Vehicle Management Systems using Sales Force

1. INTRDUCTION

1.1 Overview

Vehicle Management Systems (VMS) have becomeimportant over time in space,dueto Vehicle Management Systems (VMS) have become increasingly important over time in space missions, due both to the demands for increased flexibility and capability of these missions, and the supply of increasingly capable computing systems to provide this improved functionality. VMSs include the management of uncertainties in vehicle state, which is the vehicle portion of System Health Management (SHM), and the management and control of vehicle components to achieve external goals, which we will term “System Operations Management” (SOM). SHM and SOM functions can be allocated to humans or machines, whether on the ground or on-board. To the extent these are allocated to the vehicle’s machines (as opposed to crew), these are part of the Vehicle Management System. The increasing complexity of the tasks that space systems are asked to accomplish, and the software and operational procedures necessary to accomplish them, have made VMSs a necessity for exploration missions. This paper investigates the underlying needs and functionality of Vehicle Management Systems, so as to better understand, and ultimately to better design them. To do this, we shall draw upon ideas from information theory and system health management theory. Since VMSs necessarily use information to manage complex systems, information theory provide important insights. System Health Management theory has evolved to handle internal uncertainties, and we extend its ideas to deal with external uncertainties with Systems Operations ManagementManagement (SHM), and the management and control of Vehicle Management System is software which is helpful for bus operators, who wants to operate many bus trips in a day. Vehicle Management System is a windows application written for 32-bit Windows operating systems which focused in the area of adding, editing and deleting the passengers, staff and the bus routes.

In this software a person can be register as a user and he can manage the bus routes and the staff, passengers' details. He can add a bus and its details including bus route details. User can also add the details of the staff and their duty time in the system.

Vehicle Management System is software which is helpful for bus operators, who wants to operate many bus trips in a day. Vehicle Management System is a windows application written for 32-bit Windows operating systems which focused in the area of adding, editing and deleting the passengers, staff and the bus routes.

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A vehicle management system is a software system – or platform – that serves to manage commercial fleets of vehicles, such as cars, vans or trucks – or even heavy equipment – to ensure they're utilized safely, efficiently and professionally, while making sure they're well and high performing.

Vehicle Management is on application where a customer details are stored inorder to choose cars, bikes and commercial vehicles for travel with in the city the data which is stored here is further used to remind them if any offers are provided during the seasons and any updates regarding vehicles are sent to them in the form of messages and mails.

1.2 Purpose

Improve fleet safety,and working conditions

Improve the behavior and performance of drivers and beat and unsafe driving

Schedule shifts and work hours

Leverage driver retention

Track vehicles, assets or professional equipment (even trailers and containers)

Schedule routine maintenance

Manage fuel efficiency

Keep tracks of malfunctions

Track mileage and manage deductible

Produce individualized report for all parties involved

A Vehicle Management system can prove useful to nearly any business that uses a fleet. This includes but is not limited to:

Contractors

Delivery fleets (last mile delivery)

Taxis, Limos and VIP Vehicles

Facility trucks

Shipping containers/maritime transport

Heavy duty vehicle and mining equipment

Moving trucks

Hearses

Grey or white fleets

Rental/Leased vehicles

School buses

Private vehicle

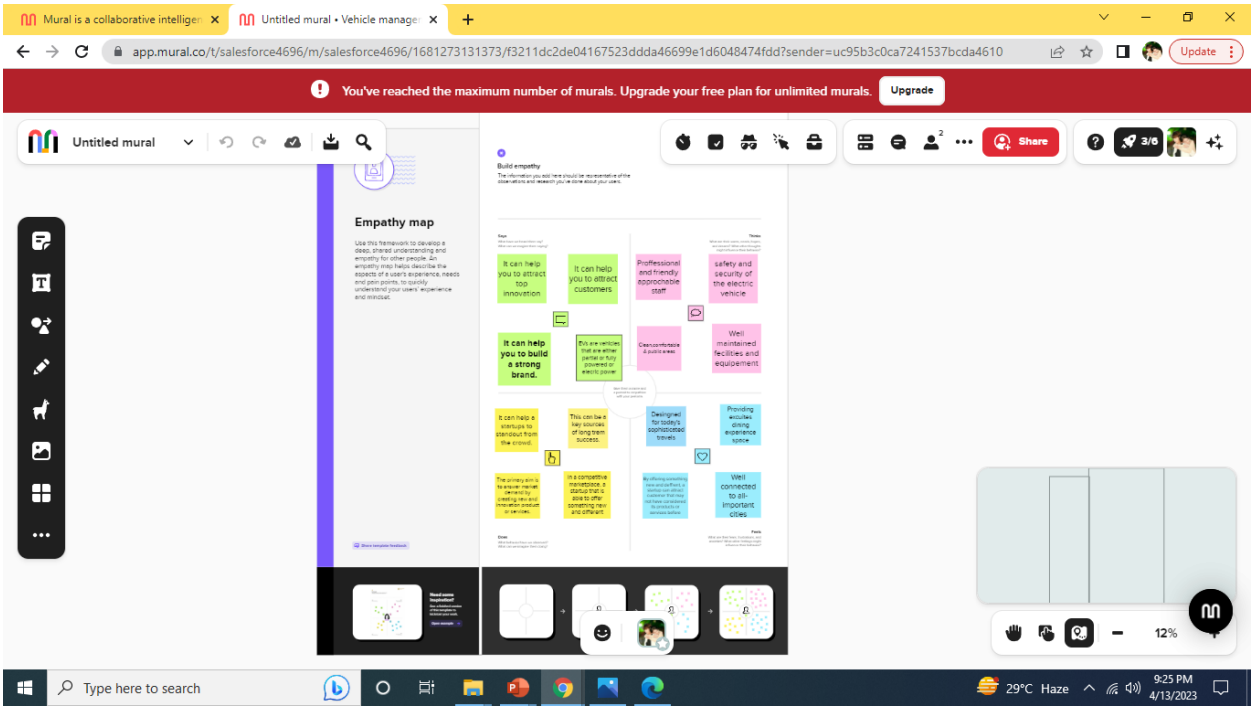
Backhauling fleets

All light duty vehicles

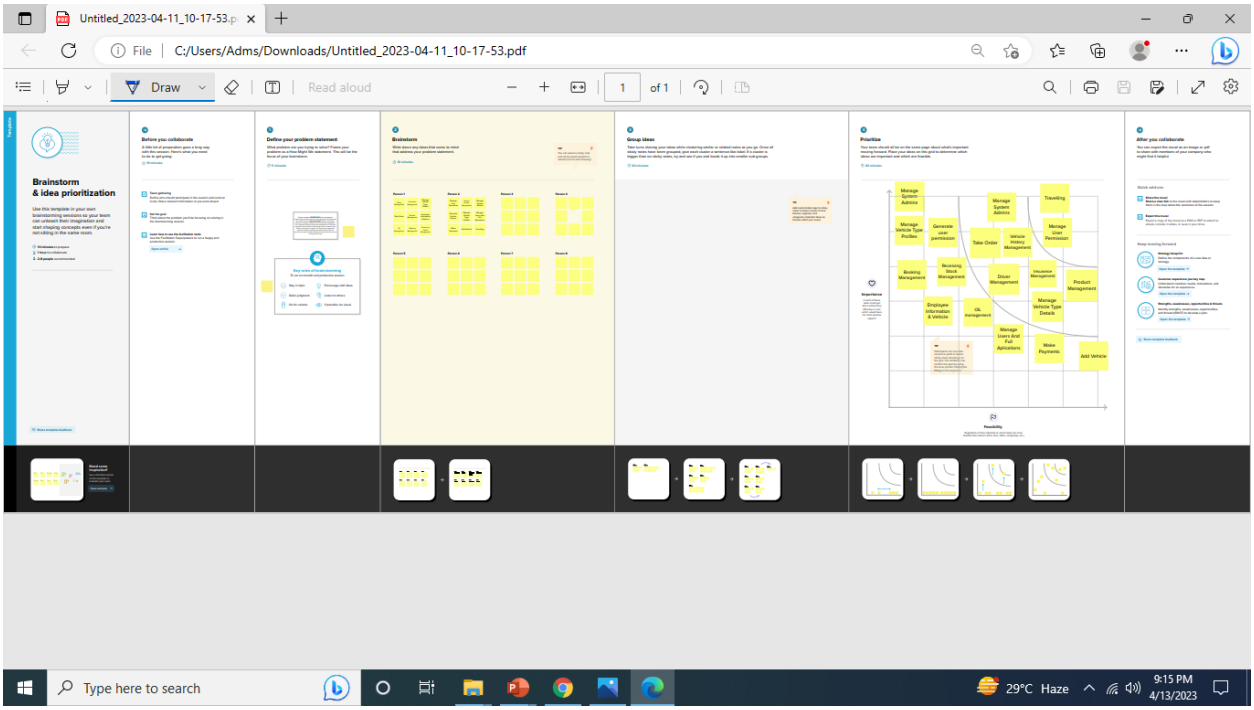
Supply chain vehicles

2 PROBLEM DEFINITION AND DESIGN THINKING

2.1 Empathy Map



2.2 Brain Storming



3 RESULT

3.1 Data Model:

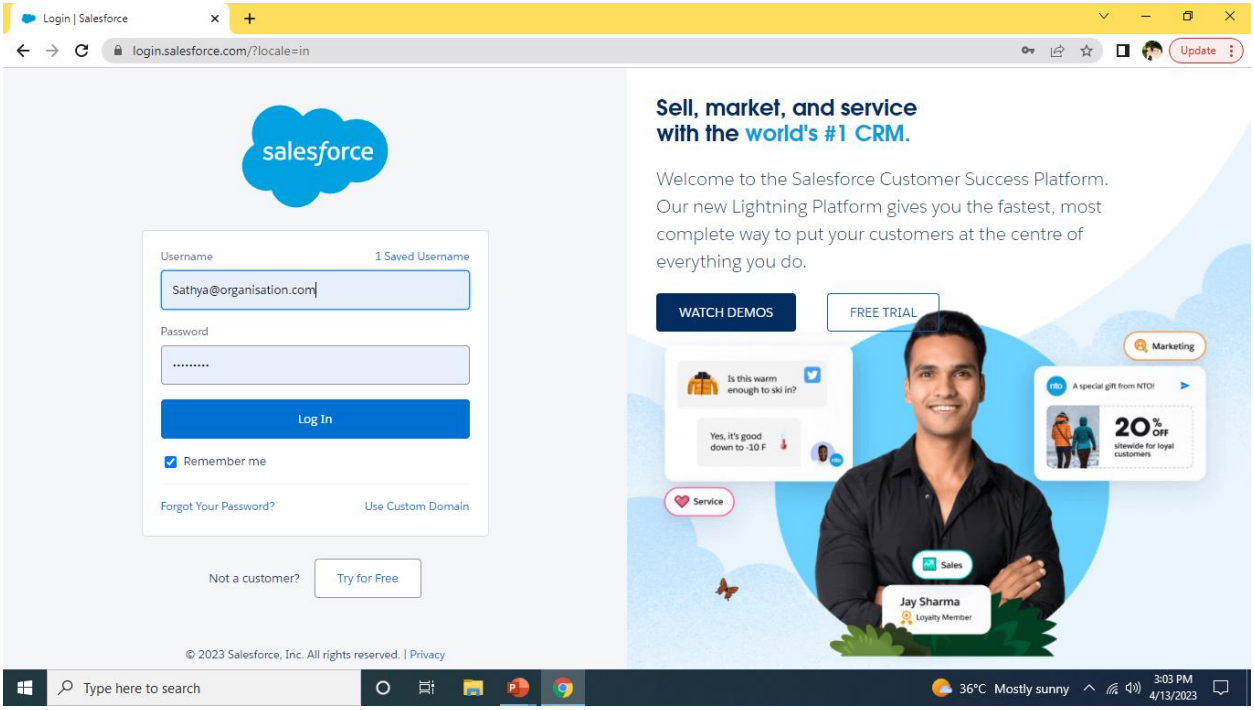
Object Name	Field in the Object	
Vehicles	Field Label	Data Type
	2 Wheelers	Picklist
	4 Wheelers	Picklist
	Body Type	Text(18)
	Chassic no	Text(18)
	Colour	Text(18)
	Condition	Picklist
	Created by	Lookup(user)
	Customer Name	Text(12)
	Customer Mobile no	Number(18,0)
	Owner	Lookup(user,group)
	Seats	Number(18,0)

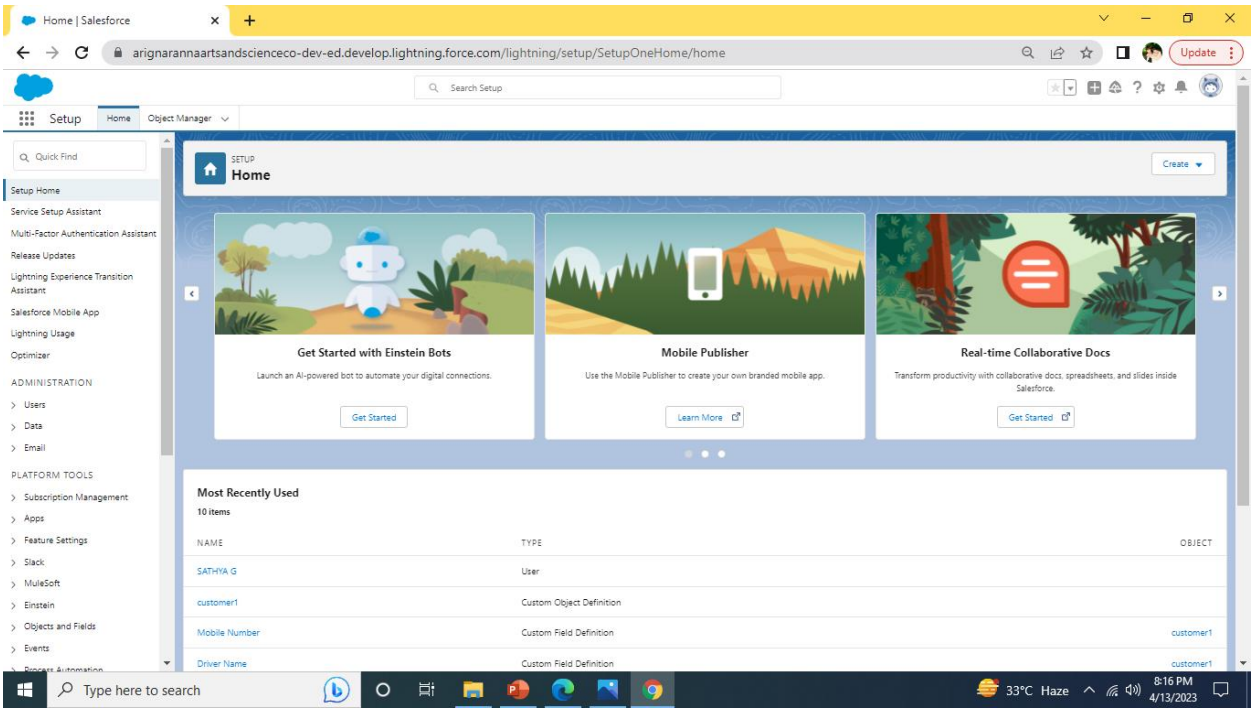
	<table><tr><td>Start Date</td><td>Date/Time</td></tr><tr><td>Vehicle</td><td>Number(10,0)(external ID)(Unique)</td></tr><tr><td>Vehicle Name</td><td>Text(18)</td></tr><tr><td>Vehicle Name</td><td>Text(80)</td></tr><tr><td>Vehicle no</td><td>Text(18)</td></tr><tr><td>Vehicle types</td><td>Picklist</td></tr><tr><td>Vehicle includes</td><td>Picklist(Multi select)</td></tr><tr><td>Mileage</td><td>Text(18)</td></tr><tr><td>End Date</td><td>Date/Time</td></tr><tr><td>Opportunity</td><td>Lookup(opportunity)</td></tr><tr><td>Last modified by</td><td>Lookup(user)</td></tr><tr><td>Driver Name</td><td>Text(18)</td></tr></table>
Driver	<table><tr><td>Field Lable</td><td>Date Type</td></tr><tr><td>Created by</td><td>Lookup(user)</td></tr><tr><td>Driver Name</td><td>Text(20)</td></tr><tr><td>Last modified by</td><td>Lookup(user)</td></tr><tr><td>Fair per hour</td><td>Text(18)</td></tr><tr><td>Licence no</td><td>Text(18)</td></tr><tr><td>Mobile no</td><td>Number(18,0)</td></tr><tr><td>Driver Name</td><td>Text(80)</td></tr><tr><td>Owner</td><td>Lookup(user,group)</td></tr><tr><td>Vehicle</td><td>Lookup(Vehicle)</td></tr></table>

3.2 Activity and Screenshots

Milestone 1:Creation salesforce org:

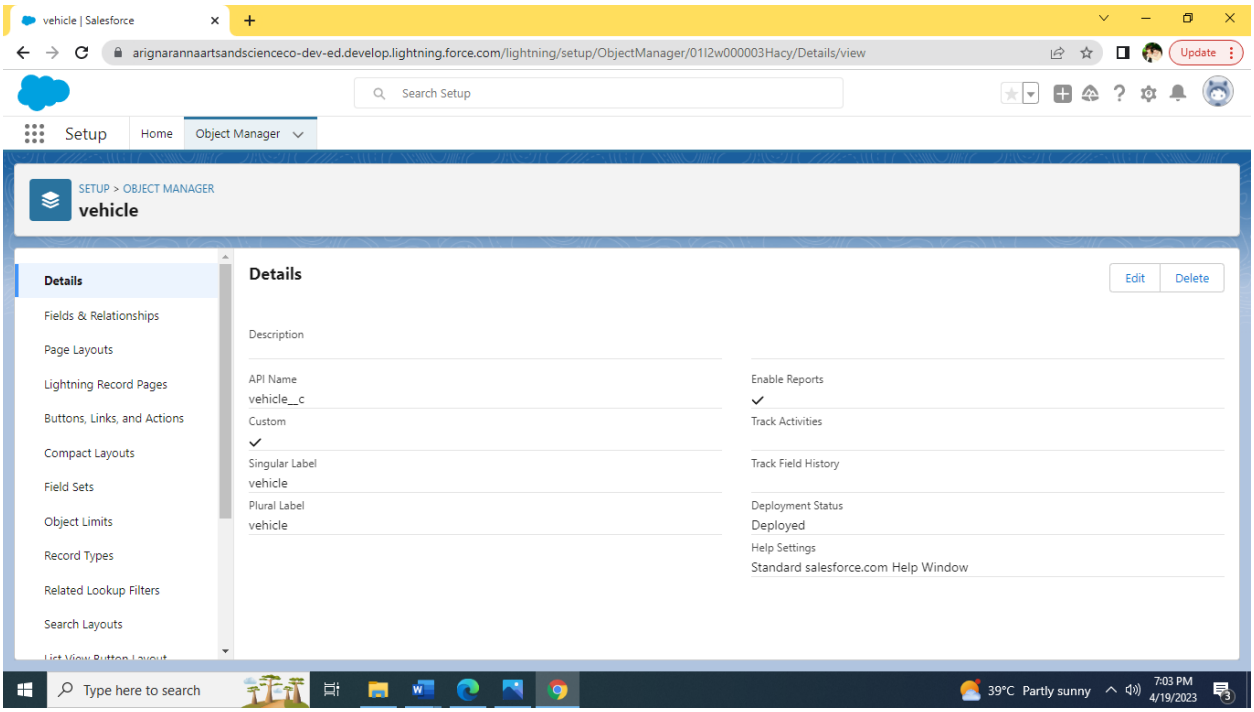
Activity 1: Creating Developer Account



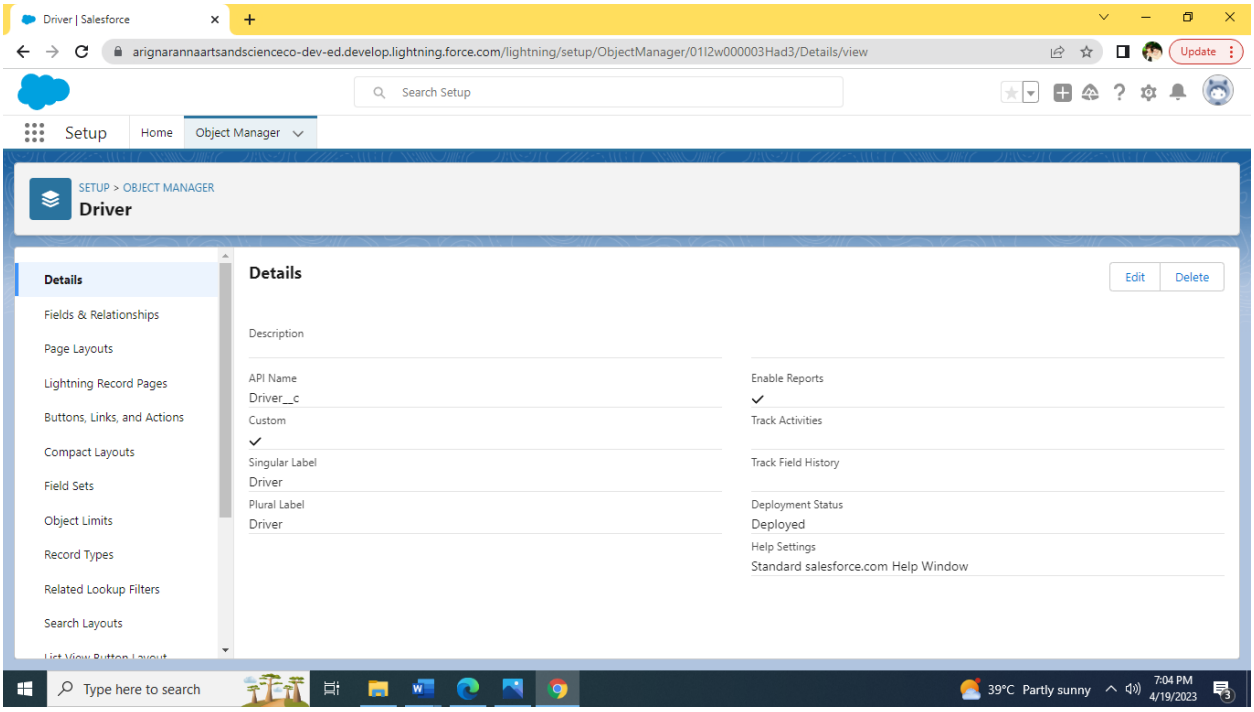


Milestone 2: Object

Activity 1: To create an object(Vehicle or Custom object)

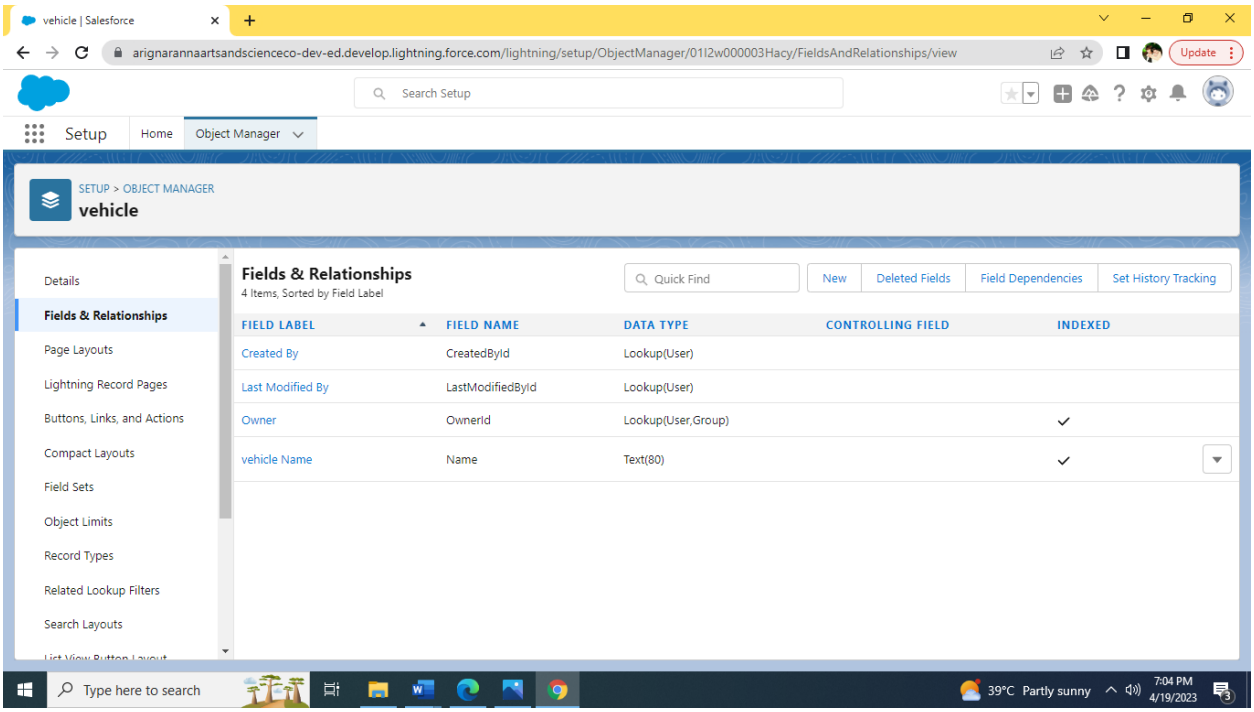


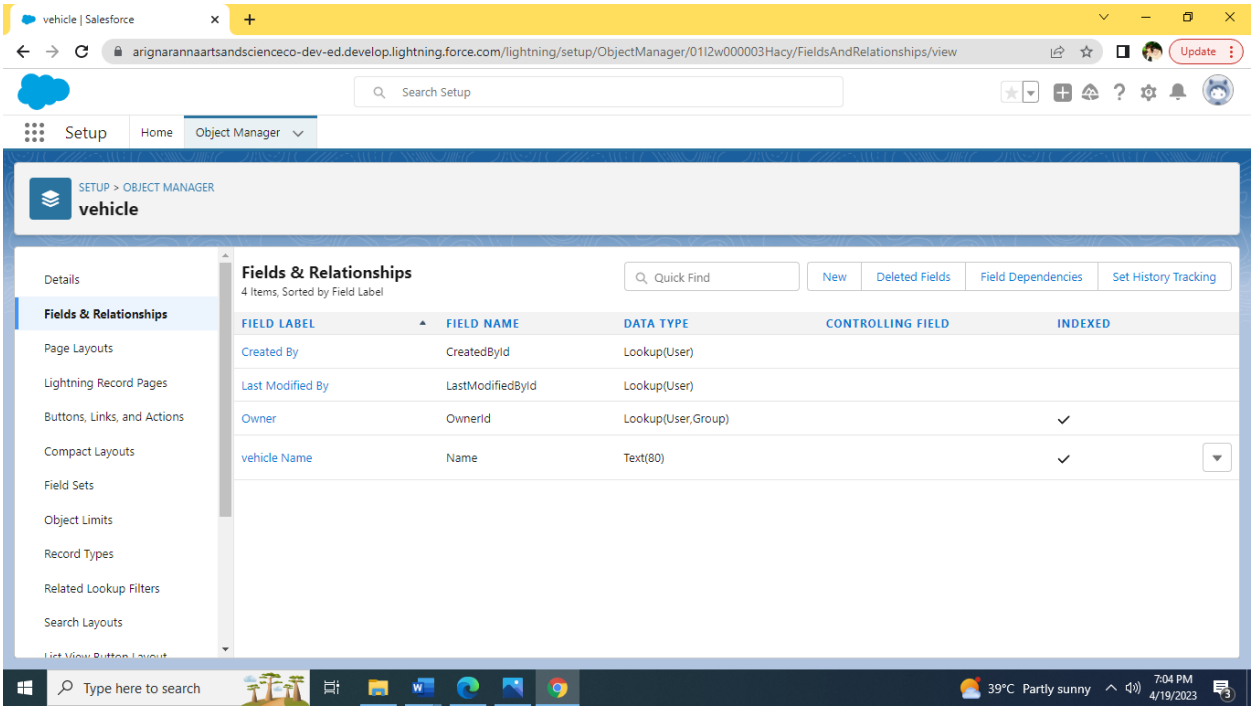
Activity 2: To create an object(Driver object)

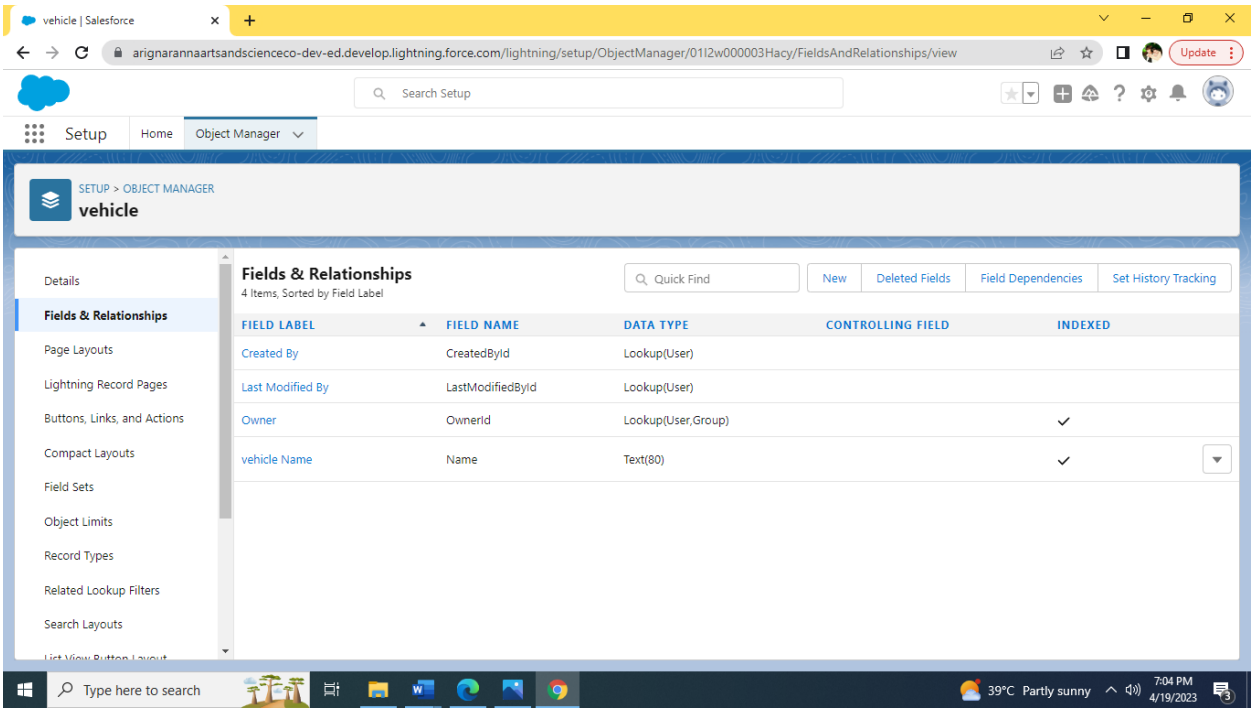


Milestone 3 : Field and Relationship

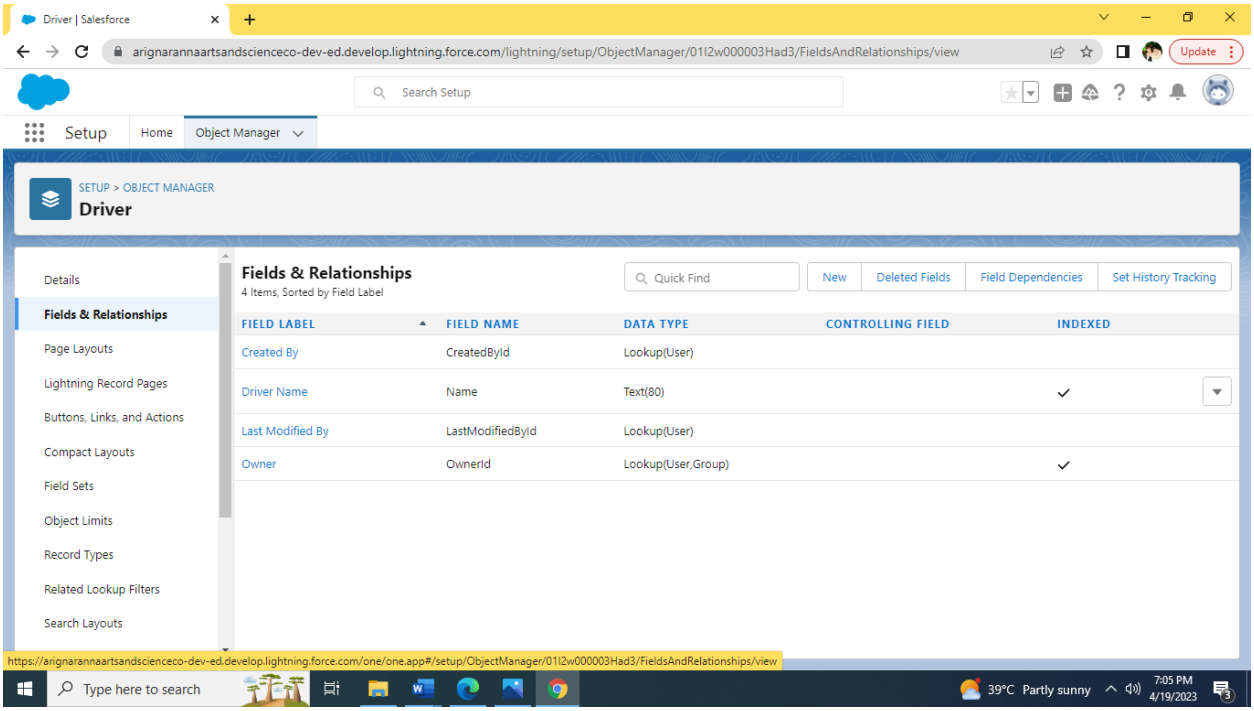
Activity 1: Creation of fields (vehicle object data type)



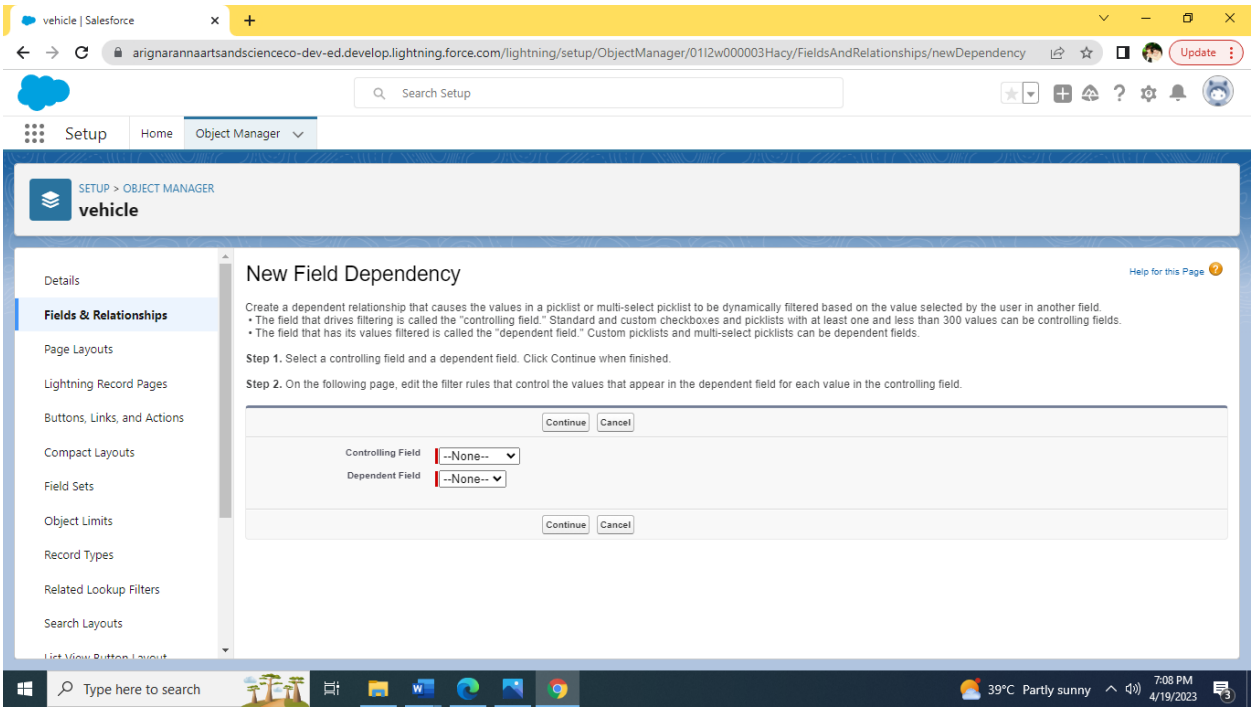


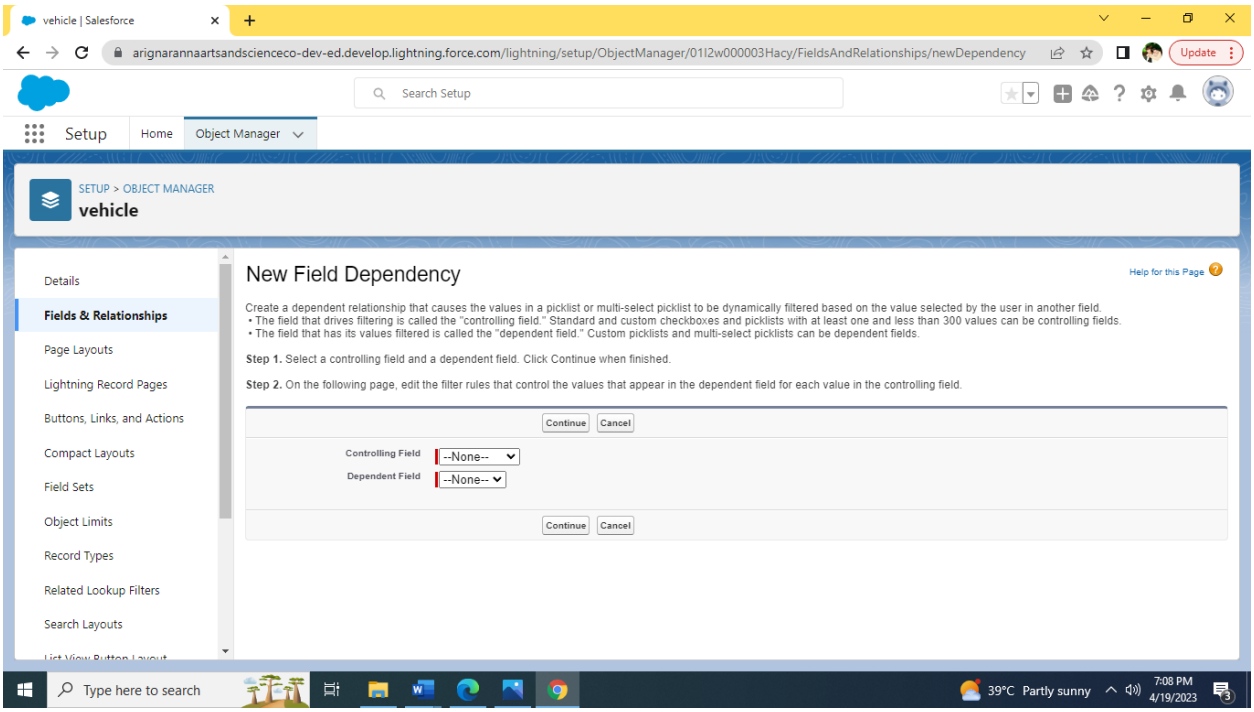

vehicle | Salesforce
arignarannaartsandscienceco-dev-ed.develop.lightning.force.com/lightning/setup/ObjectManager/01I2w000003Hacy/FieldsAndRelationships/view
Update
Search Setup
Setup
Home
Object Manager
SETUP > OBJECT MANAGER
vehicle
Details
Fields & Relationships
Page Layouts
Lightning Record Pages
Buttons, Links, and Actions
Compact Layouts
Field Sets
Object Limits
Record Types
Related Lookup Filters
Search Layouts
Fields & Relationships
4 Items, Sorted by Field Label
Quick Find
New
Deleted Fields
Field Dependencies
Set History Tracking
FIELD LABEL
FIELD NAME
DATA TYPE
CONTROLLING FIELD
INDEXED
Created By
CreatedById
Lookup(User)
Last Modified By
LastModifiedById
Lookup(User)
Owner
OwnerId
Lookup(User,Group)
vehicle Name
Name
Text(80)
Type here to search
39°C Partly sunny
7:04 PM
4/19/2023

Activity 2: To create driver object(Driver object data type)

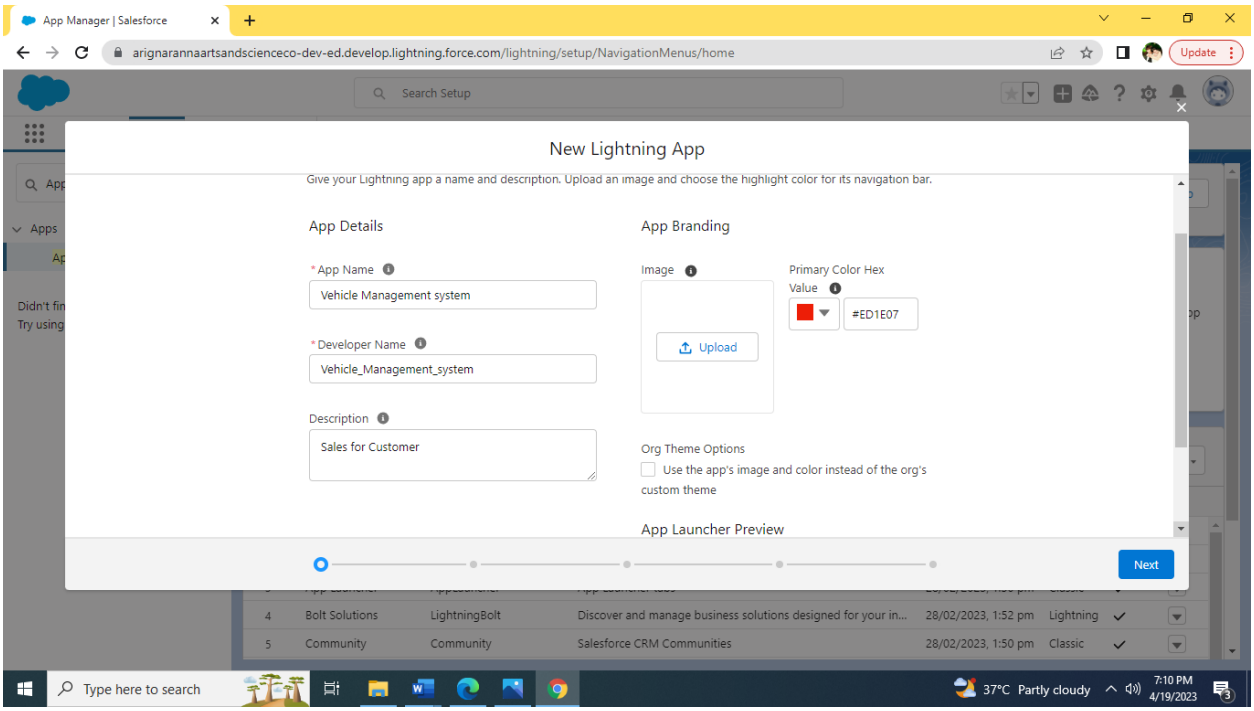


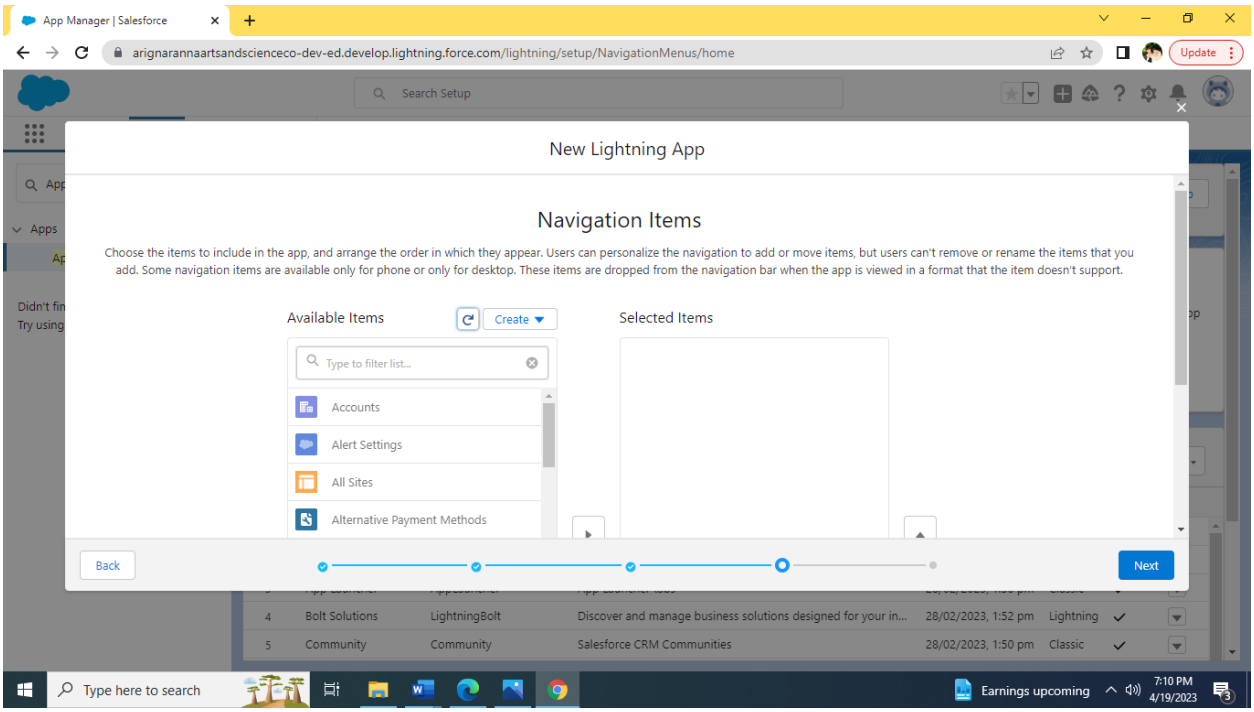
Activity 3: Fields in driver object

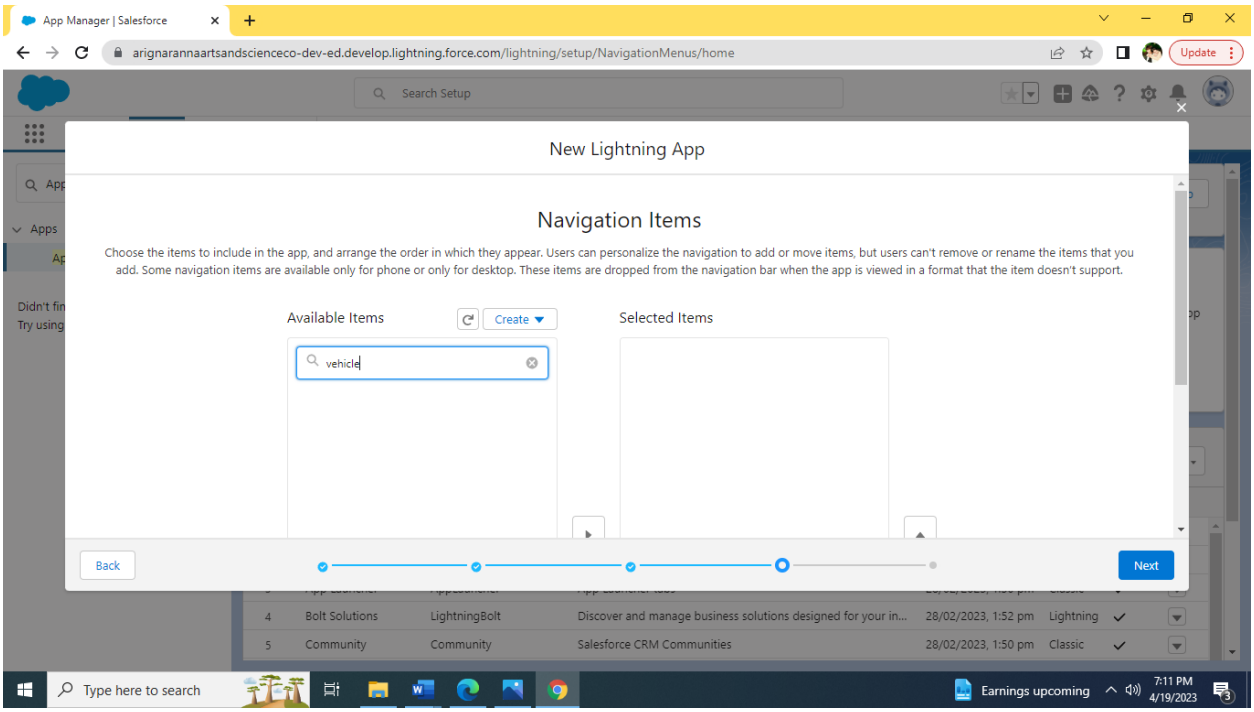




Milestone 4: Lightning App

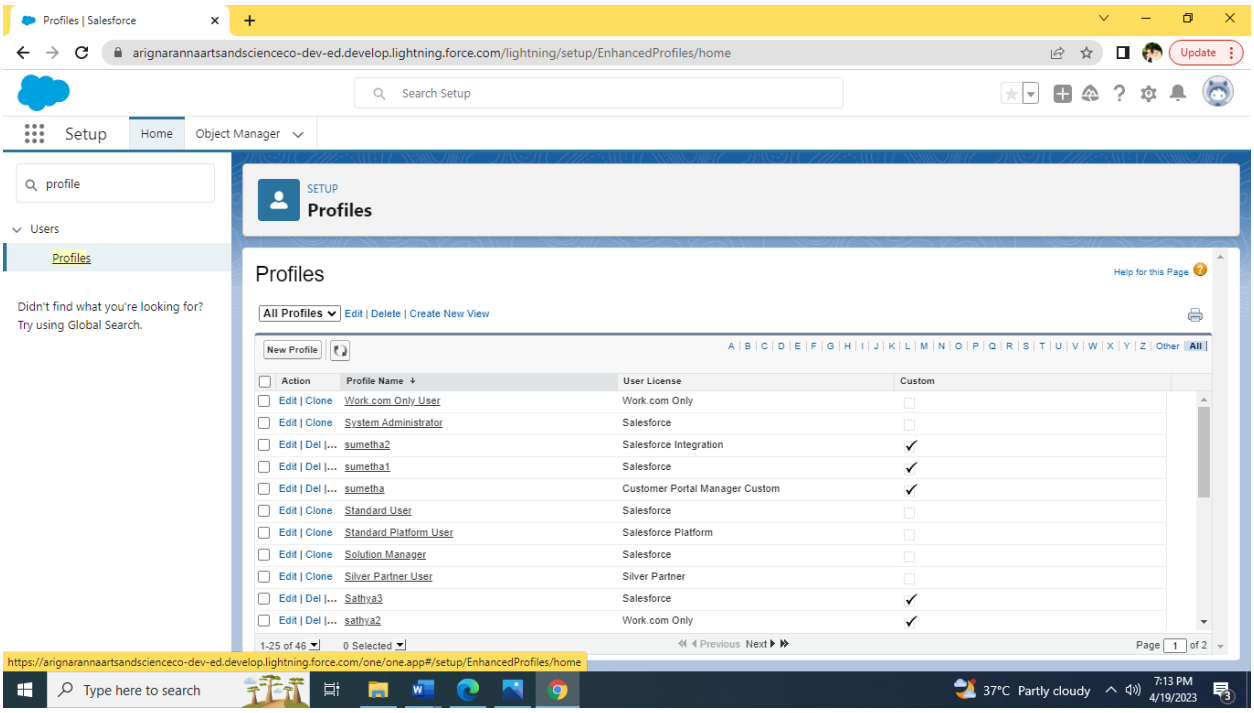


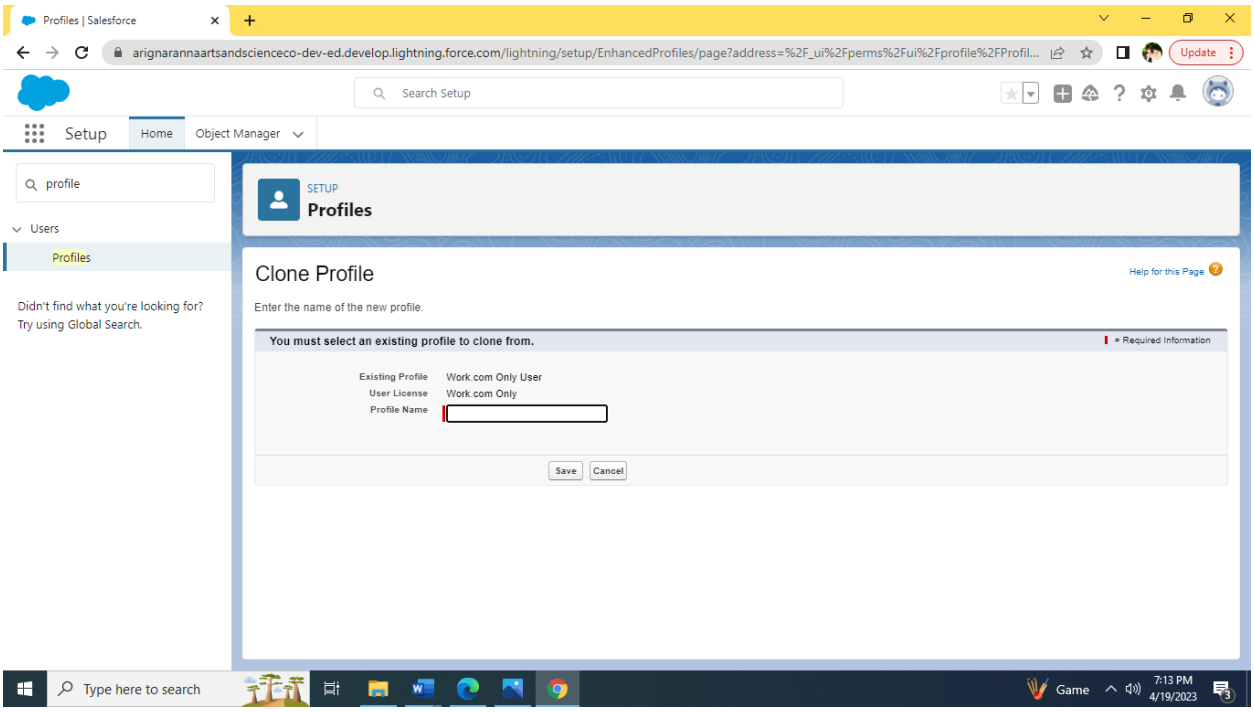

App Manager | Salesforce
arignarannaartsandscienceco-dev-ed.develop.lightning.force.com/lightning/setup/NavigationMenus/home
Update
Search Setup
New Lightning App
Navigation Items
Choose the items to include in the app, and arrange the order in which they appear. Users can personalize the navigation to add or move items, but users can't remove or rename the items that you add. Some navigation items are available only for phone or only for desktop. These items are dropped from the navigation bar when the app is viewed in a format that the item doesn't support.
Available Items
Create
Selected Items
Type to filter list...
Accounts
Alert Settings
All Sites
Alternative Payment Methods
Back
Next
4 Bolt Solutions LightningBolt Discover and manage business solutions designed for your in... 28/02/2023, 1:52 pm Lightning
5 Community Community Salesforce CRM Communities 28/02/2023, 1:50 pm Classic
Type here to search
Earnings upcoming
7:10 PM
4/19/2023


App Manager | Salesforce
arignarannaartsandscienceco-dev-ed.develop.lightning.force.com/lightning/setup/NavigationMenus/home
Update
Search Setup
New Lightning App
Navigation Items
Choose the items to include in the app, and arrange the order in which they appear. Users can personalize the navigation to add or move items, but users can't remove or rename the items that you add. Some navigation items are available only for phone or only for desktop. These items are dropped from the navigation bar when the app is viewed in a format that the item doesn't support.
Available Items
Create
Selected Items
vehicle
Back
Next
4 Bolt Solutions LightningBolt Discover and manage business solutions designed for your in... 28/02/2023, 1:52 pm Lightning
5 Community Community Salesforce CRM Communities 28/02/2023, 1:50 pm Classic
Type here to search
Earnings upcoming
7:11 PM
4/19/2023

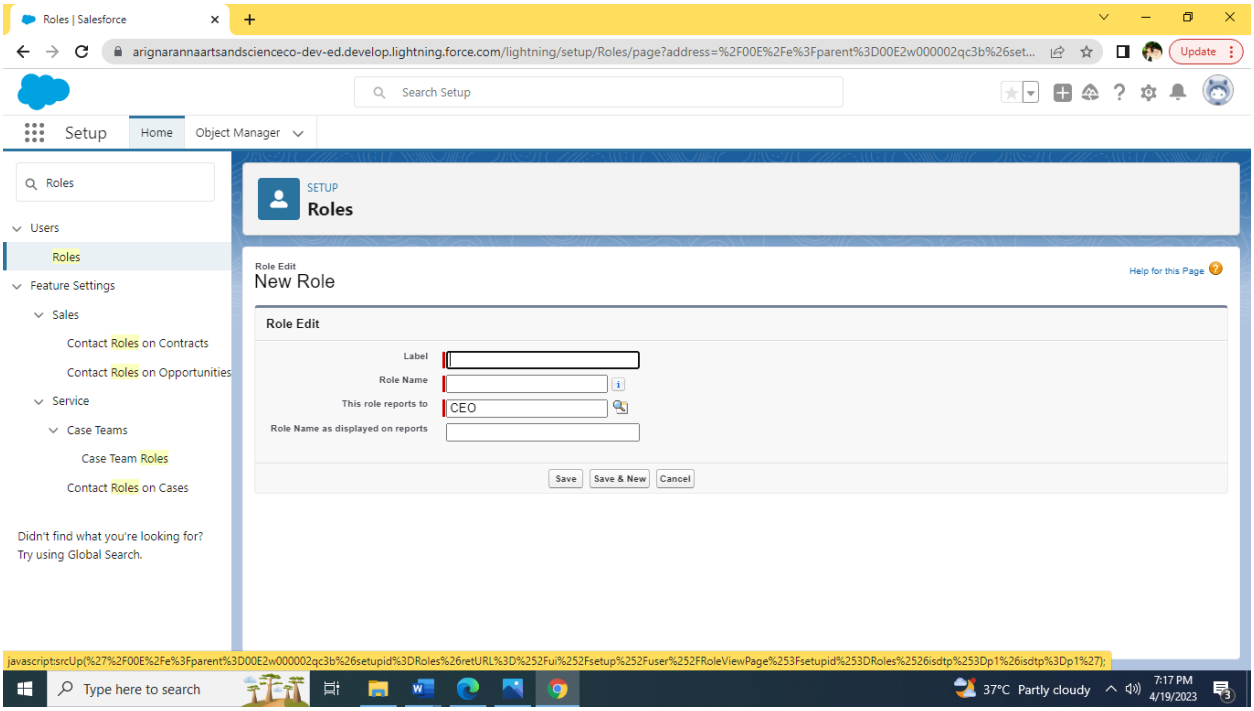
Milestone 5: Profile

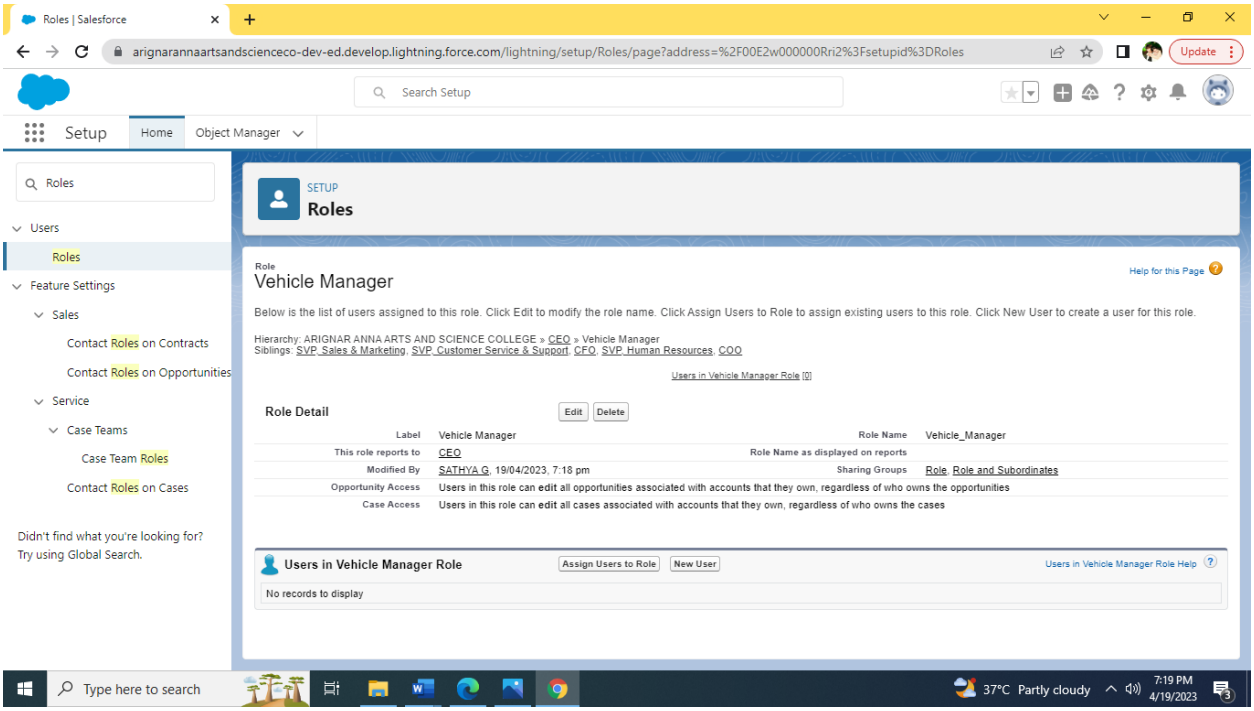
Activity 1: Creating a profiles





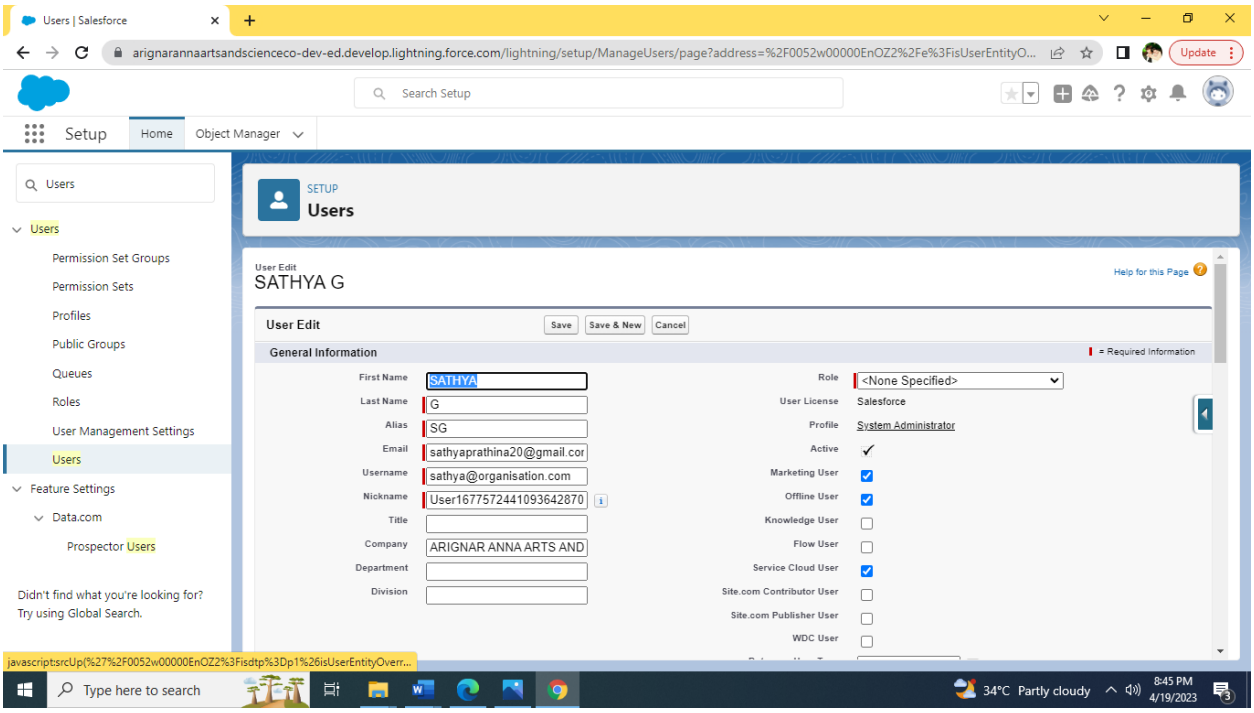
Setup roles

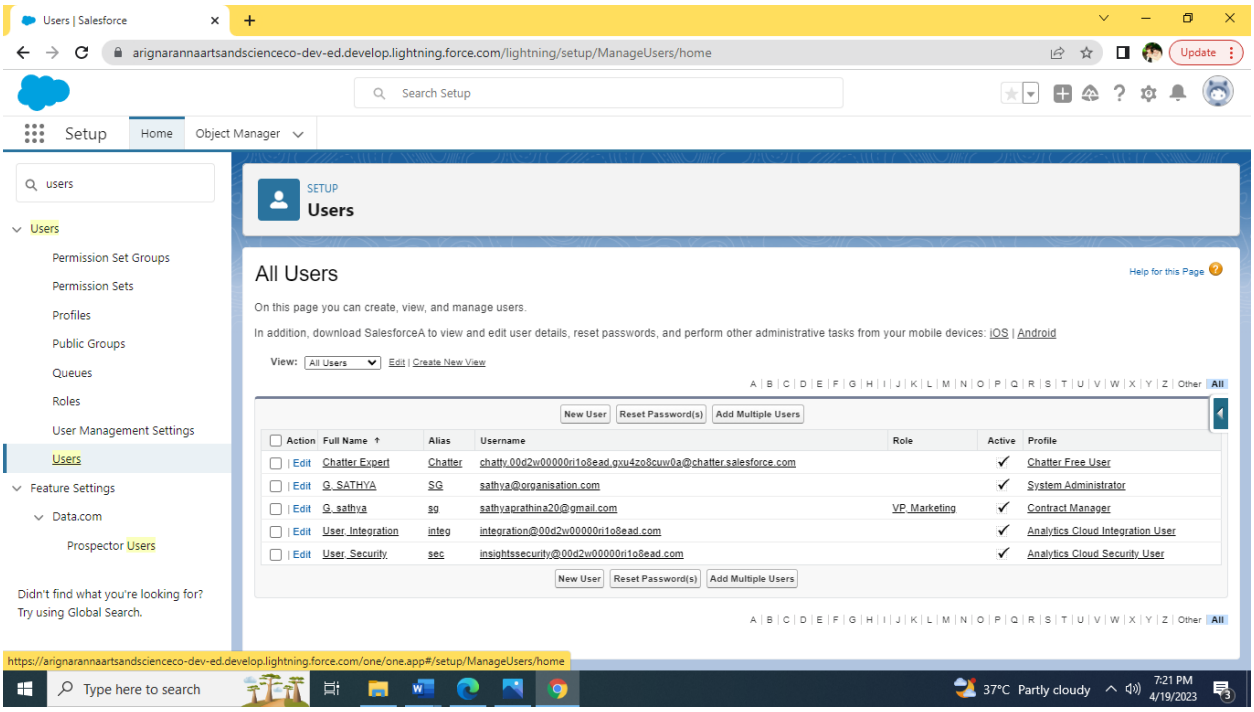

Roles | Salesforce
Search Setup
Setup
Home
Object Manager
Roles
Users
Roles
Feature Settings
Sales
Contact Roles on Contracts
Contact Roles on Opportunities
Service
Case Teams
Case Team Roles
Contact Roles on Cases
Didn't find what you're looking for?
Try using Global Search.
SETUP
Roles
Role Edit
New Role
Help for this Page
Role Edit
Label
Role Name
This role reports to
CEO
Role Name as displayed on reports
Save
Save & New
Cancel
Type here to search
37°C Partly cloudy
7:17 PM
4/19/2023


Roles | Salesforce
Search Setup
Setup
Home
Object Manager
Roles
Users
Roles
Feature Settings
Sales
Contact Roles on Contracts
Contact Roles on Opportunities
Service
Case Teams
Case Team Roles
Contact Roles on Cases
Didn't find what you're looking for?
Try using Global Search.
SETUP
Roles
Role
Vehicle Manager
Help for this Page
Below is the list of users assigned to this role. Click Edit to modify the role name. Click Assign Users to Role to assign existing users to this role. Click New User to create a user for this role.
Hierarchy: ARIGNAR ANNA ARTS AND SCIENCE COLLEGE » CEO » Vehicle Manager
Siblings: SVP_Sales & Marketing, SVP_Customer Service & Support, CFO, SVP_Human Resources, COO
Users in Vehicle Manager Role [0]
Role Detail
Edit
Delete
Label
Vehicle Manager
Role Name
Vehicle_Manager
This role reports to
CEO
Role Name as displayed on reports
Modified By
SATHYA G, 19/04/2023, 7:18 pm
Sharing Groups
Role, Role and Subordinates
Opportunity Access
Users in this role can edit all opportunities associated with accounts that they own, regardless of who owns the opportunities
Case Access
Users in this role can edit all cases associated with accounts that they own, regardless of who owns the cases
Users in Vehicle Manager Role
Assign Users to Role
New User
Users in Vehicle Manager Role Help
No records to display
Type here to search
37°C Partly cloudy
7:19 PM
4/19/2023

Milestone 6: Users

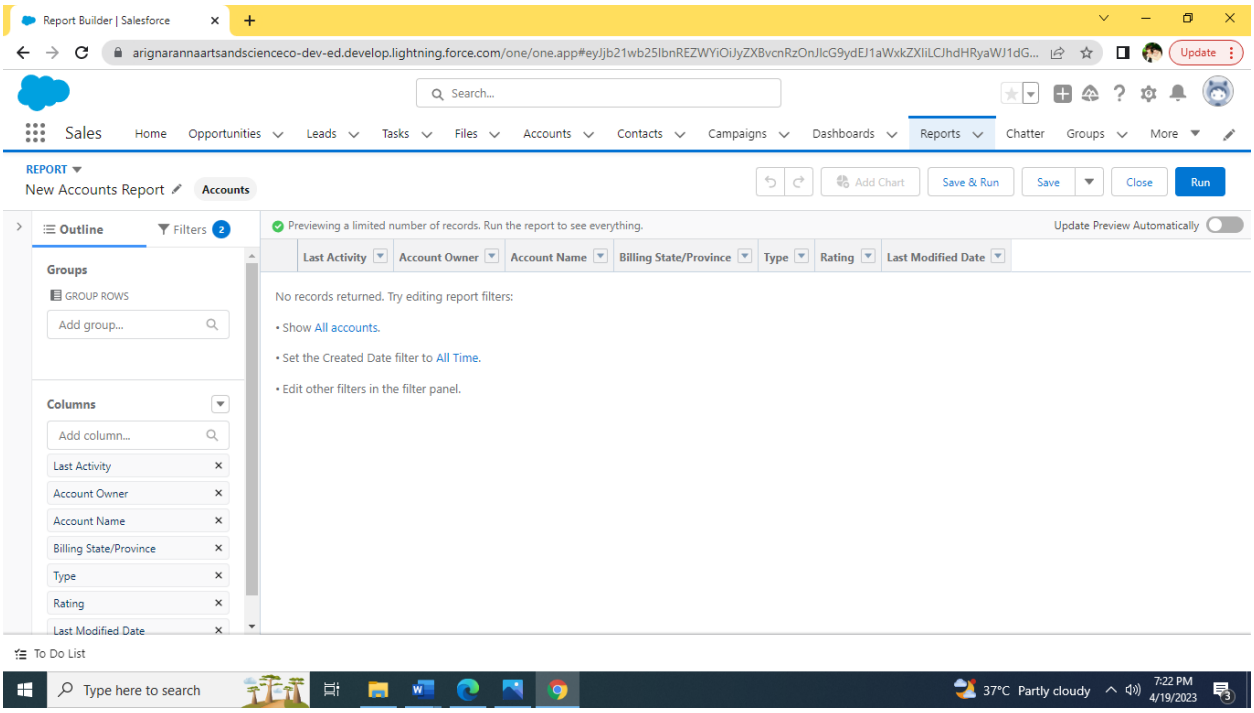
Activity 1: Creating a users

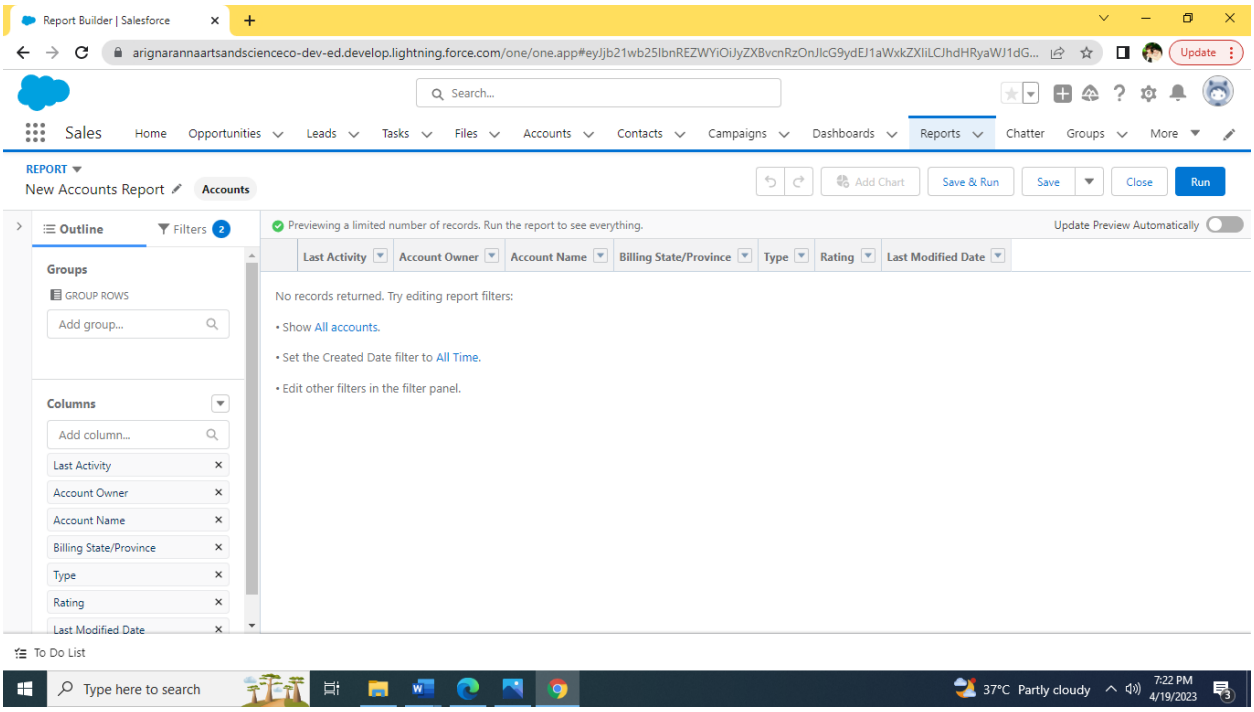


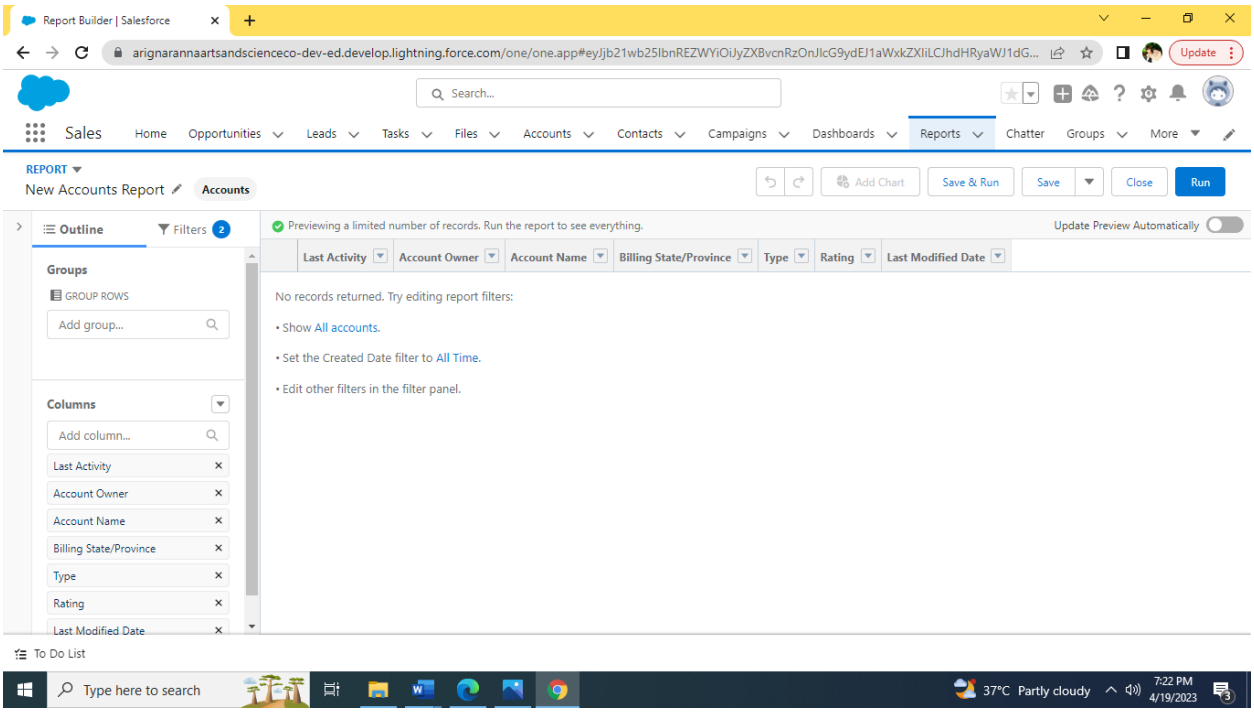


Milestone 7: Reports

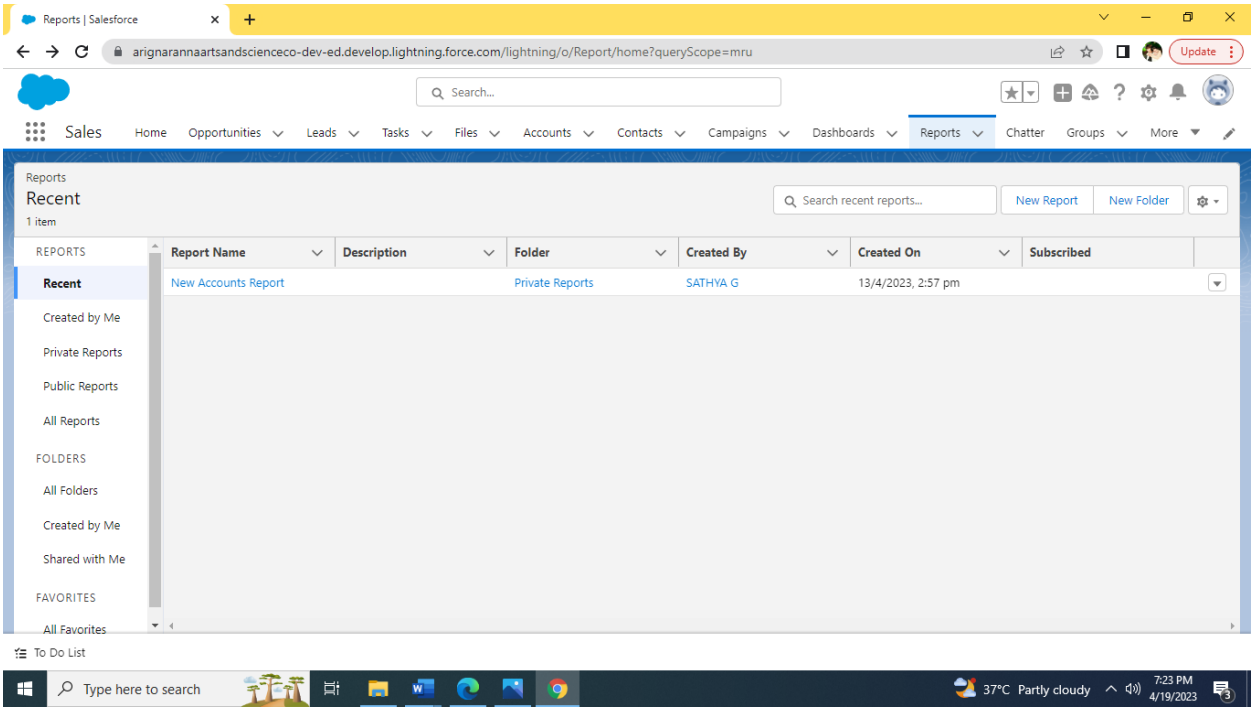
Activity 1: Reports and Dashboards







Activity 2: Dashboard



2 TRAILHEAD PROFILE PUBLIC URL

Team lead -https://trailblazer.me/id/Sathya7814

Team member 1 -https://trailblazer.me/id/Sumek4

5 ADVANTAGES AND DISADVANTAGES

List of Advantages

¬ Good for long drives.

¬ Personal vehicle meaning it's upto you where and when you want to go.

¬ Cars are very useful for all kinds of commutes ranging from short distance commutes to long drives.

¬ Car are very comfortable to travel in.

¬ Car can be used in all kinds of weather ranging from rain to snow

¬ Prevention of car crashes. Of the 37,133 vehicle fatalities in 2017,94% of the crashes were due to human error….

¬ Societal cost-savings.

¬ Traffic efficiency.

¬ Better access and mode of transportion .

¬ Environmentally friendly

¬ People can have complete freedom of choice in the process and roads to get to their destination.

¬ User have a much safer privacy compared to using public transportation.

¬ Maintanence is cheaper when compared to a car.

¬ Easier to find parking spot and requires almost no money for parking.

¬ Good for daily commutes and for long rides. List of Disadvantages

¬ Not good for Rainy days

¬ Chances of death are higher.

¬ It some part gets broken it can lead to an accident.

¬ Easier to get stolen.

¬ Takes too much space causing traffic jams.

¬ Parking is costly and is quite difficult to find a good spot.

¬ Regular Maintanence.

¬ Fear of getting your car scratched or denoted by another irresponsible person.

¬ Owning a car js expensive and requires extra maintanence.

¬ Car are costly to purchase and are not a viable option for lower – income households.

¬ Cars are expensive to maintain and requires frequent services.

¬ Cars are a major source of environmental pollution.

¬ More fuels is being used as more cars are being used by people,leading to other generation facing a shortage of this fuel

6 APPLICATIONS

VMS is concerned with managing the total vehicle state in response to both external environment and internal system conditions. This requires the vehicle state to be represented within the VMS to form a basis of decisions to maintain human life and mission objectives. Interestingly, it also requires an estimate of external state, at least to the degree necessary for the vehicle to interact with it. Information theory provides the basic definitions to determine the information necessary to represent the total vehicle and external state. The goal is to reduce the uncertainty (entropy) of this state estimate to provide for efficient and accurate solutions. For the purposes of this analysis, we will focus only on the vehicle state, though the calculation of the external state would be similar.

The Data Processing Inequality [3] indicates that communication paths and processing nodes should be minimized and is given by: H(V) ≥ H(V :C) ≥ H(V :Y) where C := State after communication Y := Final output state after processing This forms a Markov Chain which shows the information content is reduced (uncertainty increases) with each communication and processing path. This is due to uncertainty being added due to noise, interference, and error (environment induced, coding errors, electrical failures, etc).

Lost information is in the form of bit flips or lost bits (b = e ≠ 0,1) due to noise. The Error Entropy H(pe) can be calculated based on the probability of error occurrence. [3] The Error Entropy grows with the Vehicle State space: H(p) p log(V 1) H(V | Y) e + e − ≥ The entropy for the VMS System Management Loop can be calculated as: ( ) (:) (:) (:) (: Pr) (:) (:) H S ≥ H S C2 ≥ H S P ≥ H S D ≥ H S ≥ H S C1 ≥ H S M where S is the System state M is the measured state P is the calculated performance state D is the calculated diagnostic state Pr is the calculated prognostic state C1 is the communicated state from measurement to performance C2 is the final communicated state This assumes that each state is not conditioning but is determining unique portions of the state information. No communication-induced information entropy has been accounted for between performance, diagnostics, and prognostics (i.e. no entropy between algorithms on the same machine). The inequality above shows that if one ignores the added uncertainties due to added communication paths and data, the certainty of the knowledge about the system state improves, and hence the system entropy decreases with each processing step, as each processing step is intended to collate and make consistent data about the system state.

7 CONCLUSION

Vehicle Management Systems are an important and growing facet of space systems, but have received relatively little theoretical attention. As with many other aspects of engineering, VMS's have been developed in practice, with the theory lagging. However, the complexity of these systems, and of the systems they manage, is beginning to tax "cut and try" methodologies.

Space system designers and operators need a theoretical framework to cope with these increasingly sophisticated systems. Both quantitative and qualitative approaches are appropriate to this theoretical task. The complexity of VMSs, which can be estimated by calculating the entropy of vehicle and external states, is a significant issue that needs to be addressed through appropriate architectural design, as well as more typical verification and validation approaches.

This provides insight into appropriate physical decomposition of a VMS. Functional approaches help designers and operators properly decompose VMSs into logical classifications, which greatly aid architectural division, as well as operational decision-making, whether by humans or machines. This paper provides a starting point from which other engineers can expand these ideas to better understand and design these complex and critical systems.

8 FUTURE SCOPE

Factors that steer the growth of the e-hailing business industry

Factors that steer the growth of the e-hailing business industry E-hailing is nothing but the booking of cars or any other transportation through your mobile devices. Here are some factors that steer the growth of the e-hailing business industries. Rise of on-demand cab booking service To be honest, without a smartphone and good internet our day will not be fulfilled. Since we are living in the tech world everything is made simple as I mentioned above. We are also able to bring everything to our place itself, even the world.

After the smart phones entered into everyone's life things kept changing. Now we can book a taxi near our home. We don't need to go so far away to bring a taxi or to book one. In the world, there is half the population of Gen Z. They are the maximum number of persons who use to book the taxi through online apps. So the fact is in a few years there will be more percentage of Gen Z peoples only than Gen X and Y. So there will be high growth in the online taxi booking industry

The startup trend of the on-demand online taxi app transportation service

The on-demand taxi app service provides all features for their user's comfortability. It also provides real-time tracking and user feedback to rate their traveling experience. Thus the people also start to enjoy their comfortable ride without waiting for a long time. And it also provides a 100% safe journey for their customers.

Rise in Job opportunity

They not only provide comfort to their customers, but they also give options to drivers to work part-time or full time. In the US N number of people are employed as full-time taxi drivers. The report says Uber gives 50,000 jobs a month and the other top taxi apps like Ola, Lyft, etc are also providing job opportunities worldwide.

The rise in trends of MaaS (Mobility as a service)

People who don't have their own car or people who feel too lazy to drive a car are always preferring online taxi service for their smooth travel without a sweat. The statistics say that your own vehicle goes $8858 if you run it for 15k miles per year. So people prefer online taxi apps because there is no need for maintenance costs and petrol costs.

There are few low usages of the internet in some countries there which has less usage of online taxi apps. The digital countries have high growth in the use of on-demand online taxi app service.

The taxi market has been divided

The taxi app has been divided into two types as we all know online and offline taxi booking services. Its survey shows that 65% of people use online taxi booking app services. The on□demand taxi booking app also shows us the estimated cost before booking a ride. It gives more options for customers to choose from different vehicles.

Major players of the taxi app

We all may well know about the major players of the taxi app business all over the world are Uber, Lyft, Ola and Grab.

Uber – In 2019 the survey shows that the taxi booking app operates in the Middle East is $3.1 billion. Uber also started many new services for their customers. Still, the leading top fist taxi booking app is Uber.

Lyft– it was launched after Uber and it's cheaper than the uber service. And they also started their service in over 200+ countries. For example, Uber costs $16 and Lyft costs only $12.

Ola – Ola launched its taxi service in 2010 and it claims 1,50,000 booking per day.

Grab – Grab is also one of the famous taxi apps among the US in 65 cities and has 50,000 taxis on the ride. They provide three options for their customers "Ride now", "Pair and share" and "Ride later".

The working process of all these on-demand online taxi booking app services is the same. There is no difference in it.