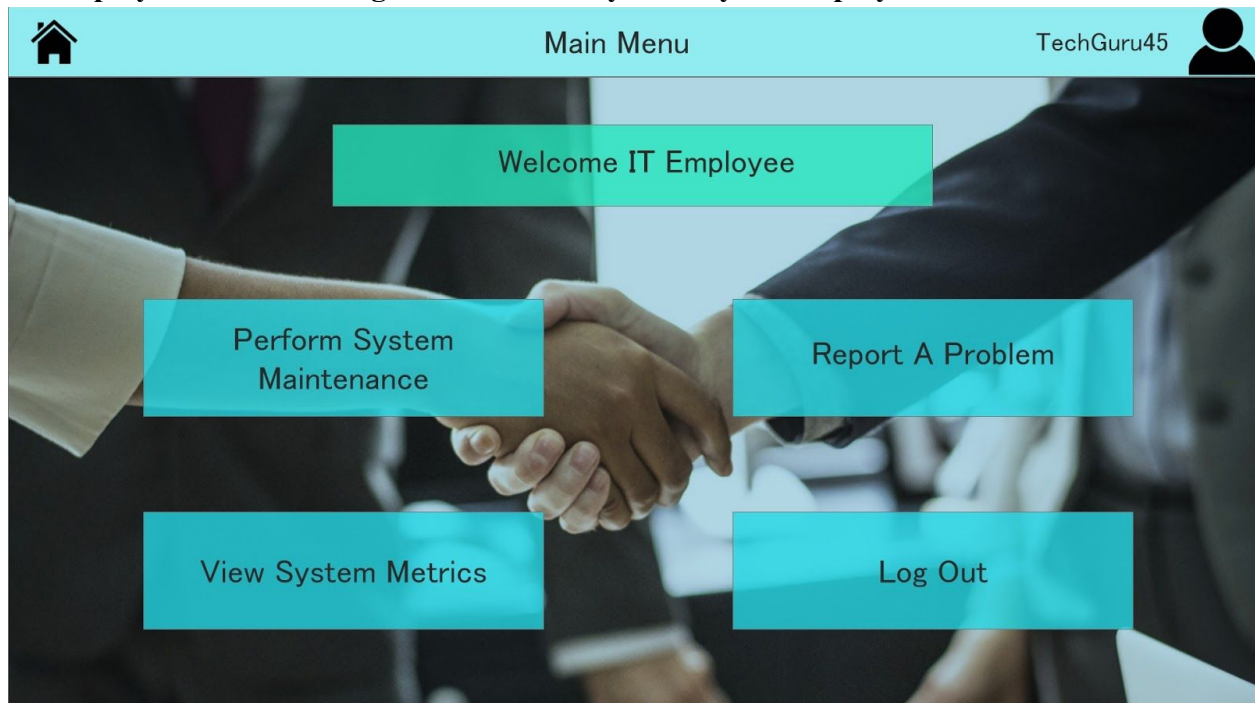
If You Are Finished:

[Confirm](#)

[Cancel](#)

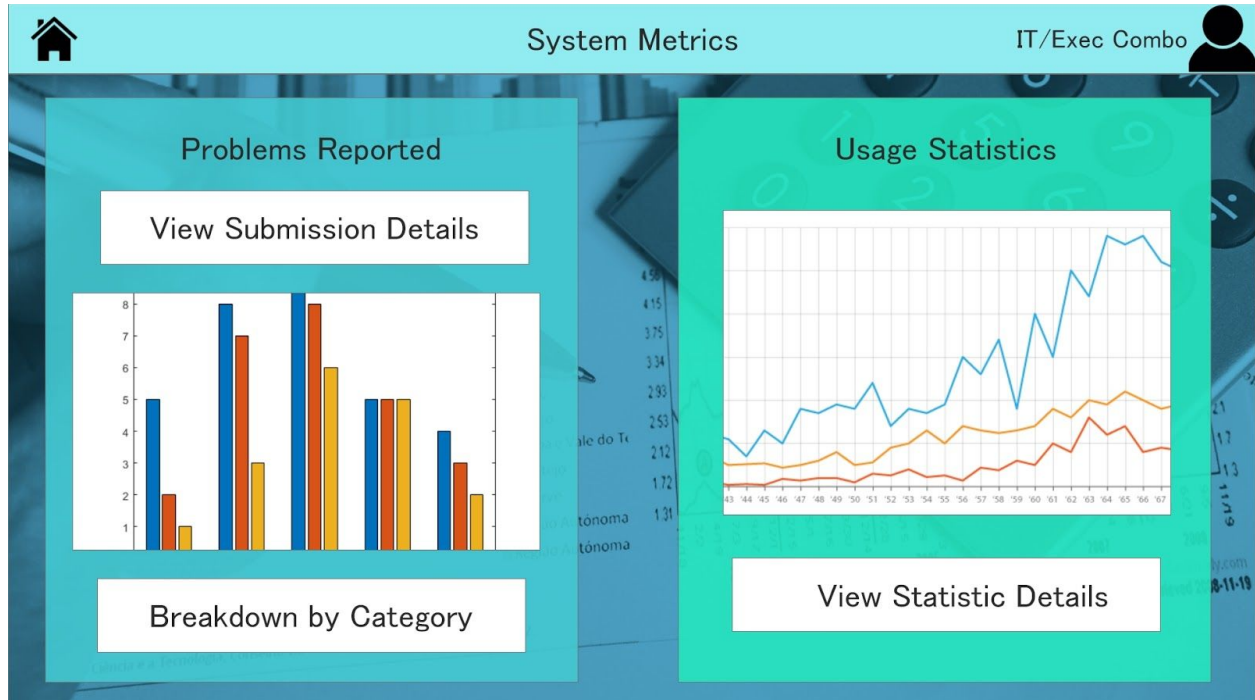
Explanation: General Employees are the only users in our system that heavily use our transportation system. They adhere to schedules inputted into the system by company executives and administrators. Their purpose in using this system is to find efficient transport to their multi-campus meeting sites.

IT Employee: The following features are only used by IT Employees

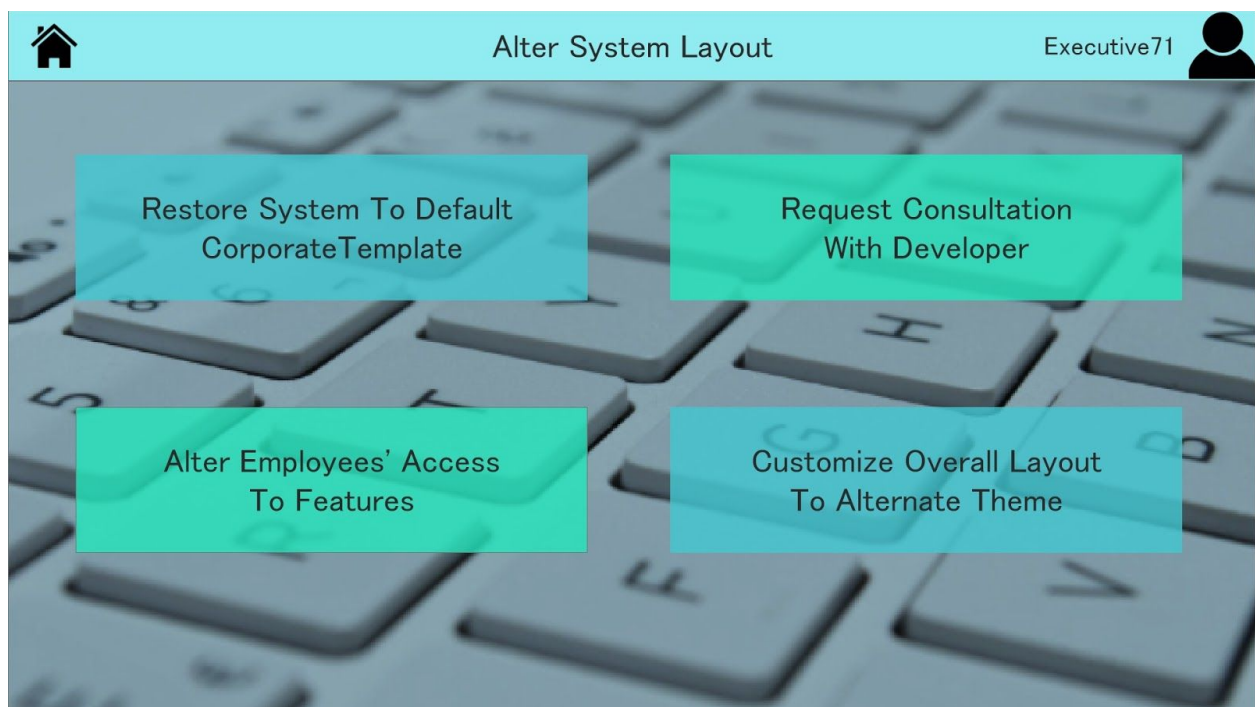
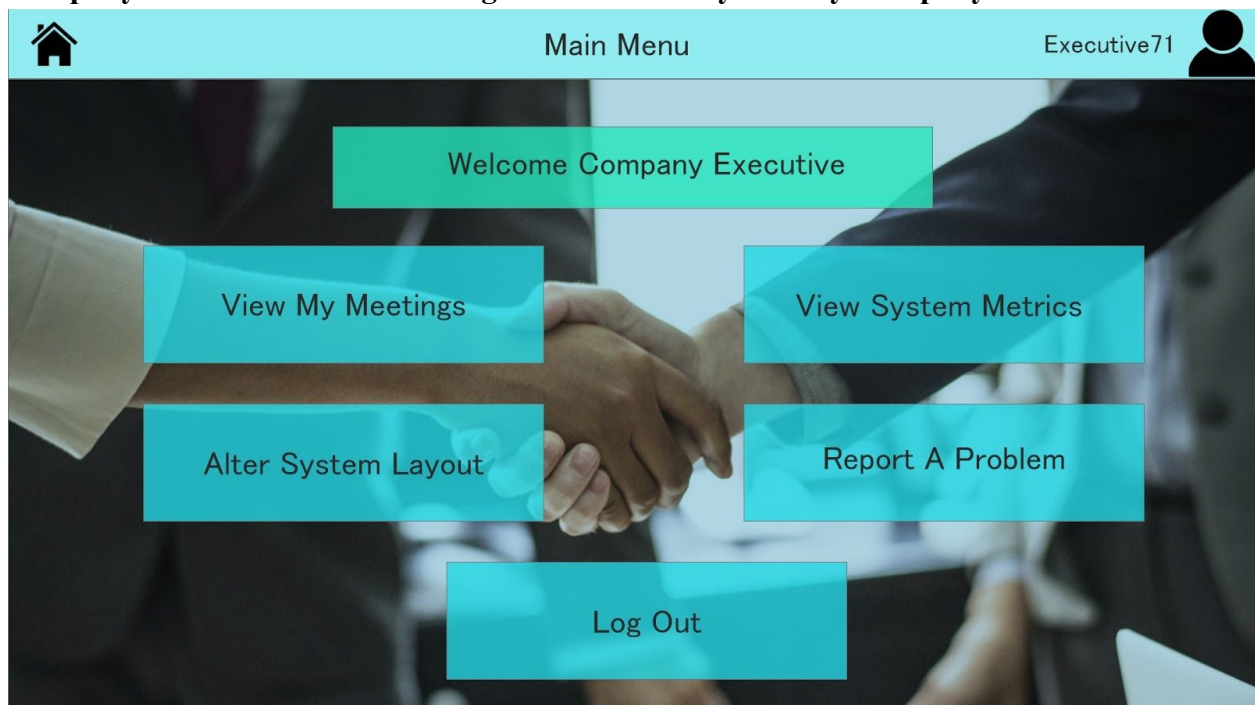


Explanation: IT Employees are the only users that have a need to perform system maintenance. They make sure the system is working properly and have the ability to disable use of it in order to make improvements to their company's version of it.

Executive & IT: The following feature is used by both Company Executives & IT Employees. Both need access to System Metrics but for different reasons. Executives have access in order to understand how much the system is used and in what areas. They can utilize this to adjust their finances. IT Employees have access in order to locate issues, read over problem reports, and trace areas of high traffic in regards to company use.




Company Executives: The following features are only used by Company Executives




Explanation: Company Administrators are the ones who decide what they want their system to have. They have the ability to remove certain features, alter what features they want their employees having access to, restore the company edits to system defaults, and to contact the developer should they have questions or desire more.

Executive & Administrator: The slightly altered View My Meetings page and the Schedule/Edit A Meeting page are only used by Company Executives & Administrators because they are the only ones with the authority to schedule any sort of meetings.




My Meetings


Exec/Admin Combo

	Mon	Tues	Weds	Thurs	Fri
9					
10			Coffee w/Janet @ Charleston		Annual Regional Sales Conference @ Atlanta Campus
11	Meeting w/Jeanne Gray @ Clemson Campus				
12		Sales Training w/James Brown @ Clemson Campus			
1			Department Exchange Meeting @ Charleston		
2					
3					
4					

Click on Your Schedule to Schedule/Edit A Meeting



Schedule/Edit A Meeting

Exec/Admin Combo

• Schedule A Meeting

Title:

Date:

Location:

Type:

☐ Individual
☐ Small Group
☐ Large Group
☐ Departmental
☐ Regional
☐ National

Participants:
[This will allow for auto filling of Departments, Regions, and National contacts]

Start Time:

End Time:

Purpose:

Confirm

Cancel

• Edit A Meeting

Original Title:

New Title:

Date:

Location:

Type:

☐ Individual
☐ Small Group
☐ Large Group
☐ Departmental
☐ Regional
☐ National

Participants:
[This will allow for auto filling of Departments, Regions, and National contacts]

Start Time:

End Time:

Purpose:

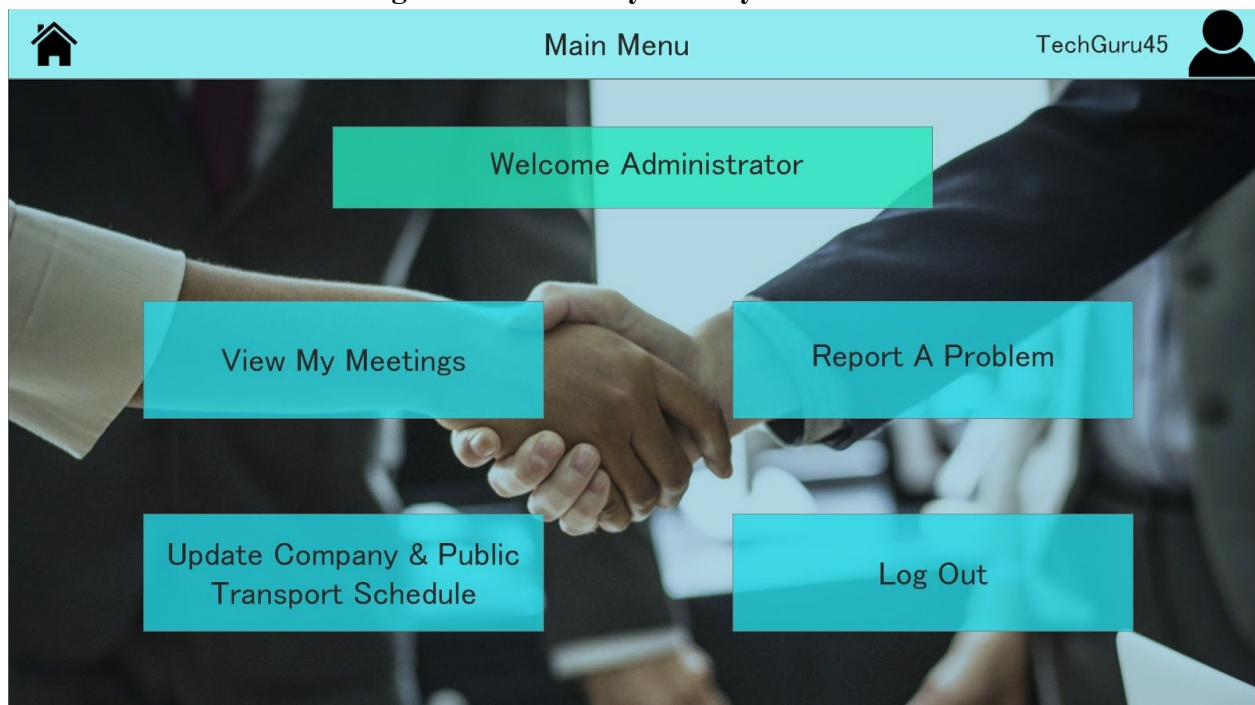
Reason For Changes:

☐ Cancel Meeting

Confirm

Cancel

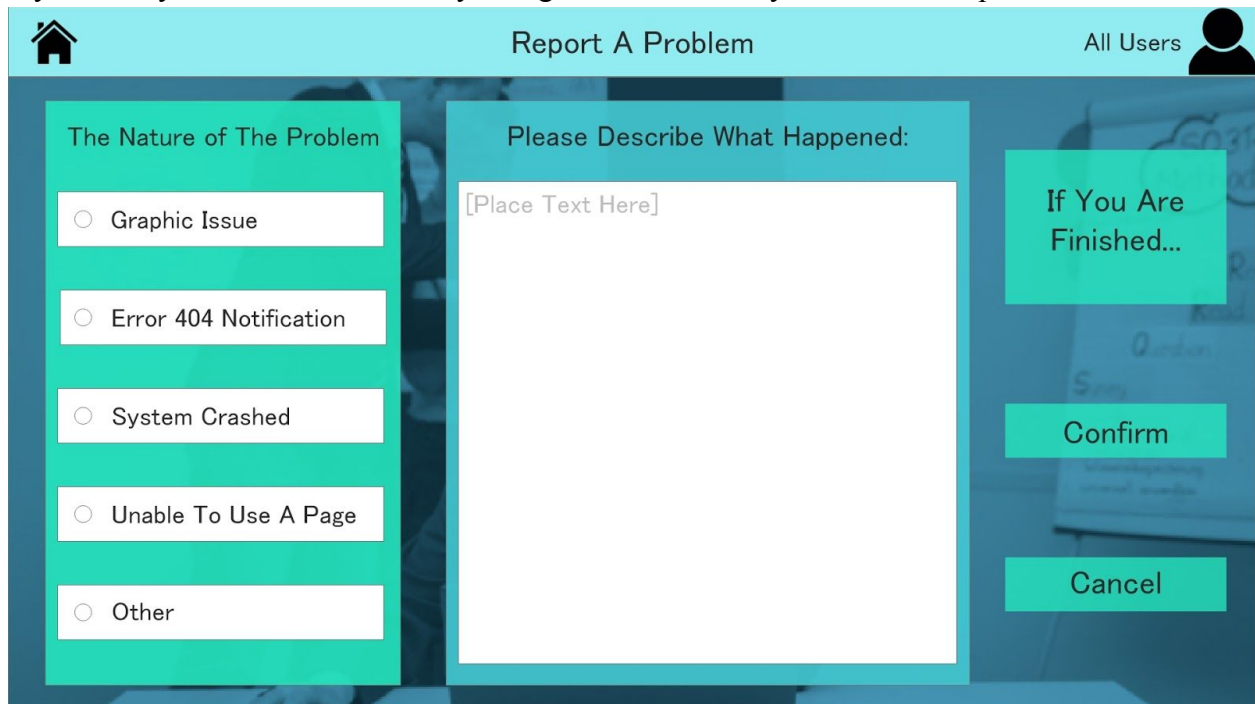
Administrator: The following features are only used by Administrators



This screenshot displays the 'Update Company & Public Transport Schedule' form. The header bar is light blue with a home icon, the title 'Update Company & Public Transport Schedule', the username 'Admin89', and a user profile icon. The form is divided into two main sections: 'Public Transport Schedule' (light blue background) and 'Company Transport Schedule' (teal background). Each section contains a form with the following fields: 'Method:' (text input), 'Date:' (text input), 'Stops (If Any):' (text area), 'Location:' (text input), 'Destination:' (text input), 'Departure Time:' (text input), and 'Arrival Time:' (text input). At the bottom of each section are two buttons: 'Confirm Changes' and 'Cancel'.

Explanation: Administrators are responsible for updating public and company transport scheduling. Therefore they are the only users with access to such features.

All Users: All users have access to the Report A Problem feature. Should there be an issue for any user they should have the ability to log it such that the system can be improved.



The image shows a web form titled "Report A Problem" with a light blue header. On the left is a sidebar with a home icon and the title "The Nature of The Problem". It contains five radio button options: "Graphic Issue", "Error 404 Notification", "System Crashed", "Unable To Use A Page", and "Other". The main area has a heading "Please Describe What Happened:" followed by a large text input field with the placeholder "[Place Text Here]". On the right, there is a vertical stack of three buttons: "If You Are Finished...", "Confirm", and "Cancel". The top right of the header shows the text "All Users" next to a user profile icon. The background of the form has a faint, dark image of people.

Report A Problem

All Users

The Nature of The Problem

☐ Graphic Issue

☐ Error 404 Notification

☐ System Crashed

☐ Unable To Use A Page

☐ Other

Please Describe What Happened:

[Place Text Here]

If You Are Finished...

Confirm

Cancel

Team Member Contributions

At the start of this project, we attempted to evenly split up duties amongst our team members in order to maximize the efficiency and speed of our work. Then, the plan was for each member to read over the other members' contributions to proofread for grammatical errors, revise it so that the report has a good and easy-to-read flow, and make sure we're all thinking about the system in a cohesive way.

In Part 1 the entire team brainstormed on classes and methods to include within the class diagram. The duties assigned afterward were as follows: Reagan was to create and edit the class diagram using the team's outline and provide a high-level description of the functionality of each class within the design (parts #1 and #2), Jack was to develop and edit the preliminary visuals and verify that they match the details outlined within the project's requirements documentation (part #4), and Jackson was to create and edit five different UML diagrams (sequence, state, etcetera) to elaborate more on the functions of the system (part #5). In Part 2, Jackson and Reagan edited the portions from part 1 as well as worked to complete thorough explanations for the classes outlined previously. Jack finished up the UI portions that had already been made in portion 4 of part 1. Everyone reviewed the document together. With each portion of the project other members were to review and aid any team members who were struggling. All team members were then to come together and review the entire document.

These duties were fulfilled as dictated. Each team member completed their tasks. Jack typed up the team contributions section and aided Reagan in a few high level descriptions..

Regarding communication about two were had via text initiated by Jack. All members responded. Most communication was done through discord, 6 text conversation total - 5 being by Jack and 1 being by Reagan - all members responded. The team held three meetings via discord voice chat - once to plan out the project and divy out assignments, the other to collaborate on the project itself and ask questions for clarification. The second part of this assignment had many errors in communication and many personal and academic issues that got in the way of each members contributions but in the end we banded together and finished the project. All team members have agreed to be more devoted to communication and time management for project 3.