FUEL EXPRESS -

A FUEL DELIVERY APP

BY

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1. EXECUTIVE SUMMARY

The Online gasoline Delivery App Analysis Document presents a detailed description of our new gasoline delivery application, which promises to transform how customers access and purchase fuel. This document provides market information, important features, user experience, as well as potential problems and possibilities for our app. The goal of a fuel delivery application analysis document, which includes components such as a solution description, use cases, problem statement, solution stakeholders, user stories, activity diagram, use case diagram, class diagram, sequence diagram, and more, is to provide a comprehensive and structured understanding of the proposed solution.

This document allows stakeholders such as developers, project managers, and business owners to have a complete understanding of the proposed gasoline distribution application. It guarantees that everyone is on the same page when it comes to the project's scope and objectives. It articulates the unique issues or problems in the gasoline distribution business that the application seeks to address. This establishes the context for why the solution is required. It describes in detail the suggested solution, outlining how the application will work, what features it will have, and how it will solve the highlighted problems. User stories explain the functionality of an application from the perspective of the end user.

In summary, the fuel delivery application analysis document acts as a fundamental document that leads the whole project. It contributes to ensuring that the solution is well-defined, answers the stated problems, fits user demands, and can be created and executed efficiently. Furthermore, it serves as a point of reference for stakeholders throughout the project's lifespan, promoting communication and alignment.

2. Main Content

Summary:

Fuel Express App is a mobile application that allows users to order and receive fuel for their vehicles at their preferred location. This app leverages technology and logistics to provide on demand fuel delivery services, disrupting the traditional model of having to visit a physical gas station for refueling. Fuel Express offers various benefits, including convenience, time savings, and increased accessibility. They are particularly popular in urban areas, where traffic congestion and busy schedules can make it challenging to visit traditional gas stations. The app also has potential environmental benefits, as it can reduce the emissions associated with idling in lines at gas stations. In cases where vehicles run out of fuel unexpectedly, the Fuel Express app provides a quick solution. This is particularly important in emergencies or when traveling in unfamiliar areas. Businesses with fleets of vehicles can improve operational efficiency by avoiding downtime due to refueling trips. Fuel Express app ensures that vehicles are always fueled and ready for use and will cater to modern lifestyles, reduce stress, and can offer financial and environmental benefits to both individual consumers and businesses.

2.1 Solution Name

Fuel Express – An On-Demand Fuel Delivery App

2.2 Solution Description

Fuel Express App is a mobile application that allows users to order and receive fuel for their vehicles at their preferred location. This app leverages technology and logistics to provide on demand fuel delivery services, disrupting the traditional model of having to visit a physical gas station for refueling. Fuel Express offers various benefits, including convenience, time savings, and increased accessibility. They are particularly popular in urban areas, where traffic congestion and busy schedules can make it challenging to visit traditional gas stations. The app also has potential environmental benefits, as it can reduce the emissions associated with idling in lines at gas stations. In cases where vehicles run out of fuel unexpectedly, the Fuel Express app provides a quick solution. This is particularly important in emergencies or when traveling in unfamiliar areas. Fuel Express app ensures that vehicles are always fueled and ready for use and will cater to modern lifestyles, reduce stress, and can offer financial and environmental benefits to both individual consumers and businesses.

2.3. Business or Consumer Benefits

Consumer Benefits:

Timesaving: Fuel delivery apps save users valuable time by avoiding detours and waiting times at gas stations. This is particularly useful for busy individuals.

Location Flexibility: Users can get fuel delivered wherever they are, whether it's at home, work, or even on the road. This is especially convenient for people with busy schedules or those traveling long distances.

Emergency Assistance: Fuel delivery apps can be a lifesaver in emergencies when a vehicle runs out of fuel in remote areas or late at night.

Business Benefits:

Operational Efficiency: Fuel delivery can be optimized for efficiency, reducing operational costs compared to maintaining a physical gas station.

Reduced Environmental Impact: By optimizing fuel delivery routes and reducing the need for customers to drive to gas stations, businesses can contribute to a reduction in carbon emissions.

Reduced Overheads: Fuel delivery apps can reduce the operational costs of maintaining traditional gas stations, including staffing, real estate, and infrastructure.

Scalability: Businesses can scale their operations more easily by expanding their delivery fleet to meet increasing demand.

2.4 Business or Consumer Environment

The Fuel Express App will cater to the needs of the customers who are looking for quick and easy refueling of their vehicles without going to the gas stations and waiting in the long queue. The users of this application are consumers, vendors, drivers and admin.

Fuel delivery services can reduce operational costs associated with maintaining physical gas stations, such as staffing, infrastructure, and real estate expenses.

The solution will not only benefit the business and the consumer but also will have a potential impact on the environment as it would help reduce carbon emissions.

2.5 Operational Environment

The operational environment for a fuel delivery service involves the physical and logistical aspects that enable the successful execution of the service. It encompasses various components, including infrastructure, technology, regulations, and workforce. Adhering to regulations, ensuring safety, and maintaining technology infrastructure are critical aspects of this environment. The following are the operational environment required for successful execution of this app.

1. Fuel Storage Facility and Transportation

2. Technology Infrastructure

3. Mobile Application and Software

4. Back office for Customer support and Insurance

2.6 Solution Stakeholders

The users who will be using the application to request fuel will be the external stakeholders. The Vendors are the people who already has few gas station set up in few locations and who are buying this application are the operational stakeholders. Admin, Product owners and Managers will act as the internal stakeholders for this project.

2.7 Solution Users

The identified actor for this application is as follows:

1. **Customer**: The actor who will be ordering the fuel using the Fuel Express Application

2. **Vendor**: The actor who will be managing the drivers and Inventory

3. **Admin**: The actor who are the client will be managing all the roles and customer support

4. **Drivers**: The actors who will be delivering the fuel at the desired location.

2.8 Requirements Elicitation Method(s)

Selecting the best requirement elicitation method is essential to gather accurate and comprehensive requirements that align with user needs and business goals.

1. **User Interviews and Surveys**: We would prefer interview sessions and surveys in order to understand the actual expectation from client and users and the purpose of building this application.

   Reason: Conducting interviews or surveys with potential users, both consumers and businesses, to understand their needs, pain points, and preferences related to fuel delivery will be beneficial. This method will provide direct insights from the target audience.

2. **Prototyping:** Creating a low-fidelity prototypes or wireframes of the app to gather feedback from potential users early in the development process. This can help refine the design and functionality**.**

   Reason: Fuel delivery service is complex, with various interconnected elements that need to function seamlessly to provide reliable, safe, and convenient fuel delivery to consumers. Therefore, creating small prototypes will help figure out early complexity and can also analyze customer satisfaction.

2.9 User Stories

Create the user stories and acceptance criteria for each user of your solution.

User 1: Customer

User story 1: Customer

As a customer, I want to search the nearby fuel suppliers using GPS or manually entering the location because I want to choose the nearby fuel supplier.

Acceptance Criteria:

1. The user must be able to select accurate live location using the GPS or by manually adding it.

2. The page must return all the relevant search results.

3. The user must be able to choose their preferred location from the list of locations.

User Story 2: Customer

As a customer, I want to successfully request and schedule fuel delivery from the nearest fuel supplier because I want to refuel my vehicle.

Acceptance Criteria:

1. The user must be able to select the preferred fuel type.

2. The user must be able to choose time for scheduling the appointment.

3. The user must be able to successfully complete the payment.

User Story 3: Customer

As a customer, I want to verify the order details and appointment information on the booking details page because I want to confirm if the booking is successful.

Acceptance Criteria:

1. The user must be able to open the booking details page successfully.

2. The user must be able to see all the previous and the latest booking details on the page.

3. The user must be able to view a valid booking id on the booking panel.

User 2: Vendor

User Story 1

As a vendor, I want to register or update fuel station details in the application and view it in the listed fuel station tab as new fuel stations will be in use.

Acceptance Criteria:

1. Vendors must be able to successfully add new fuel stations with essential information and documentation.

2. Vendor must be able to edit any existing station detail and save it successfully.

3. New Station and modifications should be updated in the list of fuel station tab.

User story 2:

As a vendor, I want to add new drivers to the system and modify their details of any existing drivers as I want to add more drivers in the system .

Acceptance Criteria:

1. Vendors must be able to add the driver details successfully in the system.

2. Vendors must be able to modify and delete any driver information from the system.

3. Vendors must be able to see all the list of drivers in the system.

User Story 3:

As a vendor, I want to view all the past and upcoming reservations with all the booking details so that I can keep a track of all the bookings coming in.

Acceptance Criteria:

1. Vendors must be able to view all the past reservations.

2. Vendors must be able to view the list of present reservations.

3. Vendors must be able to see all the customers and booking details in the system.

User 3: Driver

User story 1

As a driver, I want to view and edit my details in the profile section in the application as I want to make sure I can update my profile whenever required.

Acceptance Criteria:

1. The driver must be able to click and view his profile in the app.

2. The Driver must be ablet to edit his details and save it successfully.

User Story 2

As a Driver, I should be able to view any new fuel delivery order in the app and should be able to accept and reject the same because I want to manage all the bookings.

Acceptance Criteria:

1. Driver must be able to see notifications of any new appointments in the app.

2. The driver must be able to accept and reject the fuel order successfully.

3. The driver must be able to see all the booking details and fuel vehicle details.

User Story 3

As a driver, I want to see the exact location of the customer and enter the OTP post the service delivery as I want to mark the booking as complete.

Acceptance Criteria:

1. Drivers must be able to easily locate customers using integrated Google Maps.

2. The driver must be able to deliver the service to the customer successfully.

3. The driver must be able to enter the OTP successfully in the app to indicate that the service was successfully delivered.

User Story: Admin

User story 1:

As an Admin, I want to handle all the different user profiles and provide access according to the user category so that I can manage all the user category and provide access controls accordingly.

Acceptance Criteria:

1. Admin must be able to see 3 user options in the application.

2. Admin and Vendor should have access to add and modify user details and access role.

User Story 2:

As an admin, I want to schedule and perform system maintenance tasks, including updates, backups, and troubleshooting because I want to keep the system healthy.

Acceptance Criteria:

1. Time to Time software is successfully updated.

2. Application Performance should be evaluated successfully.

User Story 3:

As an admin, I want to ensure that the fuel delivery system complies with all relevant safety and environmental regulations because I want to make sure the company is following all the safety and regulations.

Acceptance Criteria:

1. All fuel delivery requests should be monitored by the admin in order to follow the oil and gas industry protocols.

2. Admin should keep proper documentation and licenses for Auditing and compliance perspective.

2.10 Use Cases

USE CASES FOR ACTOR: CUSTOMER

Use Case	Description	Event Type
Search Nearby Fuel Supplier	User enters the current location by selecting the location icon or enters the location manually. The Fuel Express App returns relevant options according to location entered by the user.	**External**

Use Case	Description	Event Type
Schedule Fuel Delivery Appointment	The user enters valid fuel information. User completes the payment in the app and the system verifies the payment and generates a booking ID and appointment confirmation.	**External**

Use Case	Description	Event Type
View Appointment confirmation and Booking Details	The user completes the booking successfully. System displays appointment confirmation and booking details to the user.	**External**

USE CASE FOR ACTOR: VENDOR

Use Case	Description	Event Type
Manage Fuel Stations	The user enters the new fuel station information with proper license documentation and saves it. System verifies the information and then successfully adds and displays the new station in the fuel station list.	**External**

Use Case	Description	Event Type
Manage Fuel truck drivers.	The user enters new driver details or updates or deletes an existing driver record. The system verifies the information and updates the "Drivers List Tab" with the updated data.	**External**

Use Case	Description	Event Type
Manage Fuel Price	The user will modify and set the prices according to the type of Fuel. System updates the modified price and populates the same data to Customers and Driver's view.	**External**

Use Case	Description	Event Type
View completed and upcoming fuel delivery appointments	The user goes to the fuel reservation tab and the system displays all the past and upcoming fuel delivery schedules, booking details, customer details and the assigned driver info to the user.	**External**

USE CASE FOR ACTOR: DRIVER

Use Case	Description	Event Type
View new fuel delivery request in the app with booking/customer info.	When the user logs in to the driver profile, the system should show new fuel delivery request. The system should allow the user to accept and reject the request.	**External**

Use Case	Description	Event Type

Locate the customer and update the live status of the driver.	The driver accepts the delivery request. The system should allow the driver to locate the customer. The driver updates his live status and time of arriving, the system should populate this information to the customer.	**External**

Use Case	Description	Event Type
View Driver's Dashboard	After the driver successfully serves the customers, the driver updates the system with service status. The system must update the driver's dashboard with the number of deliveries and ratings.	**External**

Use Case	Description	Event Type
Request for the OTP post completion of the service.	The drive successfully serves the customer and clicks on the delivered button on the app. The system generates an OTP and sends it to the customer via email or mobile no. The driver enters the OTP in the system to get a confirmation from the customer.	**External**

USE CASE FOR ACTOR: ADMIN

Use Case	Description	Event Type
Manage different user profile and grant access according to the category.	The system should allow admin users to perform write operations in the application and on the other user categories like Customer, Driver and Vendors.	**External**

Use Case	Description	Event Type
User Support	The admin users should receive request for user assistance by the system.	**External**

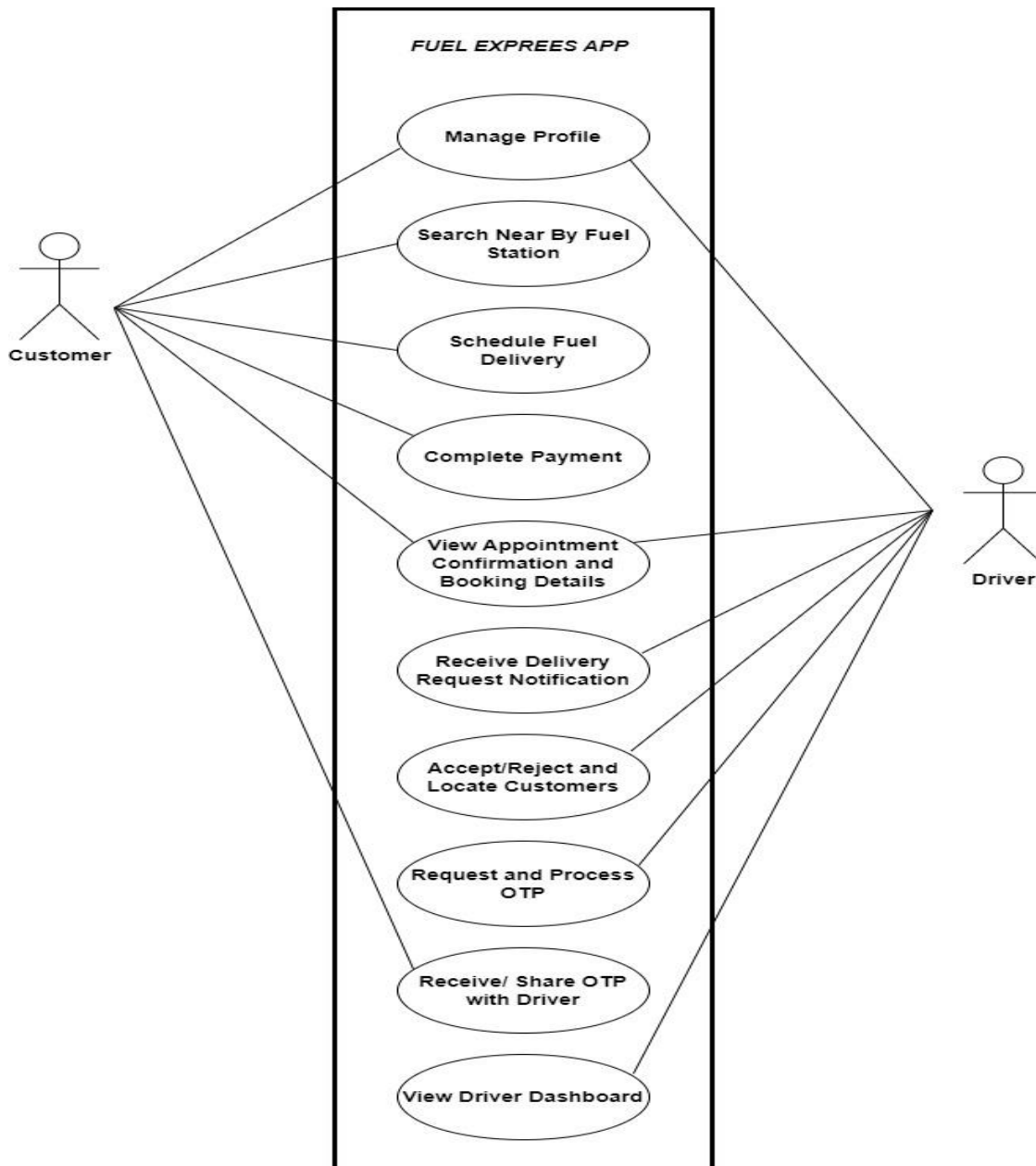| Use Case	Description	Event Type
Track and monitor fuel delivery and consumptions for auditing and safety compliance	The admin users maintain proper documentation and fuel consumption stats on the admin portal for quality and safety compliances. The system should only show this tab to admin users. The system calculates and updates the fuel consumption stats based on the requests being made.	**Internal**

Use Case	Description	Event Type
Data Backup and Maintenance	The system will run and backup data from the application every night at 1 pm.	**Temporal**

2.11 Create the use case diagram(s) for each user for your project.

USE CASE DIAGRAM:
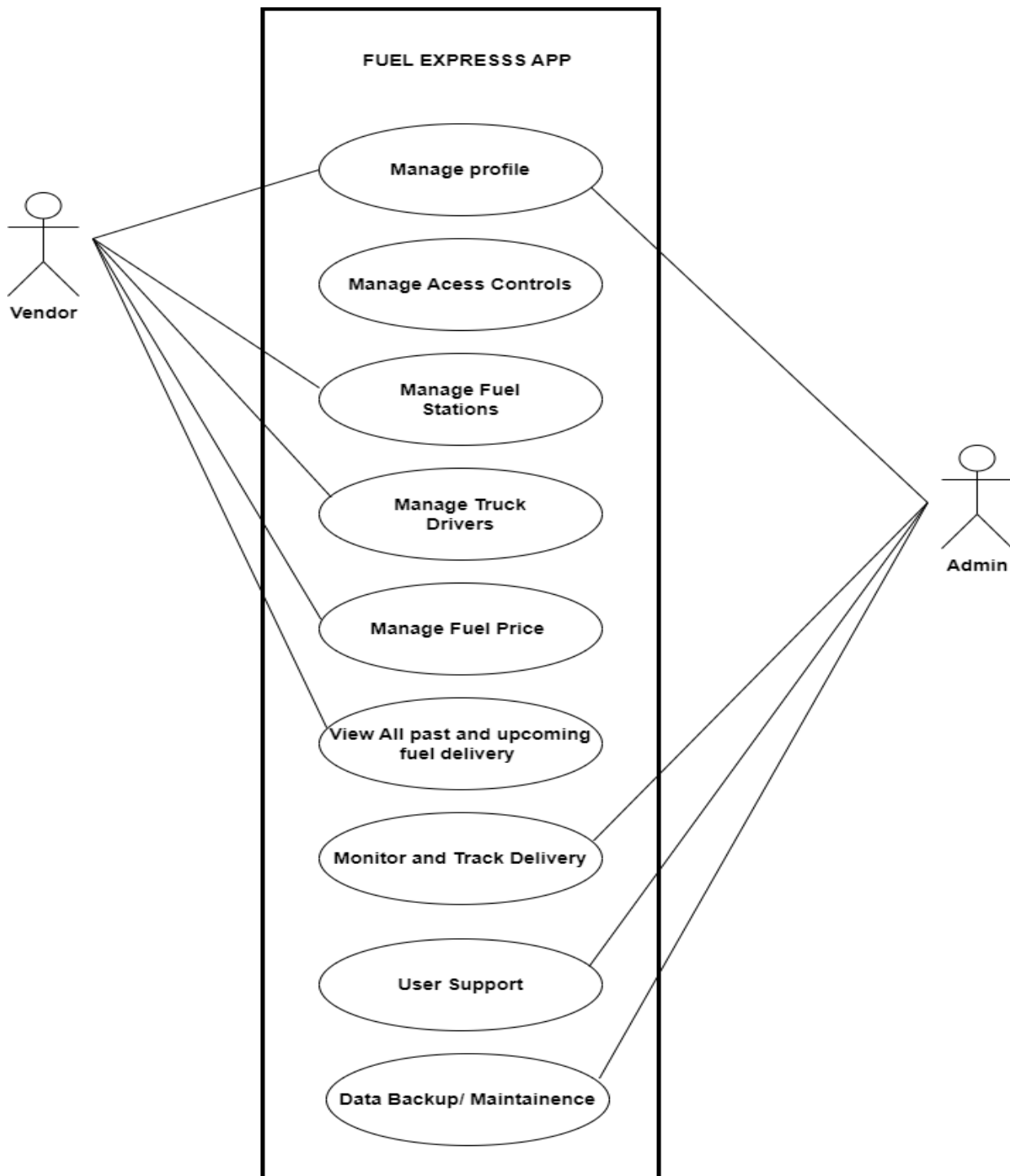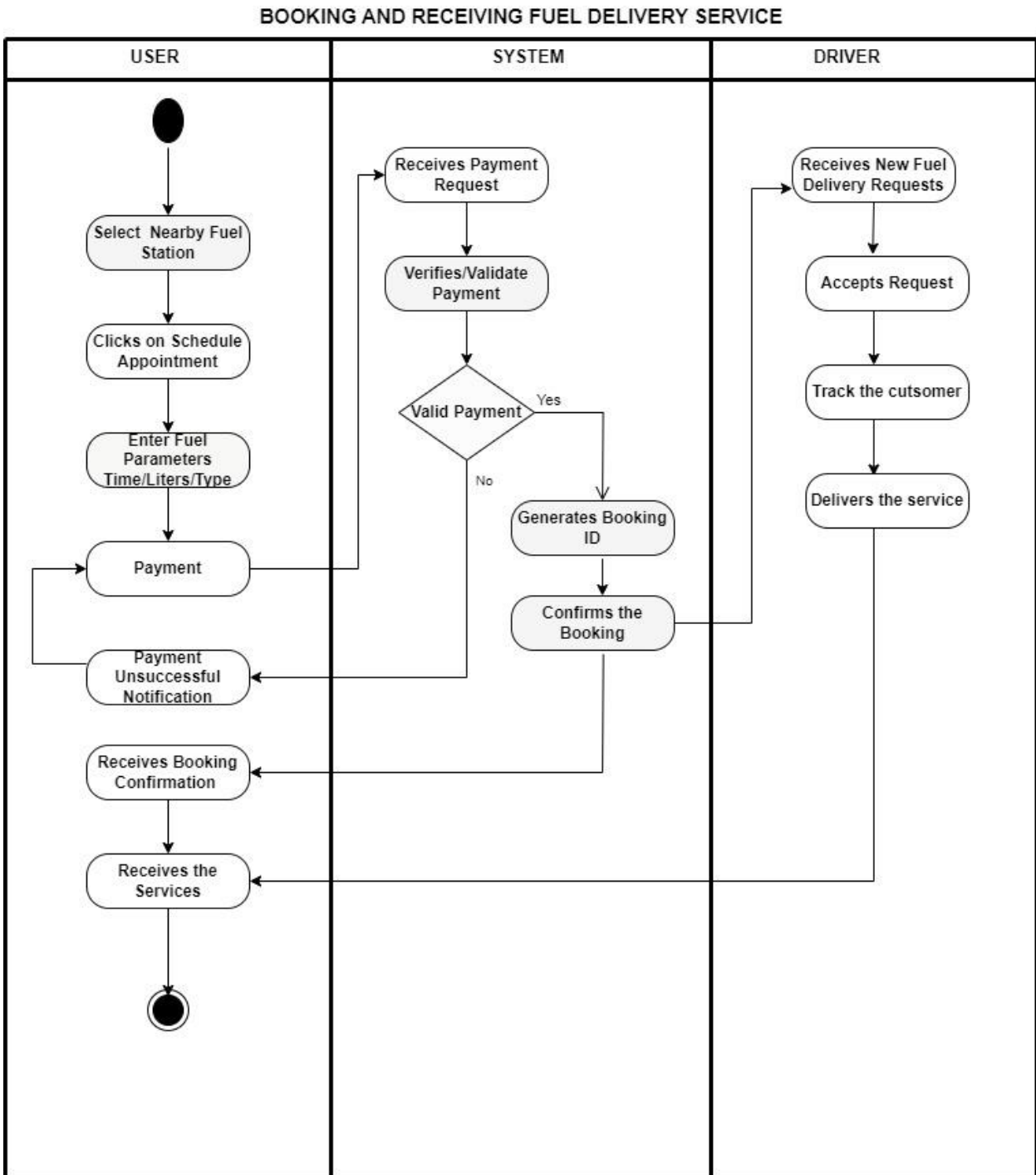
USER: 1) CUSTOMER

       2) DRIVER

USE CASE DIAGRAM:

USER: 1) VENDOR

       2) ADMIN

FUEL EXPRESSS APP

Manage profile

Manage Acess Controls

Manage Fuel Stations

Manage Truck Drivers

Manage Fuel Price

View All past and upcoming fuel delivery

Monitor and Track Delivery

User Support

Data Backup/ Maintainence

Vendor

Admin

2.12 Create the activity diagram(s) for your project.

BOOKING AND RECEIVING FUEL DELIVERY SERVICE

ORDER CONFIRMATION AND DASHBORAD UPDATE

DRIVER	SYSTEM	USER

Receives New Fuel Request

Track Customer using GPS

Completes the service

Request for OTP

Receives OTP Generation Request

Generates OTP and sends to Customer

Receives OTP

Shares OTP with Driver

Receives OTP from Customer

Enters the OTP into the system

Verify OTP

Valid OTP

No

Yes

Mark Delivery As Complete

Update the Driver Dashborad

View Driver Dashboard (No of Delivery/Rating)

REGISTRATION OF NEW FUEL STATION IN THE SYSTEM

VENDOR	SYSTEM	ADMIN

Register New Fuel Station

Select the location and Address

Upload Valid Liscence and Paperworks

Request Denied Notification

Receives Success Notification

Request to set the configuration of Station(Price/time)

Request Denied Notification

Fuel Station is ready to use

Adds New station in the List of Station

Sets the Configurtion for the New Station

Receives Request for New Fuel Station

Verifies the request

Validate Documentation

Valid Liscence

Yes

No

Receive the Configuration Regust

Aprove Price listing

No

Yes

2.13 Build a list of things in the problem domain of your system.

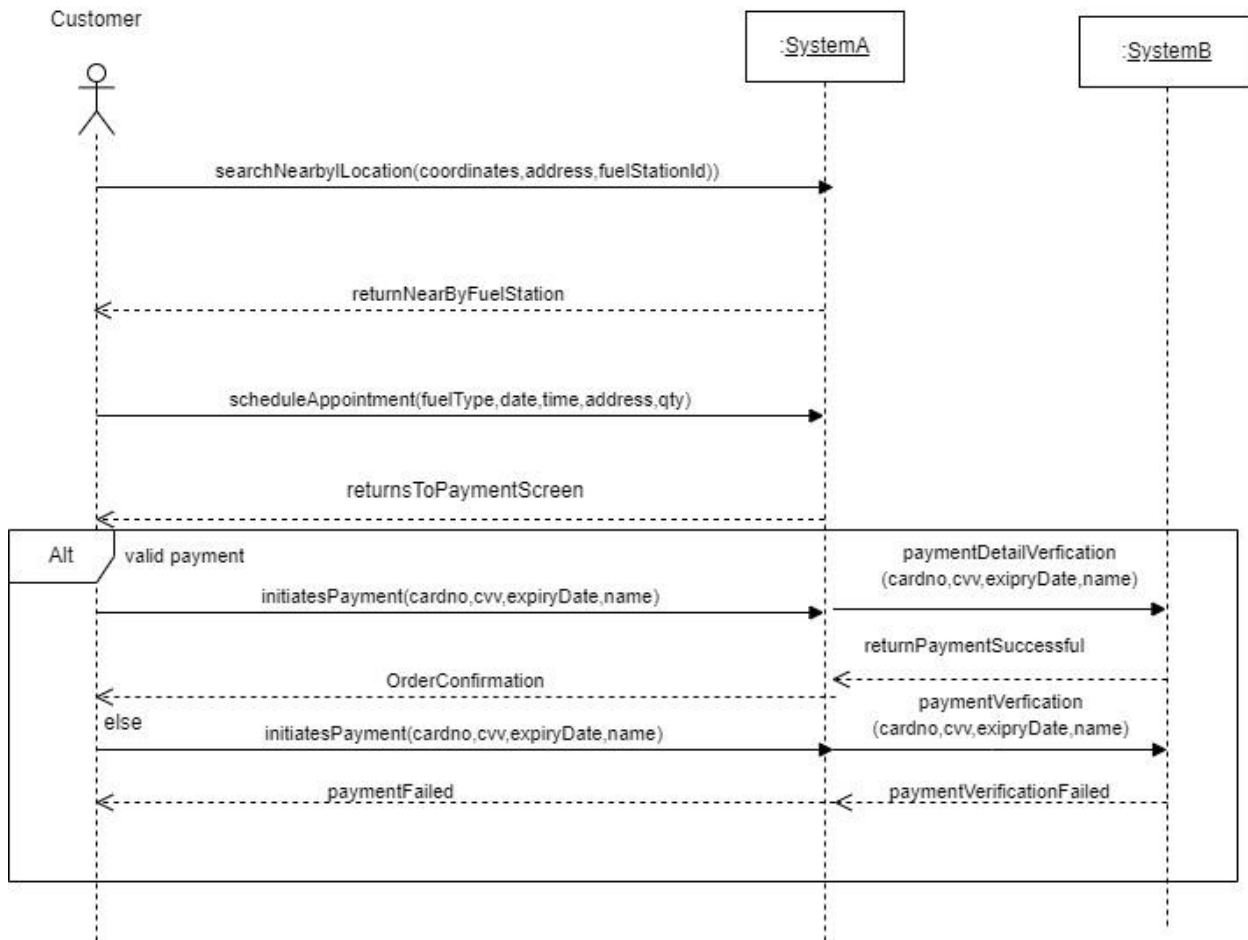| Sr No	Entity (Things)	Attributes
1	Fuel Station	1. stationId 2. location 3. fuelType 4. license 5. fuelPrice
2	Vendor	1. vendorId 2. name 3. license 4. contact
3	Driver	1. fname 2. lname 3. driverId 4. drivingLicense 5. contact
4	User	1. userId 2. fname 3. lname 4. location
5	Location	1. coordinates 2. address 3. locationId
6	Fuel Pump(physical)	1. crewno 2. phoneno 3. invoiceId
7	Fuel Delivery	1. location 2. vehicleno 3. invoiceId

2.14 Create the domain model class diagram(s) for your system.
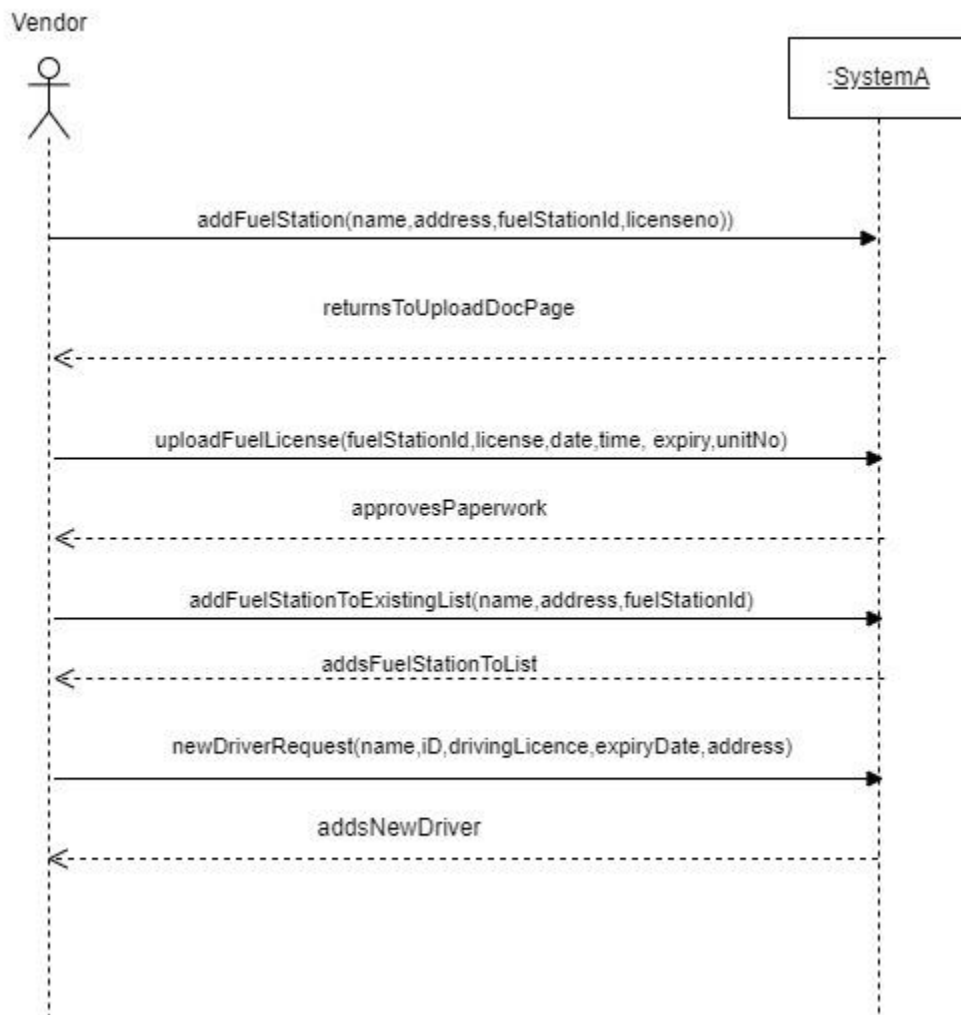
CLASS DIAGRAM FOR ON DEMAND FUEL DELIVERY SYSTEM
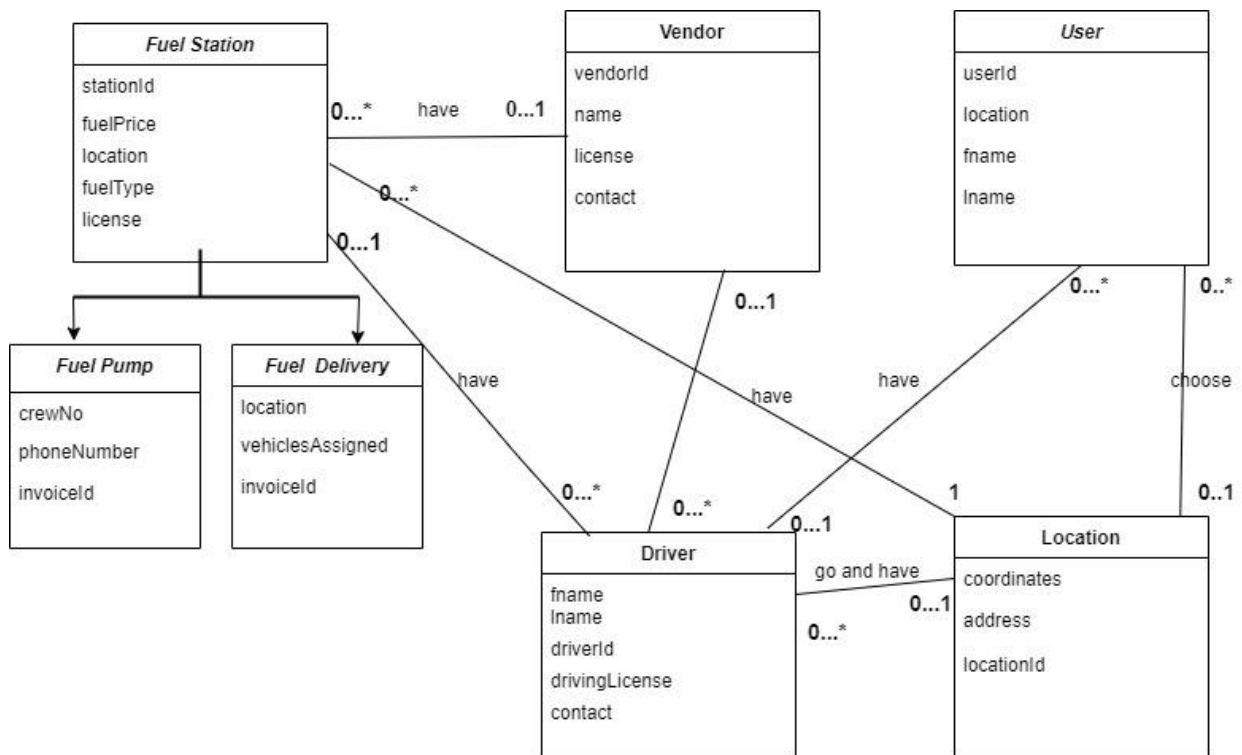
2.15 For two of your use cases build a System Sequence Diagram (SSD).

Use case : User books fuel delivery.

Use Case: Vendor adds New Fuel Station & Driver

Vendor

:SystemA

addFuelStation(name,address,fuelStationId,licenseno))

returnsToUploadDocPage

uploadFuelLicense(fuelStationId,license,date,time, expiry,unitNo)

approvesPaperwork

addFuelStationToExistingList(name,address,fuelStationId)

addsFuelStationToList

newDriverRequest(name,iD,drivingLicence,expiryDate,address)

addsNewDriver

2.16 Prepare two full-screen, mock-up display screens – one would be the home screen and the second would be the most detailed screen in your system. (Refer to pages 218-245 and your imagination)

Fuel Express Home Page

DRIVER'S DASHBOARD :

FUEL EXPRESS *Gas Station On Wheels*

Locate Customer

Order requests

Vehicle details

locate Fuel station

Driver DashBoard

Delivery Completed and fuel type

Petrol 15

Diesel 24

Gas 60

Feedback

Jan Feb Mar Apr May

- **Contact Vendor**
- **GPS Tracking**
- **Support**
- **FAQs**

**2.17 Prepare one DETAILED report mock-up. (Refer to pages 246 - 250)**

Annual Report for Online Fuel Delivery System (Sample Data)

Financial Operation					
Year	Revenue ($)	Profit ($)	Loss	Fuel Quantity Ordered (Liters/Gallons)	Fuel Quantity Consumed (Liters/Gallons)
2020	$1,200,000	$100,000	1,100,000	500000.00	490000.00
2021	$1,500,000	$120,000	1,420,000	650000.00	635000.00
2022	$1,800,000	$150,000	1,650,000	780000.00	765000.00
2023	$2,100,000	$180,000	1,980,000	900000.00	885000.00
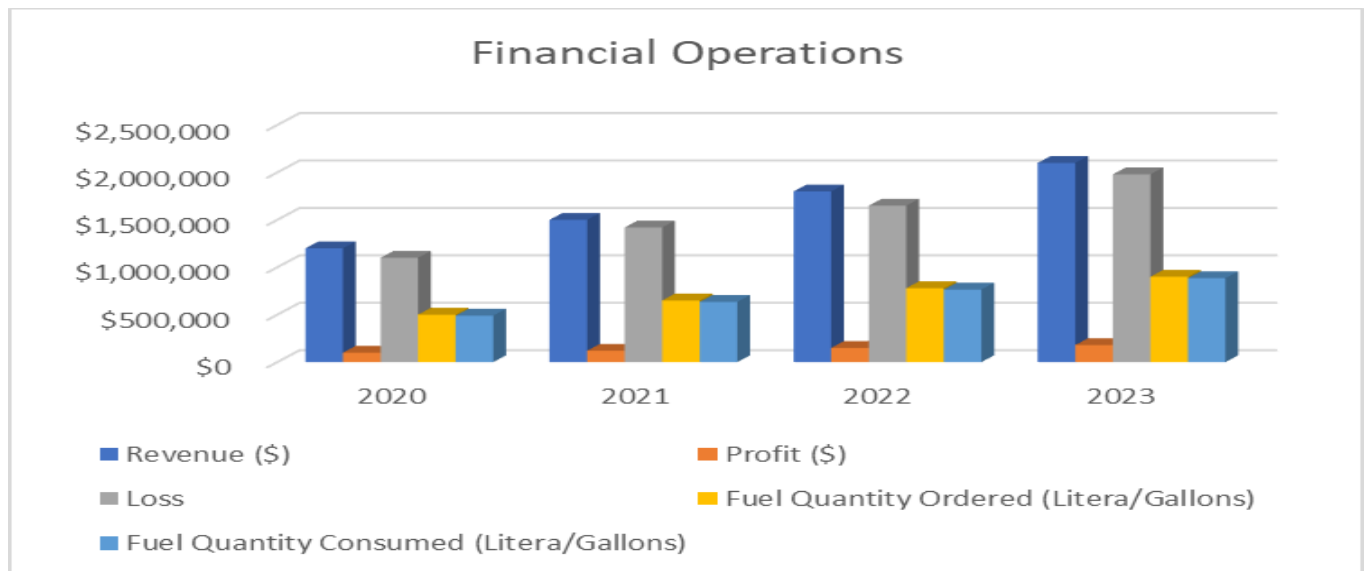
Performance					
Number of Orders	Customer Satisfaction (%)	Brand Recognition	Customer Base (Number of Customers)	Highest Fuel Ordering State	Reginal Demand
30,000	92%	Medium	10,000	California	Stable
46,000	94%	Medium	12,500	Minnesota	Growing
78,000	96%	High	15,000	Boston	Growing
80,000	97%	High	18,000	Texas	Strong Growth

CUSTOMER EXPERIENCE

■1 ■2 ■3 ■4

13%

20%

33%

34%
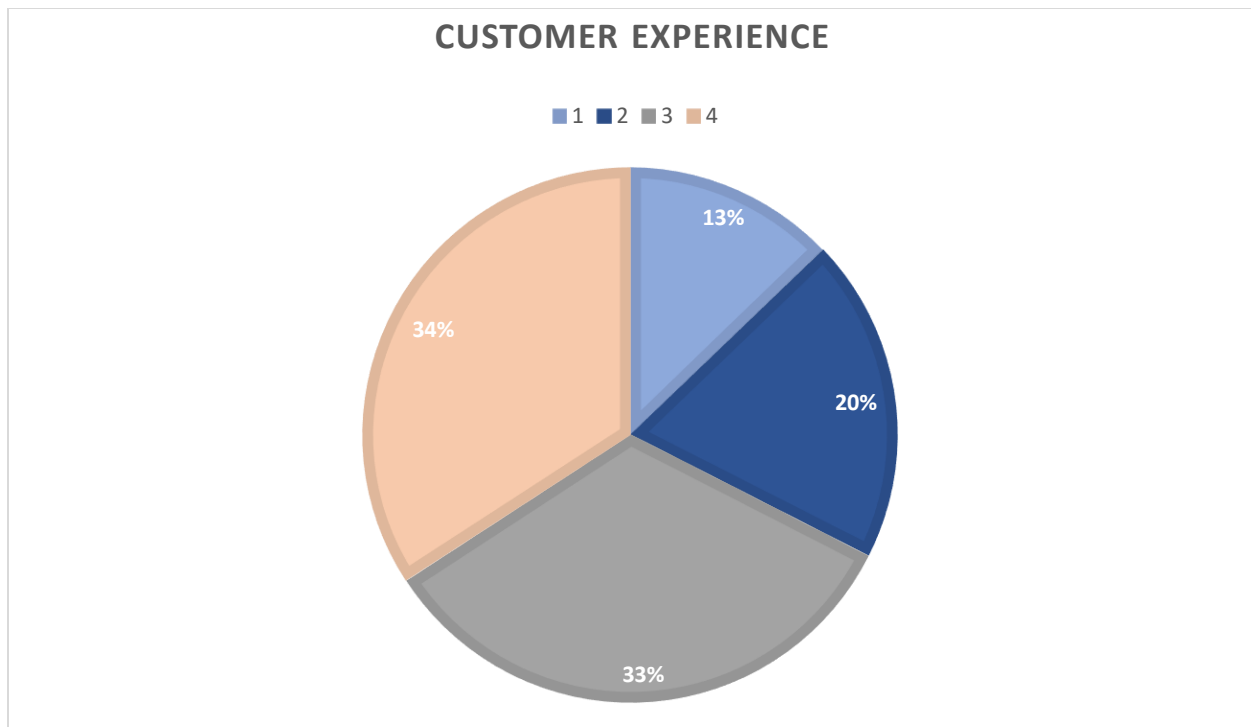
Year: 2020

Financial Performance:

- Revenue: $1,200,000

- Profit: $100,000

Operational Performance:

- Number of Orders: 5,000

- Customer Satisfaction: 92%

- Brand Recognition: Medium

- Customer Base: 10,000

- Regional Demand Trends: Stable

Key Highlights for 2020:

- The company achieved revenue of $1.2 million with a profit of $100,000.

- A total of 5,000 orders were processed during the year.

- Customer satisfaction was at a healthy 92%.

- The brand recognition in the market was at a medium level.

- The customer base expanded to 10,000 users.

- Regional demand trends remained stable.

Year: 2021

Financial Performance:

- Revenue: $1,500,000

- Profit: $120,000

Operational Performance:

- Number of Orders: 6,500

- Customer Satisfaction: 94%

- Brand Recognition: Medium

- Customer Base: 12,500

- Regional Demand Trends: Growing

Key Highlights for 2021:

- Revenue increased to $1.5 million, with a profit of $120,000.

- The number of orders grew to 6,500, indicating increased demand.

- Customer satisfaction continued to improve, reaching 94%.

- The brand recognition remained at a medium level.

- The customer base expanded to 12,500 users.

- Regional demand trends started to show growth.

Year: 2022

Financial Performance:

- Revenue: $1,800,000

- Profit: $150,000

Operational Performance:

- Number of Orders: 7,800

- Customer Satisfaction: 96%

- Brand Recognition: High

- Customer Base: 15,000

- Regional Demand Trends: Growing

Key Highlights for 2022:

- The company experienced further growth with revenue of $1.8 million and a profit of $150,000.

- The number of orders increased to 7,800, demonstrating strong demand.

- Customer satisfaction continued to improve, reaching 96%.

- Brand recognition in the market reached a high level.

- The customer base expanded to 15,000 users.

- Regional demand trends indicated sustained growth.

Year: 2023

Financial Performance:

- Revenue: $2,100,000

- Profit: $180,000

Operational Performance:

- Number of Orders: 9,000

- Customer Satisfaction: 97%

- Brand Recognition: High

- Customer Base: 18,000

- Regional Demand Trends: Strong Growth

Key Highlights for 2023:

- The company achieved its highest revenue yet, with $2.1 million and a profit of $180,000.

- The number of orders continued to grow, reaching 9,000.

- Customer satisfaction remained high at 97%.

- Brand recognition in the market was at a high level.

- The customer base expanded to 18,000 users, indicating a strong customer acquisition rate.

- Regional demand trends showed robust and consistent growth.

This annual report provides an overview of the online fuel delivery system's financial and operational performance over the past four years. It demonstrates a consistent trend of growth in revenue, customer base, and customer satisfaction, as well as strengthening brand recognition and increasing demand in the market. These positive indicators suggest a healthy and thriving business in the online fuel delivery sector.

3. Conclusion:

In conclusion, our online fuel delivery application represents a significant leap forward in convenience and efficiency for both consumers and businesses in the fuel industry. We have created a platform that addresses the challenges of traditional fuel procurement, offering a seamless and user-friendly experience.

With our application, customers can say goodbye to long queues at gas stations, wasted time, and the hassle of refueling their vehicles. They can now enjoy the convenience of having fuel delivered to their doorstep, on their terms, and at competitive prices.

For businesses, our platform streamlines fuel management, reduces operational costs, and improves fleet efficiency. Real-time monitoring and reporting tools provide valuable insights that help businesses make informed decisions and optimize their fuel consumption.

Moreover, our commitment to safety and environmental responsibility ensures that fuel delivery is not only convenient but also sustainable. We are proud to contribute to reducing emissions and minimizing the environmental footprint of fuel delivery.

In summary, our online fuel delivery application is not just an innovation; it's a solution to everyday challenges. We invite you to join us in revolutionizing the way fuel is delivered and managed. Experience the future of fueling today, and let us fuel your journey toward greater efficiency, convenience, and sustainability.

4. Recommendations

1. Enhanced User Experience: Continuously improve the user interface and experience to make it more intuitive and user-friendly. Consider conducting user testing and gathering feedback to identify pain points and areas for improvement.

2. Payment Options: Offer a variety of secure payment options, including credit/debit cards, digital wallets, and cash on delivery to accommodate different customer preferences.

3. Rewards and Loyalty Program: Implement a rewards or loyalty program to incentivize repeat business and customer retention.

4. Safety Features: Ensure stringent safety protocols for fuel delivery, including background checks for drivers, safety training, and compliance with regulatory standards.

5. Environmental Sustainability: Explore eco-friendly options such as promoting biofuels or electric vehicle charging services to align with environmental goals.

6. Feedback Mechanism: Establish a feedback mechanism within the application to allow customers to rate their delivery experience and provide comments. Use this feedback to continuously improve service quality.

7. Emergency Services: Implement emergency response features, such as the ability to request fuel delivery in case of vehicle breakdowns or emergencies.

8. Integration with Vehicle Telematics: Integrate with vehicle telematics systems to provide more accurate fuel consumption data, enabling better fuel management for businesses.

9. Inventory Management: Develop robust inventory management tools for suppliers to efficiently track and manage fuel stock levels.

10. Marketing and Promotion: Invest in marketing and promotional campaigns to raise awareness and attract new users to the platform.