Computerized Transport System

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Object Oriented Analysis & Design Project Deliverable II

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Introduction

Use Case Descriptions

Create a new table like this for every use case

Use Case Name	UC_LOGIN
Brief Description	User initiates a login request and if his/her record exists, the browser will take the user to the main page of our web application.
Preconditions	• Having an electronic device connected to the internet. • User having a record in the database. • Users can be the student/staff member of university or member of administration.
Basic Flow	• User opens the Login Page. • User enters his/her credentials. • User is redirected to the main page of our web application.
Alternate Flow	• User opens the Login Page. • User enters his/her credentials. • Gives an error as the user has not signed up yet.
Postconditions	• Credentials the user has entered must be valid. • Only authorized users will be allowed to use this service

Use Case Name	UC_VIEW_DEPARTURE AND ARRIVAL_TIMINGS
Brief Description	Departure and arrival timings of the available bus will be shown to the user.
Preconditions	• Having an electronic device connected to the internet. • User must be logged in to application
Basic Flow	• User opens the Login Page. • User enters his/her credentials. • User is redirected to the main page of our web application. • User clicks on the “departure and arrival timings” button • Departure and arrival timings of the available bus will be shown to the user.
Alternate Flow	• User opens the Login Page. • User enters his/her credentials. • User clicks on the “departure and arrival timings” button • Error page is shown as server is down
Postconditions	• Departure and arrival timings shown by the application must be correct.

Use Case Name	UC_VIEW_OPERATIONAL_BUS ROUTES AND STOPS
Brief Description	Users can view the operational bus routes and stops.
Preconditions	• Having an electronic device connected to the internet. • User must be logged in to application
Basic Flow	• User opens the Login Page. • User enters his/her credentials. • User is redirected to the main page of our web application • User clicks on the “Operational Bus routes and stops” button • operational bus routes and stops will be shown to the user
Alternate Flow	• User opens the Login Page. • User enters his/her credentials. • User clicks on the “Operational Bus routes and stops” button • Error page is shown as server is down
Postconditions	• Operational Bus routes and stops shown by the application must be correct.

Use Case Name	UC_TRACK_LIVE_LOCATION
Brief Description	User will be redirected to the map where he/she could see the movement of buses.
Preconditions	• Having an electronic device connected to the internet. • User must be logged in to application • User must have Google maps installed on his/her device.
Basic Flow	• User opens the Login Page. • User enters his/her credentials. • User is redirected to the main page of our web application • User clicks on the “Track live location of buses” button • Live Location of the buses will be shown to user
Alternate Flow	• User opens the Login Page. • User enters his/her credentials. • User clicks on the “Track live location of buses” button • Live location is not showing as the bus's tracker has got some technical defect.
Postconditions	• Live Location of buses shown by the application must be correct. • Live location of the buses must be shown with minimum delay time

Use Case Name	UC_FILE_COMPLAINT
Brief Description	User will go to the Customer Service Support section and will file the complaint or query with his/her Username. And their problem would get resolved through the email address they provided.
Preconditions	• Having an electronic device connected to the internet. • User must be logged in to application • User must have a query or must be facing some problem
Basic Flow	• User opens the Login Page. • User enters his/her credentials. • User is redirected to the main page of our web application • User goes to the Customer Service Support section. • User Provides his/her username and email address • User write down the complaint or query and submit it. • His/her problem gets resolved through the email address they provided.
Alternate Flow	• User opens the Login Page. • User enters his/her credentials. • User goes to the Customer Service Support section. • User Provides his/her username and email address • User write down the complaint or query and submit it. • The Customer Service team doesn't answer or resolve his/her query or complaint.
Postconditions	• Customer Service Support should be available 24/7. • Customer Service Support must answer all of the complaints and queries

Use Case Name	UC_VIEW_BUS_DRIVER
Brief Description	Users can view the basic information about the personnel in charge of each bus.
Preconditions	• Having an electronic device connected to the internet. • User must be logged in to application
Basic Flow	• User opens the Login Page. • User enters his/her credentials. • User is redirected to the main page of our web application • User clicks on the “View Bus Driver” button • Driver information will be shown to the user
Alternate Flow	• User opens the Login Page. • User enters his/her credentials. • User clicks on the “View Bus Driver” button • Driver Information not available
Postconditions	• Driver information shown to the user must be correct.

Use Case Name	UC_AVAILABILITY_OF_BUS
Brief Description	Users can see whether the bus is available or not.
Preconditions	• Having an electronic device connected to the internet. • User must be logged in to application
Basic Flow	• User opens the Login Page. • User enters his/her credentials. • User is redirected to the main page of our web application • User clicks on the “Availability of the bus” button • Bus availability will be shown to the user.
Alternate Flow	• User opens the Login Page. • User enters his/her credentials. • User clicks on the “Availability of the bus” button • Buses availability information couldn't be shown as the server is down.
Postconditions	• Buses availability information must be authentic

Use Case Name	UC_MAINTAINING_RECORDS
Brief Description	Transport department can update, delete or insert a record.
Preconditions	• User must be the member of administrative staff • Having an electronic device connected to the internet. • Have access to database
Basic Flow	• User Login as administrator. • User is redirected to the main page available only to administrative staff. • User selects the option whether he wants to update, delete or insert a record • Records are changed accordingly in the database
Alternate Flow	• User Login as administrator. • User is redirected to the main page available only to administrative staff. • User selects the option whether he wants to update, delete or insert a record • Records are not updating in the database due to connectivity issue
Postconditions	• Maintenance of records must be done correctly • Changes made in the database must be authentic

Use Case Name	UC_ALLOTATION_OF_BUSES
Brief Description	The transport department will allot the buses to the individual bus drivers, conductors and IT technicians(in case of any defective problem).
Preconditions	• User must be the member of administrative staff • Having an electronic device connected to the internet. • Have access to database • Have all the knowledge of buses, bus drivers, conductors and IT technicians.
Basic Flow	• User Login as administrator. • User is redirected to the main page available only to administrative staff. • User goes to the "Allotation of buses" section • Allots the buses to individual bus drivers, conductors and IT technicians(in case of any defective problem).
Alternate Flow	• User Login as administrator. • User is redirected to the main page available only to administrative staff. • User goes to the "Allotation of buses" section • Can't allot the bus to any driver due to the unavailability of bus drivers
Postconditions	• Allotation of buses must be done correctly • Not allotting the bus to a bus driver who already have a tight schedule

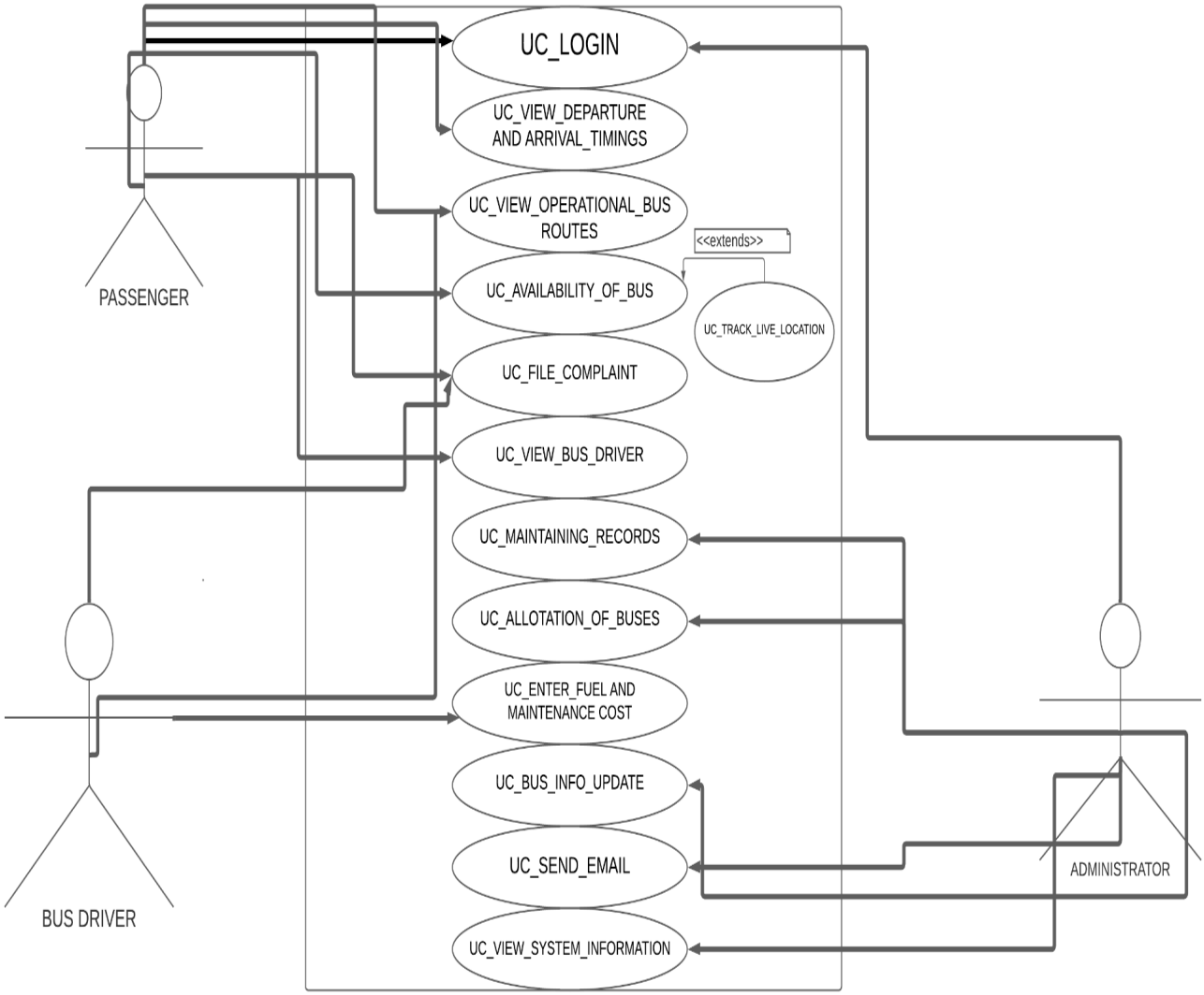
Use Case Name	UC_ENTER_FUEL AND MAINTENANCE COST
Brief Description	Bus drivers will enter the fuel details and total maintenance cost into the system.
Preconditions	• User must be a bus driver • Having an electronic device connected to the internet. • Have access to special bus driver's portal • Must have all the knowledge of the the bus allotted to him
Basic Flow	• User Login as bus driver • User is redirected to the main page available only to bus drivers • User goes to the "Enter fuel and maintenance cost" section • Enters the the fuel and maintenance cost of the bus in the system
Alternate Flow	• User Login as bus driver • User is redirected to the main page available only to bus drivers • User goes to the "Enter fuel and maintenance cost" section • Couldn't enter the the fuel and maintenance cost of the bus in the system as the server is down
Postconditions	• Fuel and maintenance cost entered by the driver must be correct • A bus driver must only be able enter the details of the bus allotted to him

Use Case Name	UC_BUS_INFO_UPDATE
Brief Description	Driver will be able to tell us about the breakdown of the bus or any traffic jam via the website by updating the information on the website.
Preconditions	• User must be a bus driver • Having an electronic device connected to the internet. • Have access to special bus driver's portal • Must have all the knowledge of the the bus allotted to him • Must be able to update basic information of the bus
Basic Flow	• User Login as bus driver • User is redirected to the main page available only to bus drivers • User goes to the "Bus info update" section • Updates the information on the website if there is any breakdown of the bus or any traffic jam
Alternate Flow	• User Login as bus driver • User is redirected to the main page available only to bus drivers • User goes to the "Bus info update" section • Bus driver is not able the update the bus information on website as server is down
Postconditions	• Updated information about the bus must be authentic • Must be available to the passengers

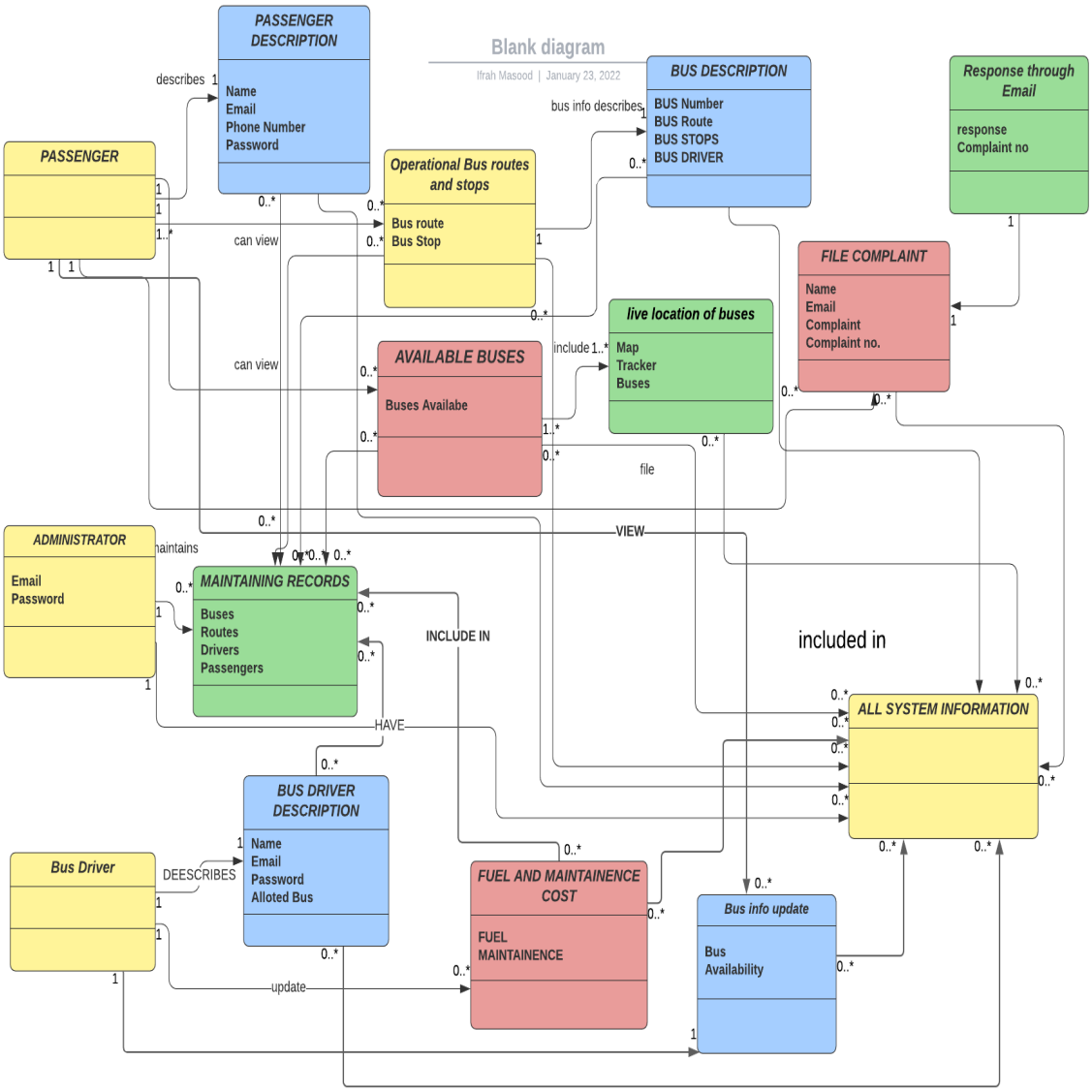
Use Case Name	UC_SEND_EMAIL
Brief Description	The transport department will send a mail if there would be any problem to prevent the users from facing any sort of inconvenience.
Preconditions	• User must be the member of administrative staff • Having an electronic device connected to the internet. • Have all the knowledge of buses, bus drivers, conductors and IT technicians. • Must have the valid email addresses of all of its users
Basic Flow	• User Login as administrator. • User is redirected to the main page available only to administrative staff. • User goes to the "Send Email" section • Sends an email to all of its users to prevent them from facing any inconvenience. • Users receives the email
Alternate Flow	• User Login as administrator. • User is redirected to the main page available only to administrative staff. • User goes to the "Send Email" section • Some users do not have internet connection available at the moment so they will not receive the email
Postconditions	• Email must be sent to all users • Email must be authentic

Use Case Name	UC_VIEW_SYSTEM_INFORMATION
Brief Description	The Transport Department will be able to see all the system information.
Preconditions	• User must be the member of administrative staff • Having an electronic device connected to the internet. • Must have access to all system information
Basic Flow	• User Login as administrator. • User is redirected to the main page available only to administrative staff. • User goes to the “View all system information” section • All system information is displayed to the user
Alternate Flow	• User Login as administrator. • User is redirected to the main page available only to administrative staff. • User goes to the “View all system information” section • Some system information is not displayed to the user
Postconditions	• All the system information shown to the user must be authentic

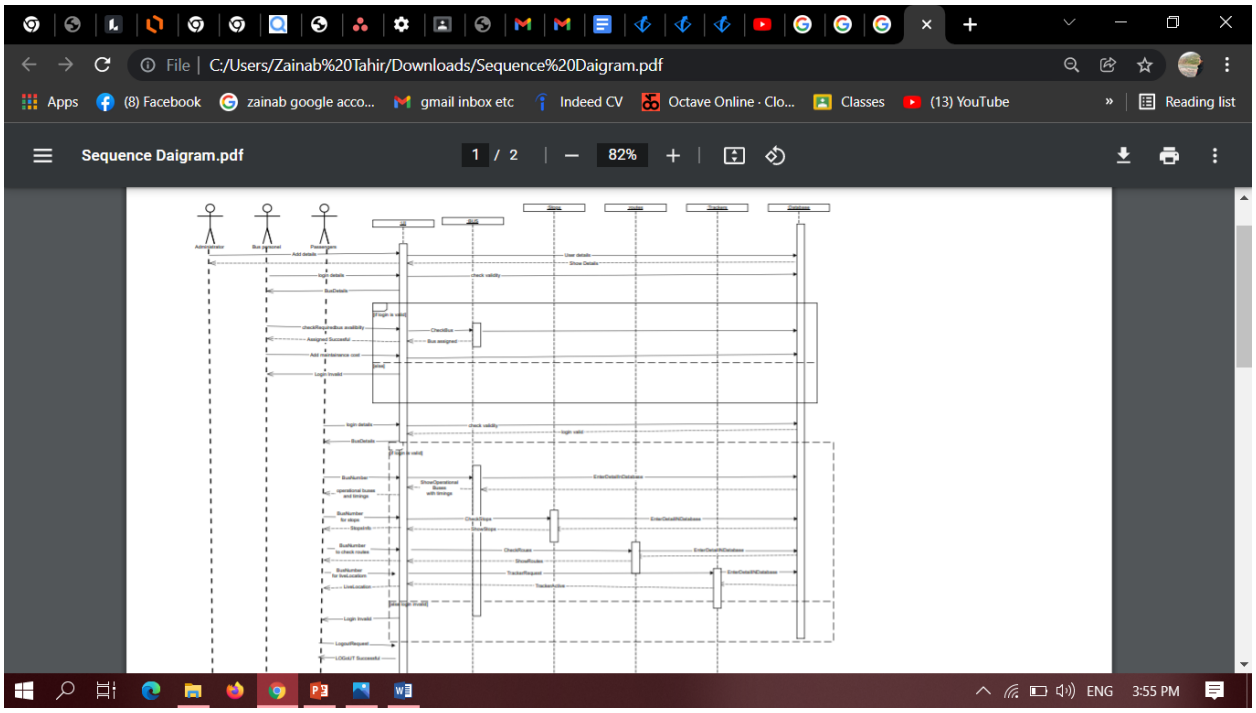
Use Case Diagram (Refined)



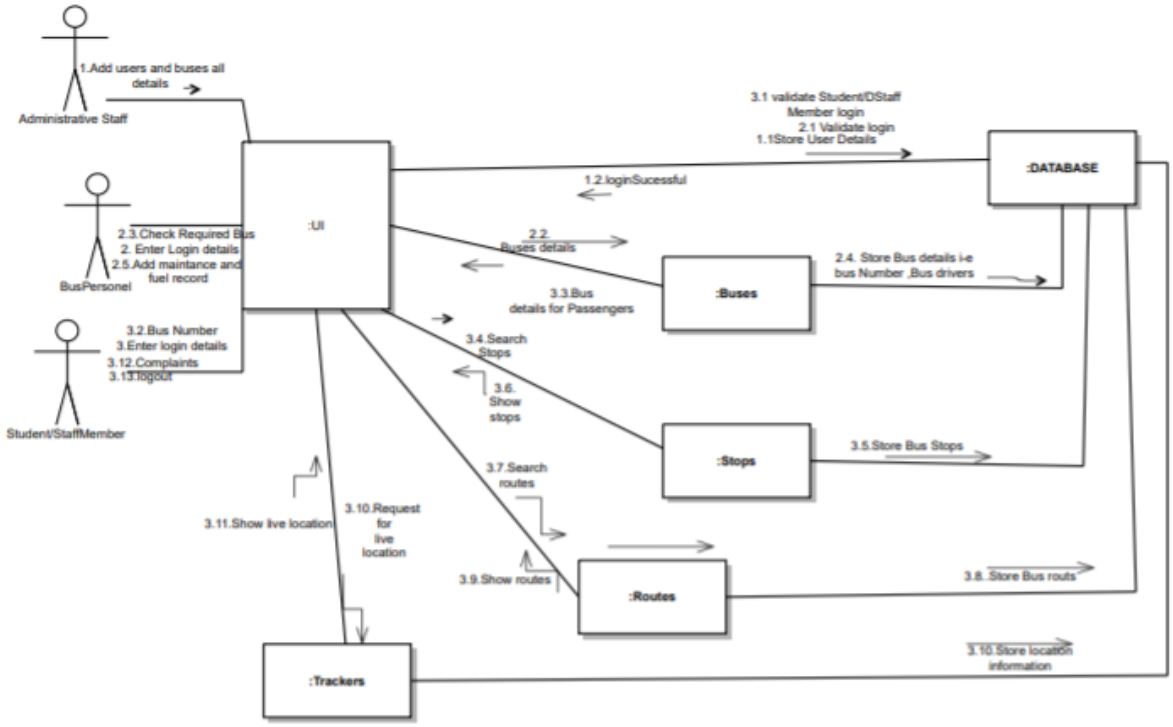
Domain Model



Sequence Diagram



Collaboration Diagram



Operation Contract

Name: askquery()
Responsibilities: Submits the query of user
Cross References: UC_SEND_EMAIL
Exceptions: none
Preconditions: User must be logged in and have a query
Postconditions: Query submitted and response generated

Name: updateBus
Responsibilities: updates bus information in database
Cross References: UC_BUS_INFO_UPDATE
Exceptions: none
Preconditions: New info of bus is required
Postconditions: Information updated in database

Name: viewBus
Responsibilities: Show live location of the bus
Cross References: UC_TRACK_LIVE_LOCATION
Exceptions: none
Preconditions: Buses must have trackers installed

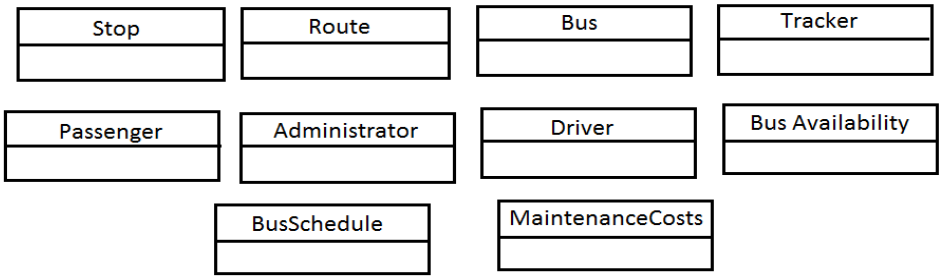
Postconditions: Updated location of buses and instance of available buses created

Name: fileComplaint
Responsibilities: Files a complaint for users
Cross References: UC_FILE_COMPLAINT
Exceptions: none
Preconditions: There must be query and user should be logged in
Postconditions: Query submitted and answered

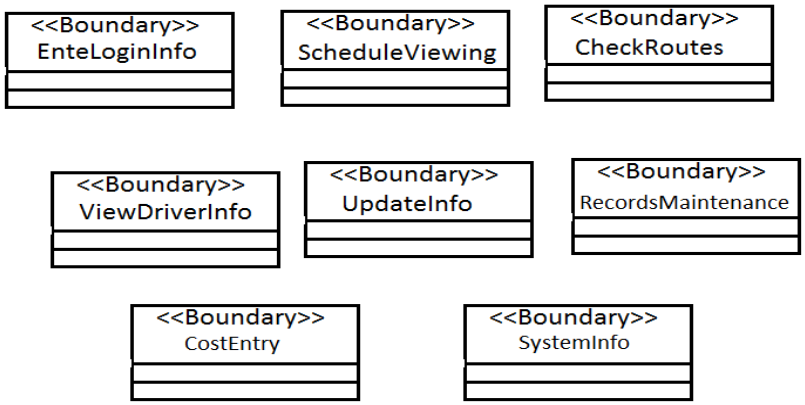
Name: viewroute()
Responsibilities: view route of a specific bus
Cross References: UC_VIEW_OPERATIONAL_BUS ROUTES AND STOPS
Exceptions: none
Preconditions: Routes of are updated on database
Postconditions: Route fetched and shown to user

Design Class Diagram

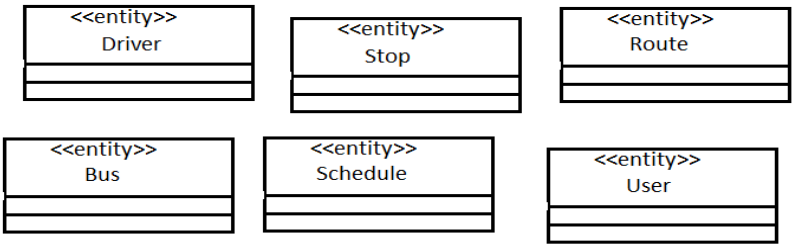
1.7.1 Create Initial Design Classes



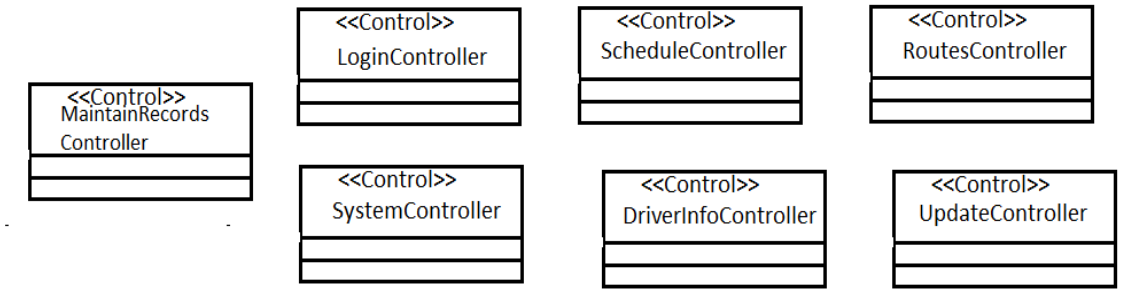
1.7.2 Designing Boundary Classes



1.7.3 Designing Entity Classes

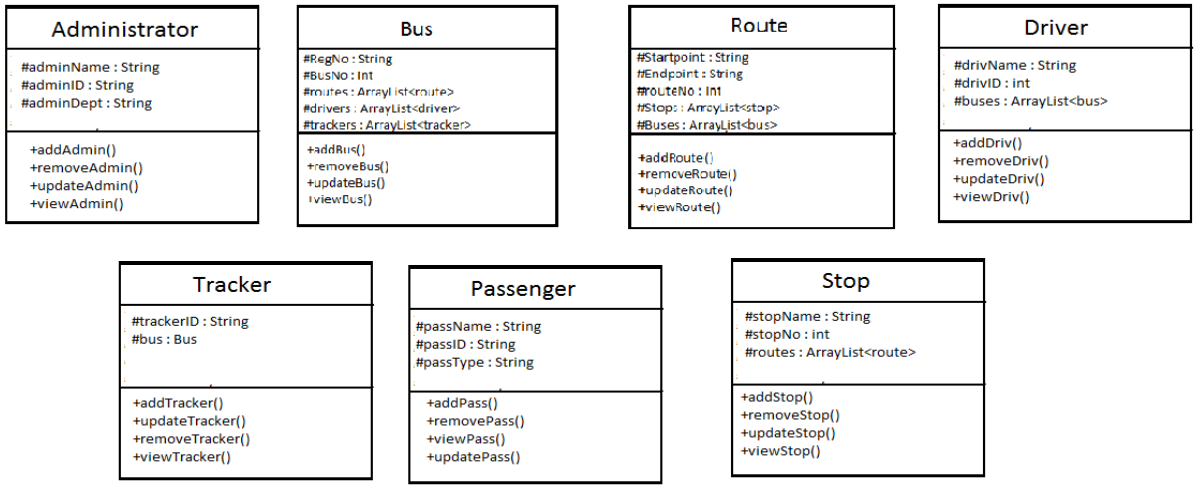


1.7.4 Designing Control Classes

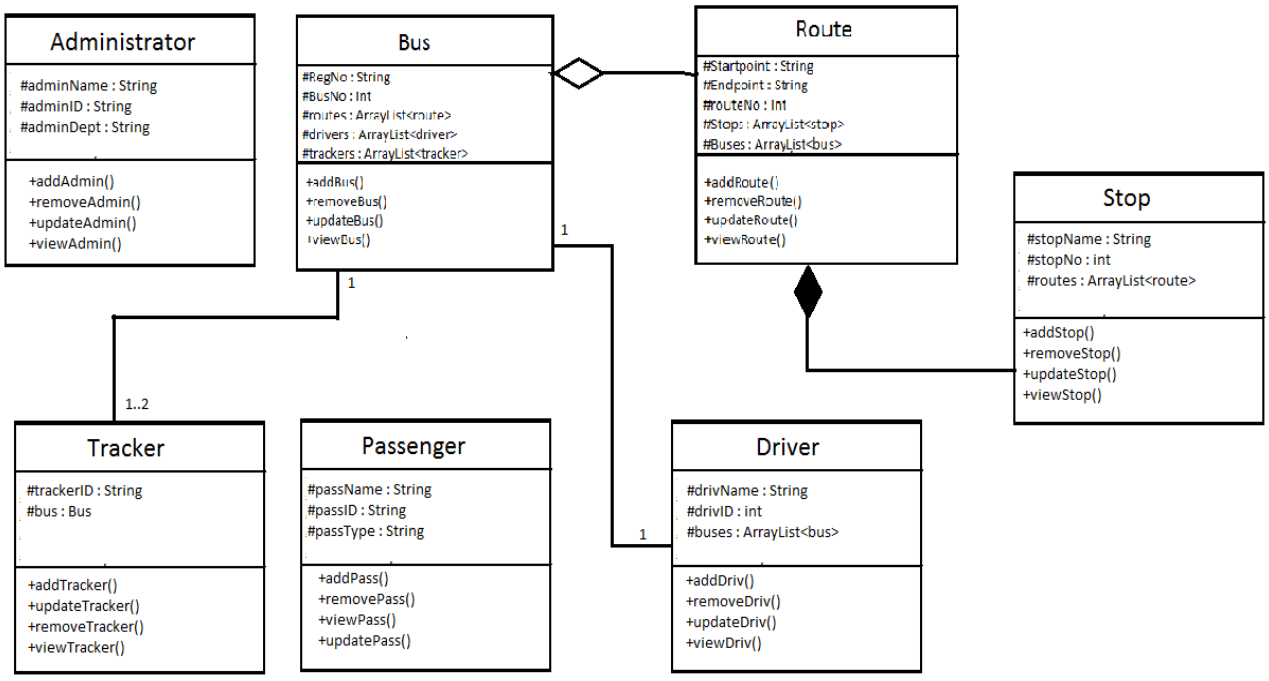


1.7.5 Identify Persistent Classes

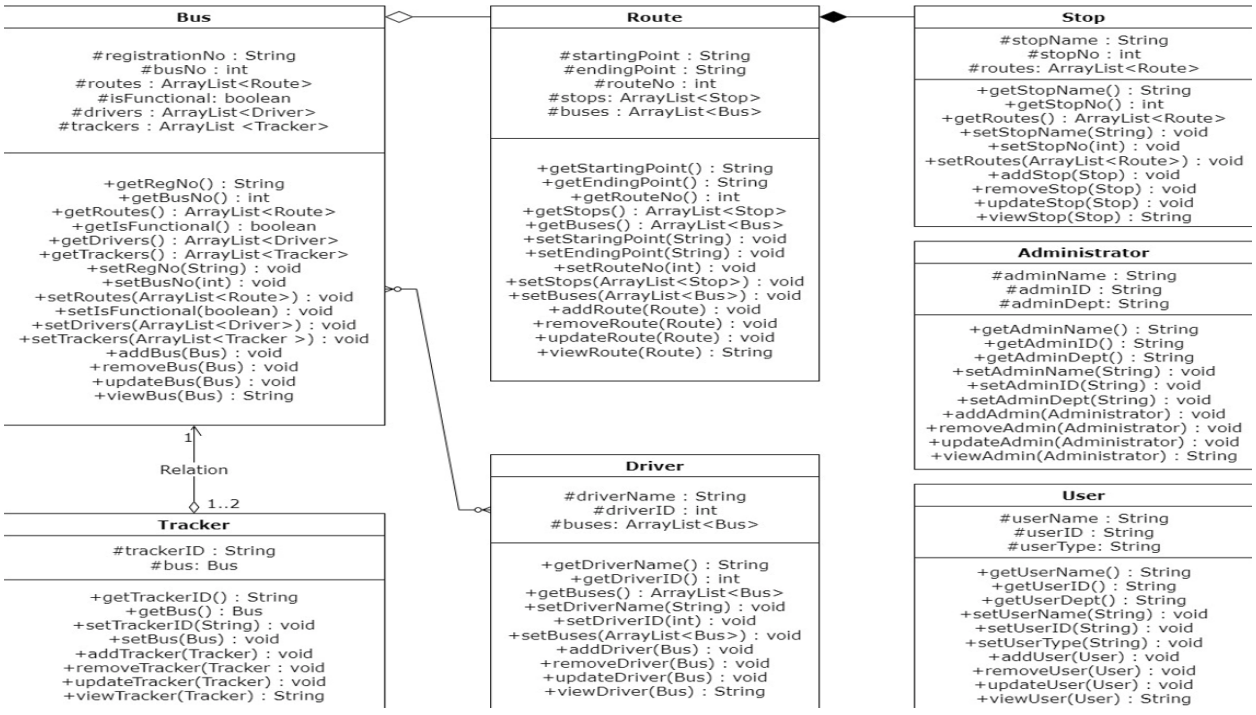
1.7.6 Define Class Visibility



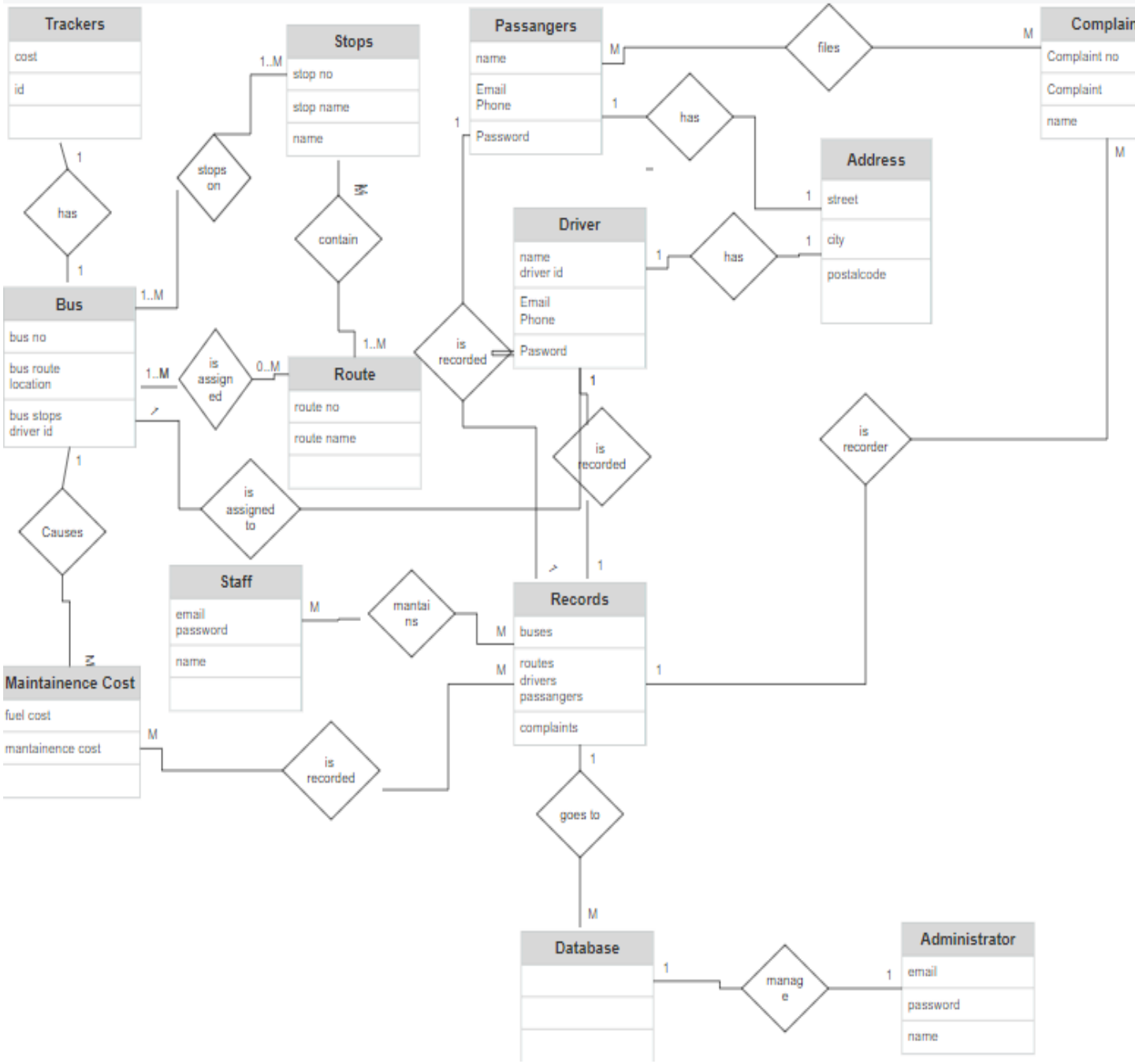
1.7.11 Design Class Relationships



CLASS DIAGRAM



Data Model


Trackers
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