

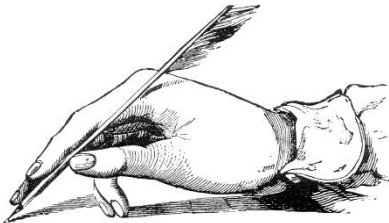


Title of the module : System Analysis and Design  
Lecturer Name : Ms. Dileeka De Alwis  
Name of the client : Mr. K.A. Ruwan Dammika  
Name of the system : Automated Lanka I.O.C Filling Station Management System  
Group : 22

Student Name

Student ID

# Acknowledgement



In performing our assignment, we had to take the help and guideline of some respected persons, who deserve our greatest gratitude. The completion of this assignment gives us much pleasure. We would like to show our gratitude **Ms. Dileeka De Alwis** for giving us a good guideline for assignment throughout numerous consultations. We would also like to expand our deepest gratitude to all those who have directly and indirectly guided us in writing this assignment.

*Thank You!*

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# **Chapter 1**

## **Introduction**

## Company Overview

Main dealer of Lanka Ceypetco in Mathugama Area **Lanka I.O.C Filling Station (Dealer- Suhith Prasanna Gunasingha)** which provides all types of vehicle fuel and the largest filling station in Mathugama. Also this has the biggest fuel store tanks in Mathugama area.



## Scope of the Study



The main objectives of this study are identify the drawback of existing system and provide ways and means to overcome them. The computerized system we are going to propose will help the **Lanka I.O.C Filling Station (Dealer- Suhith Prasanna Gunasingha)** to achieve their objectives whilst overcoming difficulties encountered by the current manual system.

Hardware and Software requirements of the system will be analysis and justified during our study. In addition, cost benefit analysis & feasibility study will be providing with this documents.

This proposed automated system of **Lanka I.O.C Filling Station (Dealer- Suhith Prasanna Gunasingha)** will cover the following 3 main Activities.

- Sales Process
- Order Process
- Purchase Process

## Details of the existing system

When we study the current existing system of the **Lanka I.O.C Filling Station (Dealer-Suhith Prasanna Gunasingha)** they are using a manual system to keep their organization activities as follows.

- They use manual system to keep their supplier information.
- They use manual system to keep their stock details, and analyze their details.
- They use manual system to keep their order details.
- They use manual system to keep their sales details.
- They use manual system for their billing system and analyzing billing information.
- They use manual system to calculate the customer's payments.

## Drawbacks of the existing system

When we study their system we found some drawbacks of their system, but currently their existing system is enough for their business works, but at the future they have to face a lot of troubles from their system. So if amount of suppliers and amount of customers will height, it will be very difficult to manipulate their details and records. So these are the drawbacks of their system which we found.

- Analyzing mistakes.
- Have to keep an additional employee to manipulate those details.
- Have to spend money for stationeries.
- Filling employee can do mistakes while transactions.
- Difficult to arrange stock details.
- Difficult to arrange order details.
- Difficult to arrange sales details.
- Have to keep an additional employee to make transaction with customers.

## Details of the proposed system

To solve difficult problems in their manual system we proposed a new system to help their business works. The new system should have the following functions:

- Administration Functionalities.
- Automated Order Details Functionalities.
- Automated Stock Details Functionalities.
- Automated Sales Details Functionalities.
- Sales Manager Functionalities.

## Expected benefits from the proposed system

### ✓ **Speed and Efficiency**

A computerized filling management system makes everything from inputting information to taking all details easier. Doing a hand count of sales details can take days, but with a computerized filling management system, the same process can be done from less hours.

### ✓ **Less manpower**

A computerized filling management system do lot of thing with less man power than previous manual system. Customer can select fuel type and also they can make payments to the computerized machine instead of do payments with fuel tankers.

### ✓ **Generate reports easily**

Once the computerized filling management system is in place, managers and workers can use it to automatically generate all kinds of documents, from purchase orders and checks to invoices and account statements. Managers can also use the system to automatically order products when they run low of stocks.

### ✓ **Can get customer more satisfaction**

With the help of new system, they can get more customer satisfaction than previous method. Customer can make payments via computerized system for refill the fuel and the workers have not able to join payments. Customer can get more trust with this system.



# **Chapter 2**

## **System Analysis**

# Fact finding methods

## ➤ Interview 2

Appointment Date :- 01/05/2018

Time :- 11.30 AM

Client :- Mr. Ruwan Dhammika (Manager)

We had our second interview with the manager of Lanka I.O.C Filling Station on the above date. And there we discussed about their existing system and the difficulties they faced in their existing system and the way of keeping their records.



## ➤ Documentary Review

Appointment Date: - 01/05/2018

Time :- 11.30 AM

Client :- Mr. Ruwan Dhammika (Manager)

We had a discussion with the manager about their manual system and documents which are used for their system. And also the difficulties they faced with documents (daily, monthly and annual records keeping) and manual system.







## Customers and Staff Questionnaires





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Customers

01. Is it good to have manual fuel pumps?

☒

Yes

☐

No

02. Are you satisfied with the service of these employees?

☒

Yes

☐

No

03. Time consumed when using the fuel pumps, (with consider to automated system)

☐

Less

☒

More

04. What do you think of automating the fuel pumps?

I think it is good for people

05. Will there be any drawbacks in the automated system? If yes explain.

\* If system get's and error,  
\* this will be interrupted.

THANK YOU

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පාරිභෝගිකයින්

01. ස්වයංක්‍රීය නොවූ මෙම ඉන්ධන පොම්ප පිළිබඳ ඔබේ අදහස්?

ඉන්ධන පොම්ප අසාදනීය

02. මෙහි සෙර්වකයින්ගේ සේවය පිළිබඳ ඔබ සැහිල්කම පත්වේද?

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03. මෙම ස්වයංක්‍රීය නොවූ ඉන්ධන  
(ස්වයංක්‍රීය පොම්ප හා සැසඳීමේදී)

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පොම්ප භාවිතයේදී ගතවන කාලය

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කාලය වැඩියි

05. ඉන්ධන පිරවුම්හල් ස්වයංක්‍රීය කිරීම මගින් ඇතිවිය හැකි අක්‍රමිකතා

ඉහත සඳහන් කරුණු යුතුයි

**ස්තූතියි**



# National School of Business and Management

## System Analysis and Design

### Group Assignment

17.1 Batch

Group 22

සෞචකයින් හා කාර්ය මණ්ඩලය

01. ඔබ සමාගමේ දැනට පවතින පද්ධතිය පිළිබඳව ඔබ සැතීමකට පත්වෙද?

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02. ඔබ සතුව පවතින පද්ධතියේ ඔබ මුහුණ දෙන දුෂ්කරතා මොනවාද?

..... පද්ධතියේ ප්‍රශ්න 2 ක් ඇති බවයි.....  
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03. ඔබ සමාගම සඳහා ස්වයංක්‍රීය පද්ධතියක් භාවිතයට ගැනීම පිළිබඳ ඔබේ අදහස?

..... හැරී ගොස් ඇති බවයි.....  
..... පද්ධතියේ ප්‍රශ්න 2 ක් ඇති බවයි.....  
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04. ඉන්ධන පිරවුම්හල් ස්වයංක්‍රීය කිරීමෙන් බෙංගලොරි සෞචකයින්හට ඔවුන්ගේ රැකියා අහිමිවනු ඇත. ඔබගේ අදහස්.

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05. ඉන්ධන පිරවුම්හල් ස්වයංක්‍රීය කිරීම මගින් ඇතිවිය හැකි අක්‍රමිකතා?

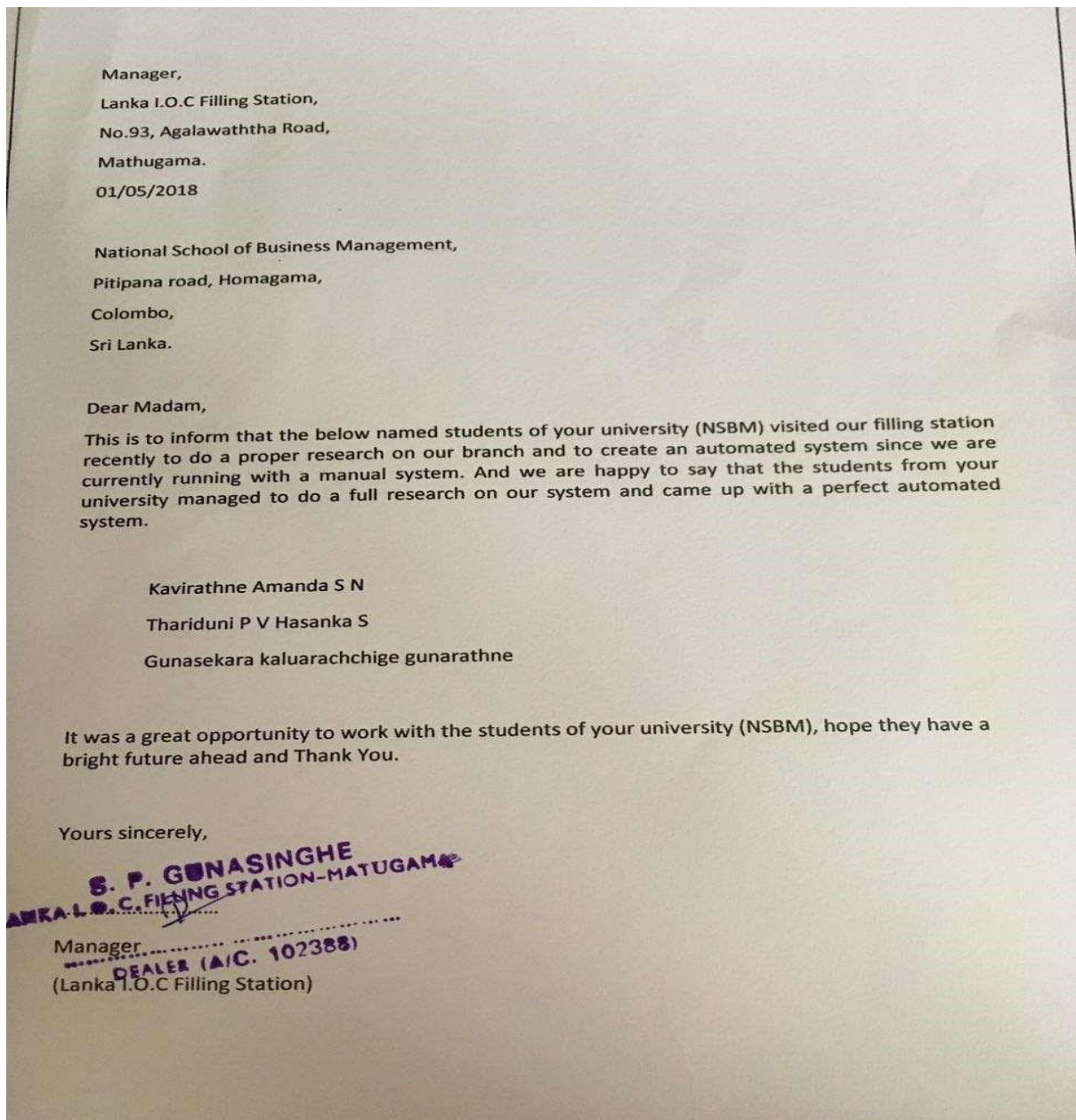
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ස්තූතියි

## Summary of findings

As a summary we think we have used proper fact-finding methods to find information about their existing manual system. With the help of above-mentioned fact-finding methods our team found out some of the problems and the difficulties in their existing manual system.

At the end we got a confirmation letter from the manager of this company that we had interviews with them and here we attached the copy of the letter.



# Functional Requirements

- Administration Functionalities
  - Login to the new system and change his password after login. ☐ Add contacts details information of new User to the System ☐ Add new item/categories to the inventory.
  - Change the price of an item.
  - Delete item/categories from the system
  - Manage supplier details (add, edit or delete)
- Automated Order Details Functionalities ☐ Add new order to the system.
  - Edit order details from the system. ☐ Delete previous orders from the system ☐ Can calculate summary of orders.
  - Can get printed document about summary of orders.
- Automated Stock Details Functionalities
  - Add new stock arrival details to the system.
  - Edit stock details form the system.
  - Delete old stock details from the system.
  - Can get summary of stock details.
- Automated Sales Details Functionalities ☐ Add new sales details to the system.
  - Can delete old sales details from the system
  - Get summary of all sales details within user select time period.
- Sales Manager Functionalities
  - Login to new system and can change password after login.
  - Add sales details to the new system
  - Edit new sales details to the new system.
  - Can get the summary of sales details with date and time.

# Nonfunctional Requirements

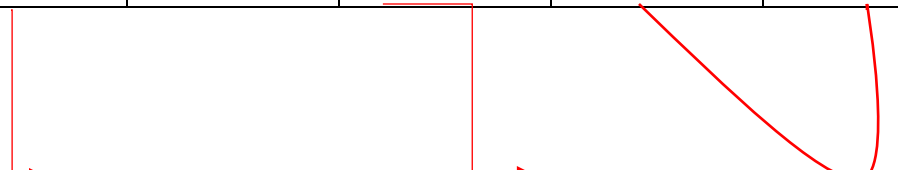
- User Friendly Interface (GUI)  
We provide a user-friendly interface to our software which is easy to understand any kind of person.
- Administrator Security  
We specially add more security features for our system. Admin only can edit or delete sales reports and owner can see the details of deleted and edited document.
- Transaction Backup  
Can back up all transaction details with our system.
- Stock Balance Maintain  
Can balance and maintain the stock with our automated management system.
- Supplier Details Backup  
Can back up all supplier details with the help of our new system.
- Cloud Storage  
We provide 5GB cloud space to back up their information more secure way for free and above 5 GB we are charged per 1GB.

# **Chapter 3**

## **Feasibility Study**

# Feasibility Analysis

Key factor	Technical feasibility		Cost of developing & deploying	Labor market Dynamics	Economic benefits
Impact on pace and extent automation.	For an activity to be automated every capability Utilized for an activity must reached the required level of performance.	Capabilities need to be integrated from solutions.	Cost associated with developing as well as deploying different solutions determine the pace of reaching economic feasibility.	Economic feasibility of automation will depend on comparison of cost with human labor, affected & supply demand dynamics.	In addition to labor cost savings, automation could bring more benefits to employed including increased quality & efficiency and decreased error rate.



stage	Technical automation potential	Solution Development.	Economic feasibility
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How we made it	Estimate the technology progression timeline for each capability through interviews and surveys with industry and academic experts	Estimate solution development times for activities based on required capabilities.	
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## **Constraints and Risk involved (Barriers to the proposed system)**

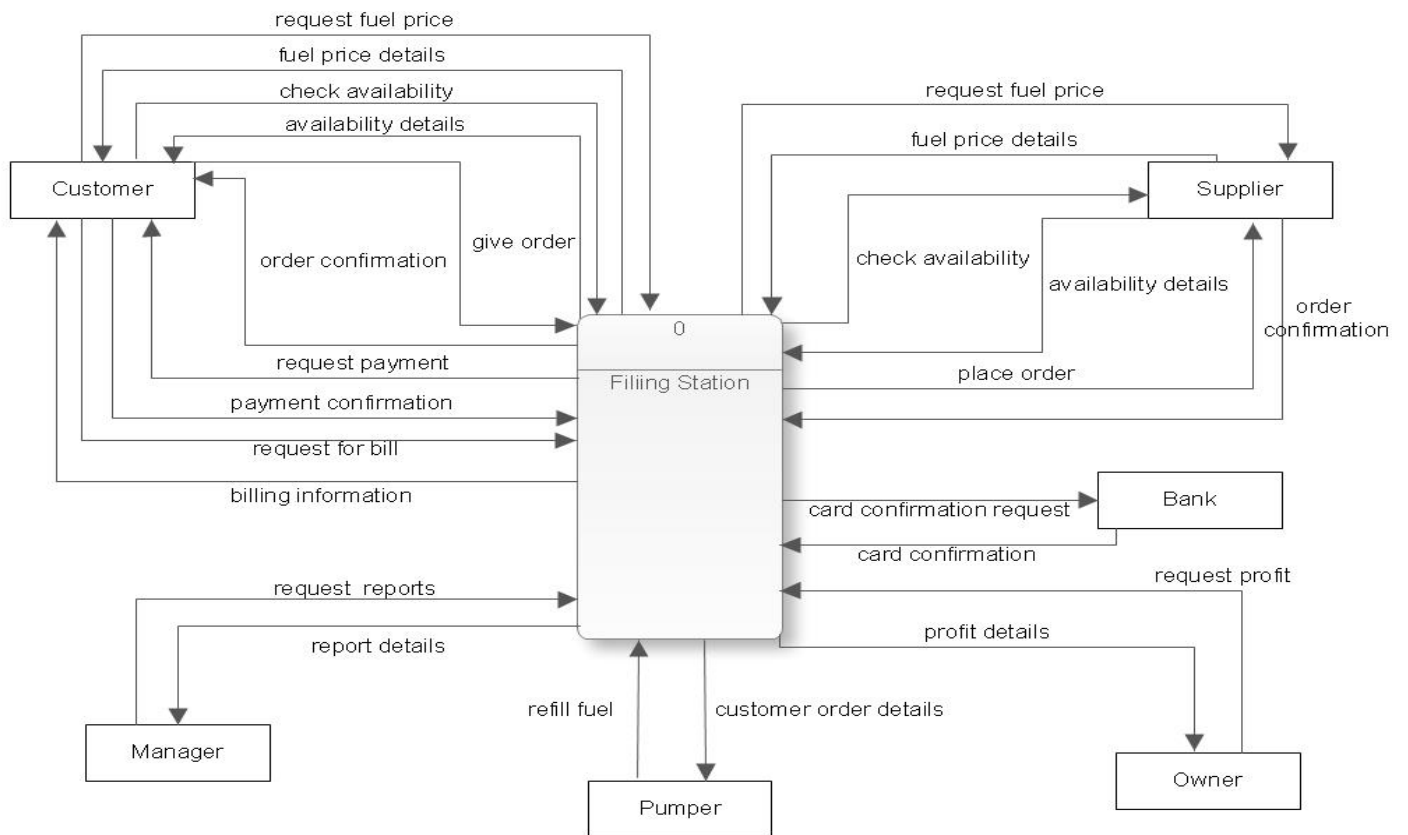
1. Big advertising cost for introduce for society.
2. We need to official customer care center and staff for legally solving for their complain.
3. We need to create illegal rules and regulations for this system.
4. English Sinhala and Tamil languages are one of main reason for increase system volume and we need to add another cost for it .
5. Some time we need to get new technical office staff or we need to training them for handling and maintenance the system .
6. software project cost computer hardware cost and new fuel station cost we need to add total estimate cost of the project.
7. We need to get new security staff for new mini fuel station.

# **Chapter 4**

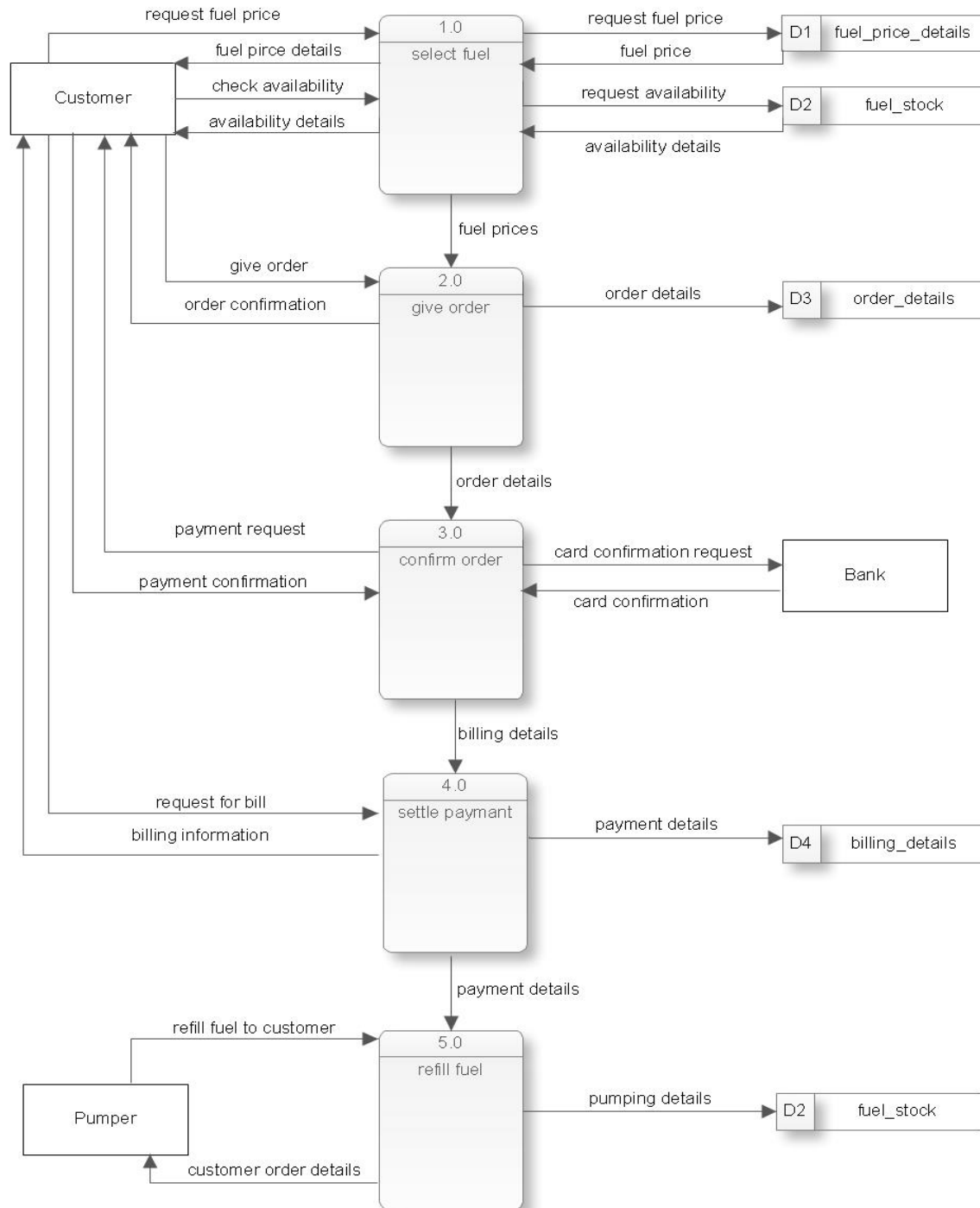
## **System Design**

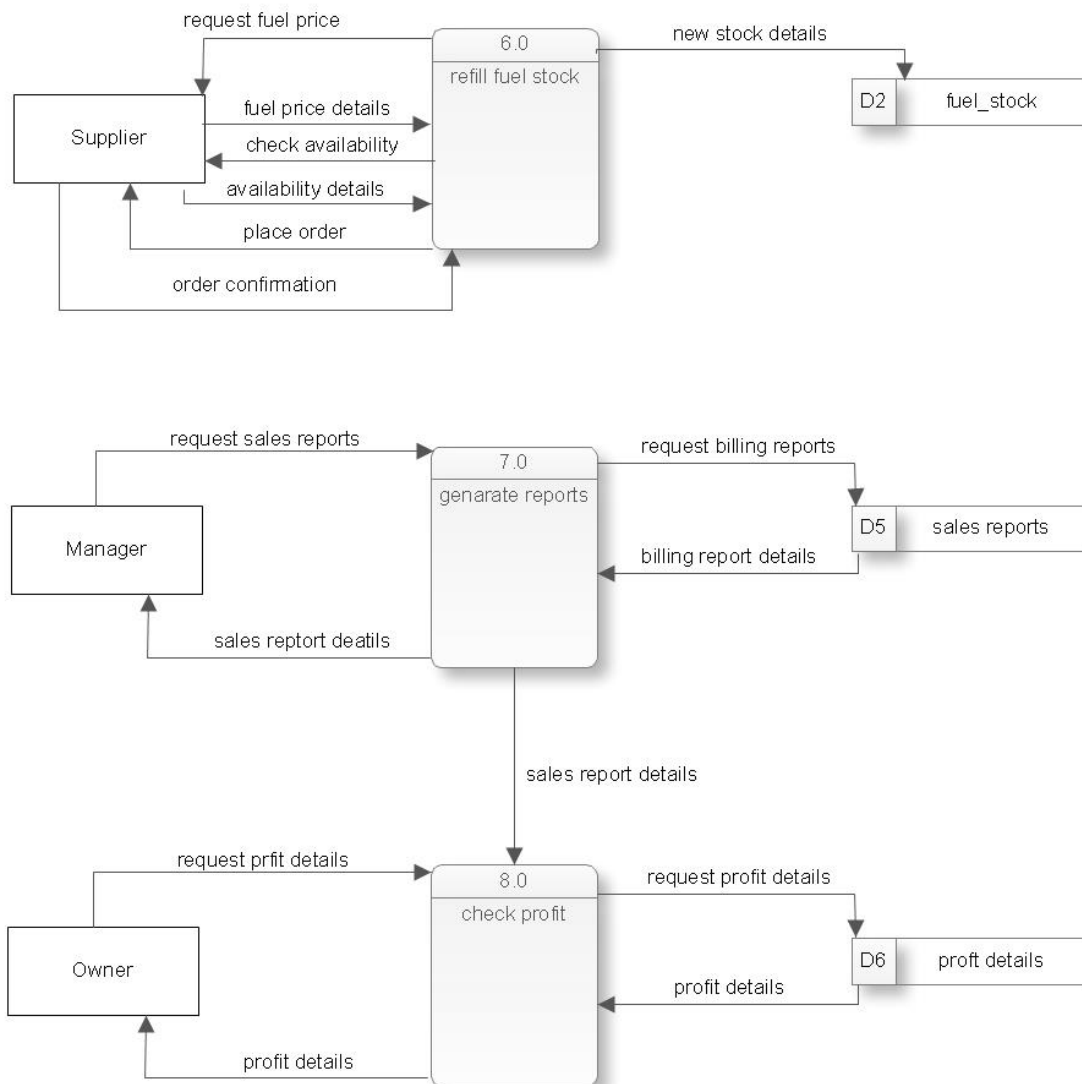


## Context diagram

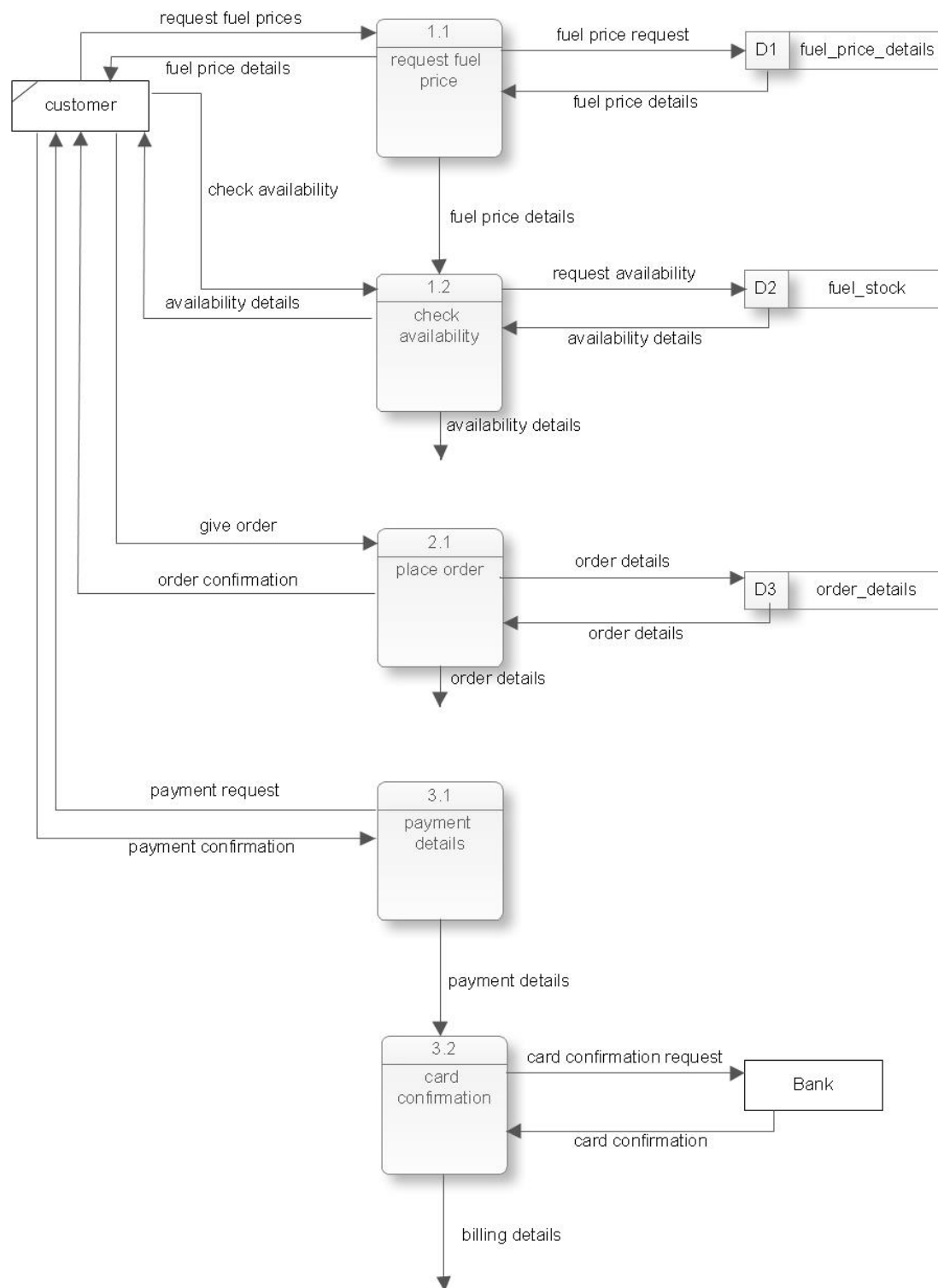


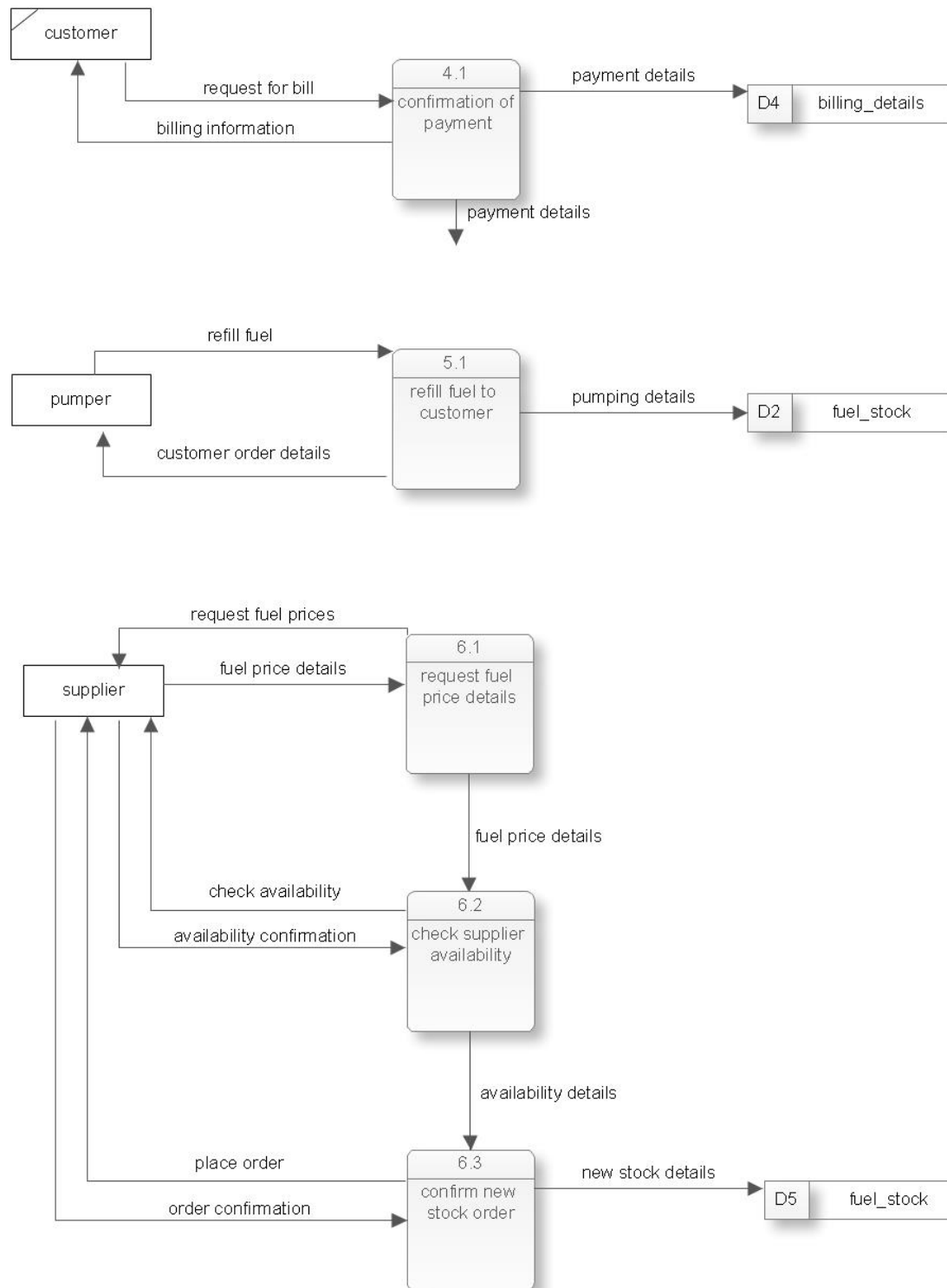
## Level 0 Diagram

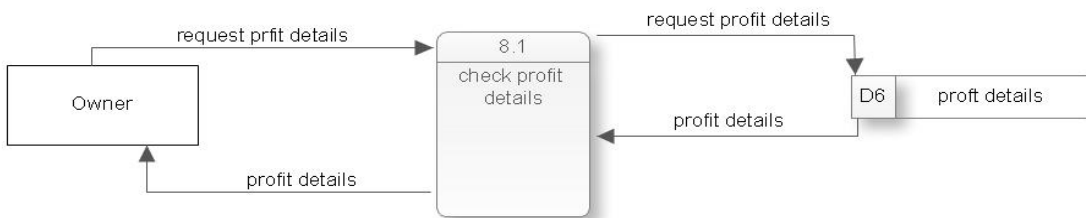
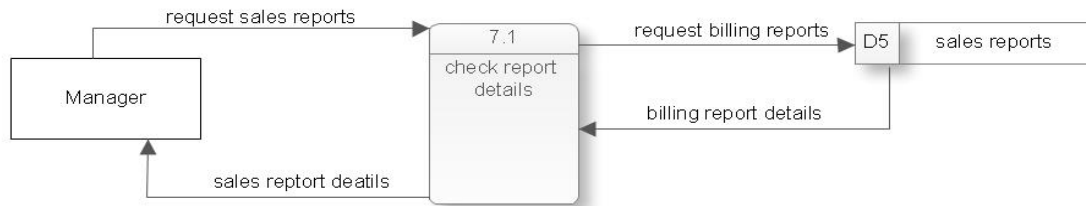




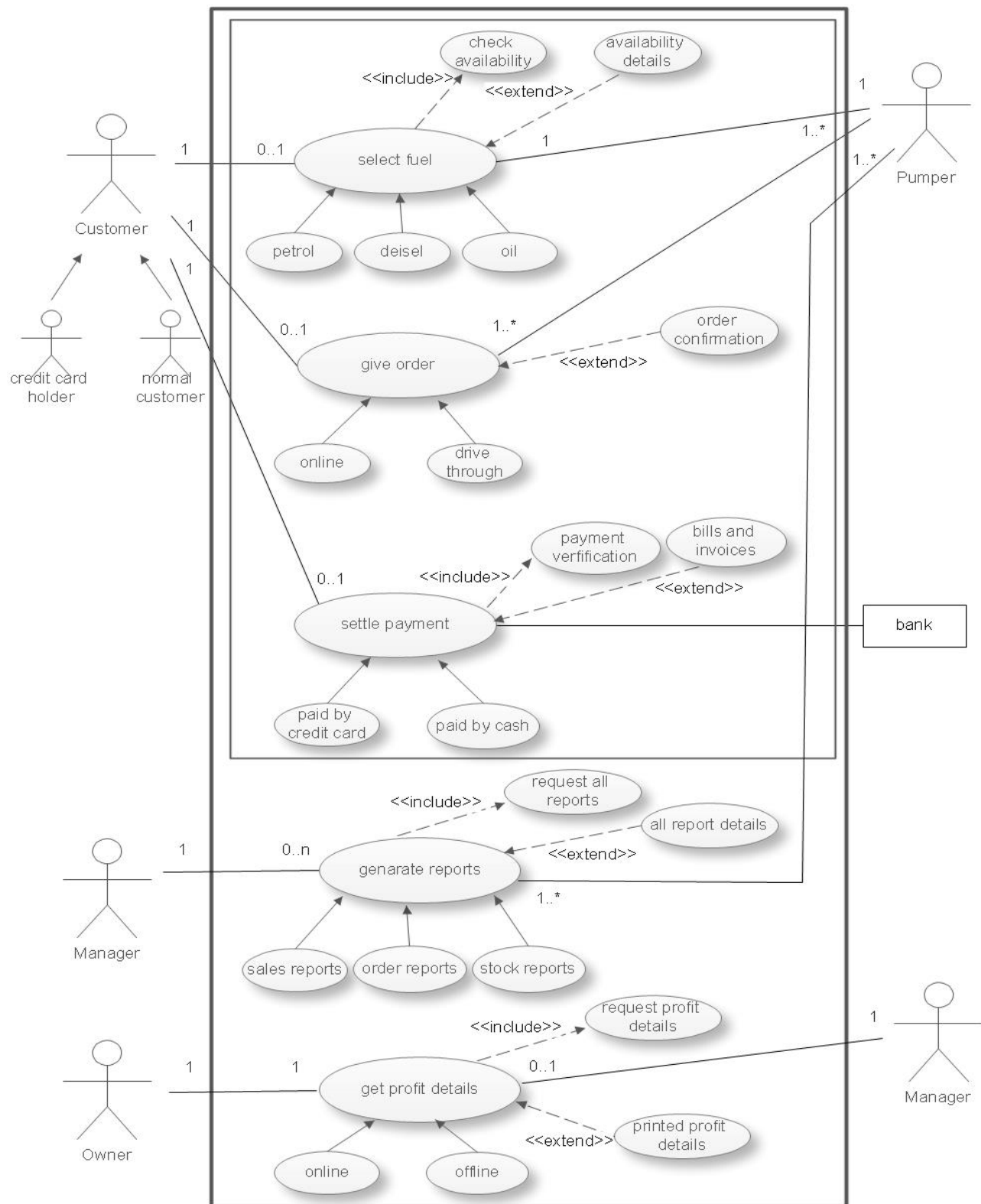
## Level 1 Diagram

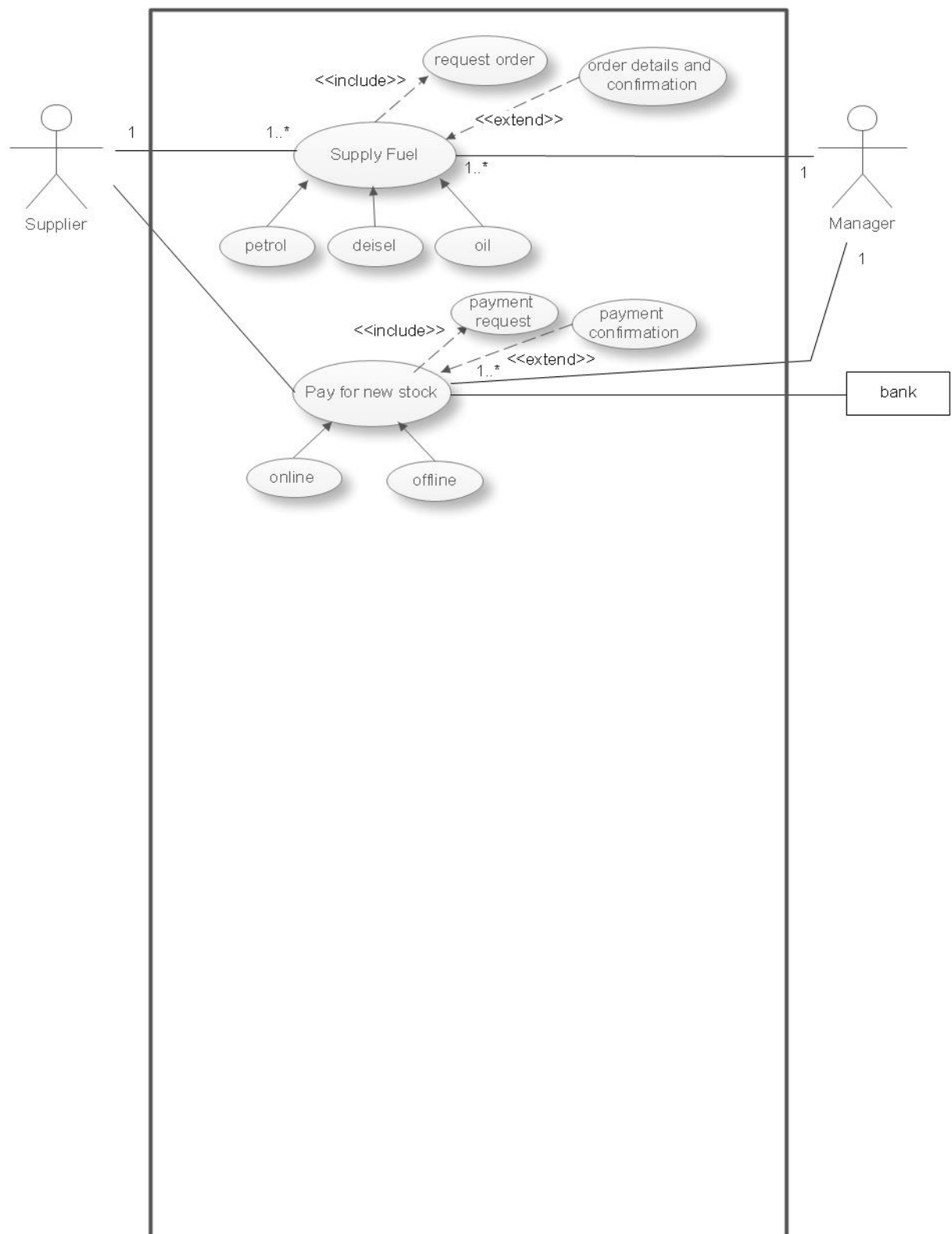






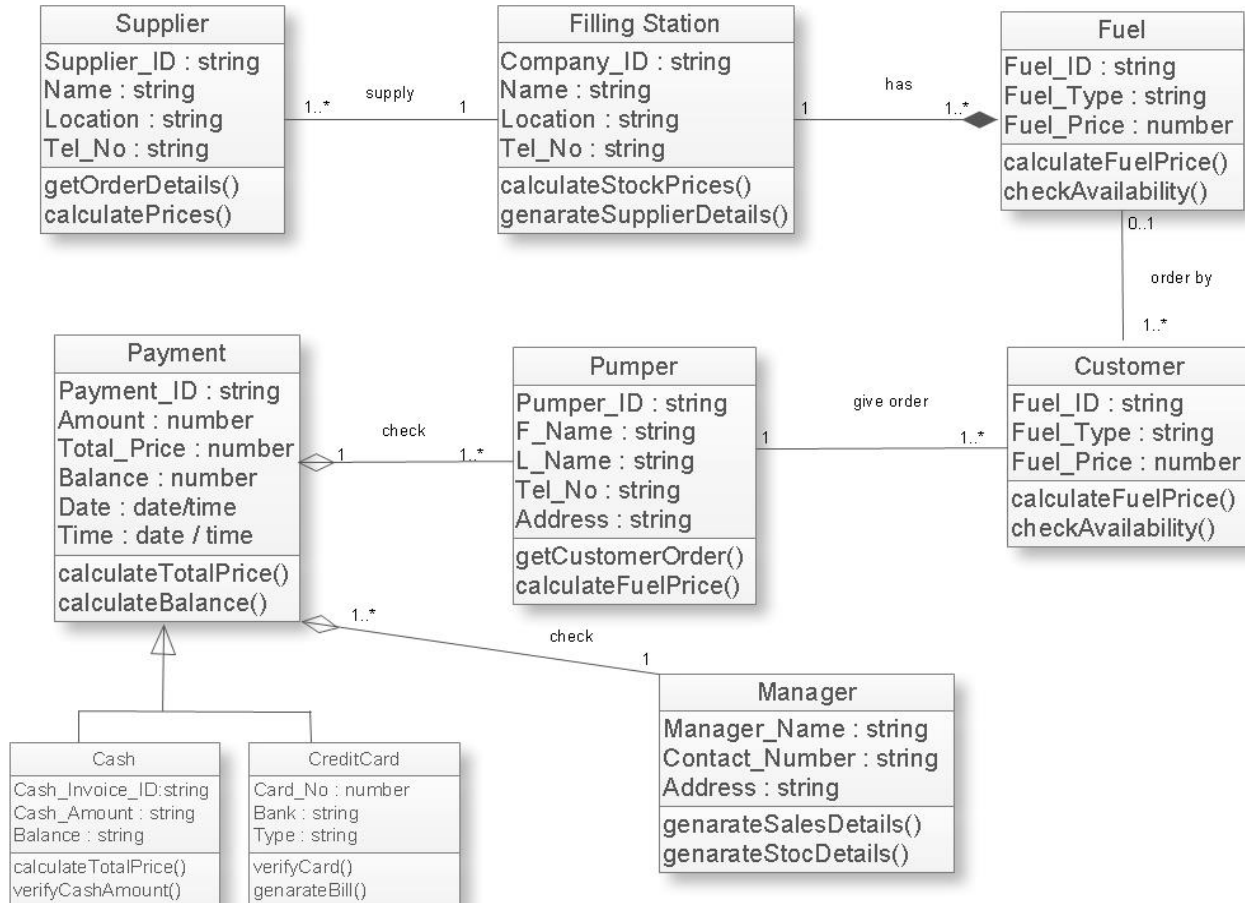
# Use Case Diagram







## Class Diagram



## Conclusion



As a summary in here we analyses the existing manual system of Main dealer of Lanka Ceypetco in Mathugama Area Lanka I.O.C Filling Station (Dealer- Suhith Prasanna Gunasingha). After putting hard effort on this project, we proposed a new automated management system for Main dealer of Lanka Ceypetco in Mathugama Area Lanka I.O.C Filling Station (Dealer- Suhith Prasanna Gunasingha)) which help them to do their business works more easily and more effectively. Also, this purposed new system will solve their problems in existing manual system. Not only software-based solution but also we purposed new automated filling machines as hardware solution for their company. We think it will also help for their company to get more attraction of customers.

# Workload Matrix

## Company Visit: - All Group members

### Student A

- Level 0 Diagram, Level 1 Diagram, Use Case Diagram
- Fact Finding Method  
(Interview, Questioner, Documentary Review)
- Details of existing system
- Details of Proposed system
- Functional Requirements

### Student B

- Class Diagram
- Client Overview
- Fact Finding Method  
(Interview, Questioner, Documentary Review)
- Expected benefits from proposed system
- Summary of findings

### Student C

- Context Diagram
- Fact Finding Method  
(Interview, Questioner, Documentary Review)
- Non-Functional Requirement
- Feasibility Study
- Constraints and Risk involve