SOFTWARE REQUIREMENT SPECIFICATIONS

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INTRODUCTION

The Toll Booth Collection project that simulates a toll booth
where vehicles can pass through and pay a toll fee.
The project is designed to keep track of the number of vehicles
That pass through the toll booth and the total amount of money
Collected. The Toll booth and the total amount of money collected.
The toll booth collection project is a simple yet practical example of
Using classes and objects in c plus plus.

Overview:

This project is designed using object-oriented programming principles in c++. The system has been incorporated multithreading, STL, Vectors.
There is Hierarchical inheritance for vehicles and its sub classes.

1.2 Project Scope:

The objective of the project is the vehicle can pass through and pay a toll fee. Toll booth collection that ensures to let a vehicle pass through the Toll and know the type of vehicle, number plate, Ticket Type and etc. To summarize, it covers the following aspects :

a toll booth where vehicles can pass through and pay a toll fee, in an optimal way.

OVERALL DESCRIPTION

2.1 Project Feature

Vehicle Management : The program allows the user to add and Remove vehicles from the system. Each vehicle is identified by its Number plate, type and entry/exit time.

Toll Collection : The program keep track of the tolls collected for Each vehicle type. The user can view the total toll collected for each Type of vehicle.

Toll Rates : The program allows the user to set toll rates for each Type of vehicle. The user can update the toll rates at any time.

User-friendly interface : The program has a user-friendly interface That is easy to navigate. The user can perform all the required Tasks with minimal effort.

2.2 User Needs

User Characteristics:

Transparent toll rates : End-users need to be able to understand the toll rates and any discounts or promotions that may be available. And they can pay and pass through the Toll.

2.3 Operating Environment

The operating environment for the application is listed below

Operating system: Any Linux-based OS.

SYSTEM FEATURES 3.1

Functional Requirements

TS_FR01:

Displays the Toll Data : Will display the toll data which is collected from the vehicles which are passed from the toll.

TS_FR02:

Displaying the specific Vehicle Detail's : Admin or Employee can see all the necessary details of the specific vehicle.

TS_FR03:

Displaying Hourly Analysis of the Day : Display's the Hourly analysis(from 00:00 AM to 06:00 AM) of each and every vehicle which is passed through the Toll on a Particular day which we are asking for.

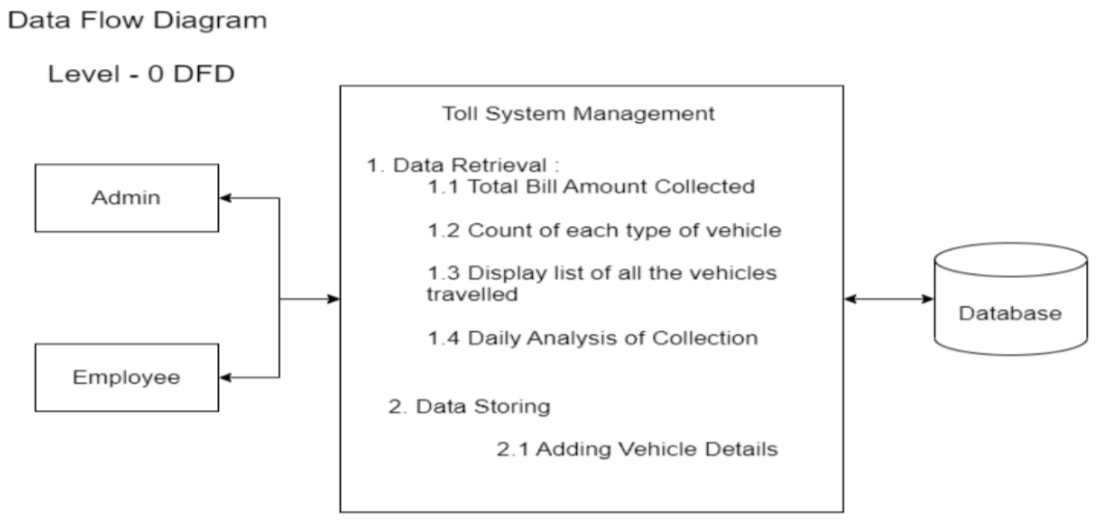
TS_FR04 :

Displaying the Total Revenue Collection : Will display the Revenue Which was collected from the vehicles based on the type of vehicles(like bike, car, bus, Rickshaw, 3 Axel plus) each vehicle has different price for passing through Toll.

TS_FR05:

Adds the Data of Vehicle: Adds the vehicle related data like Vehicle Type, Number Plate and journey type etc.

DFD Level - 0



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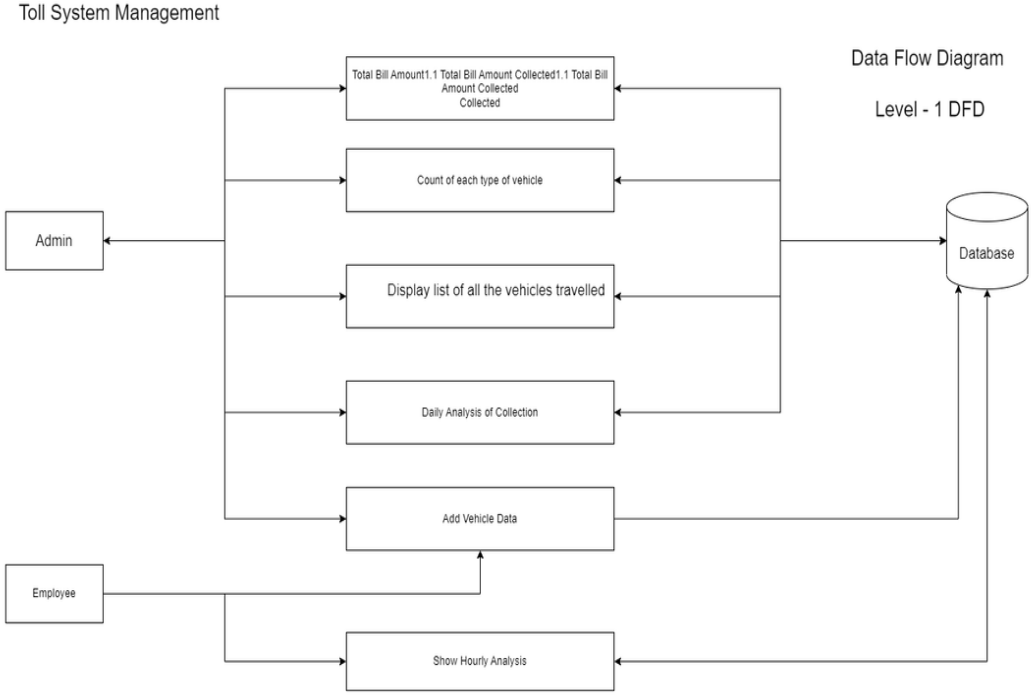
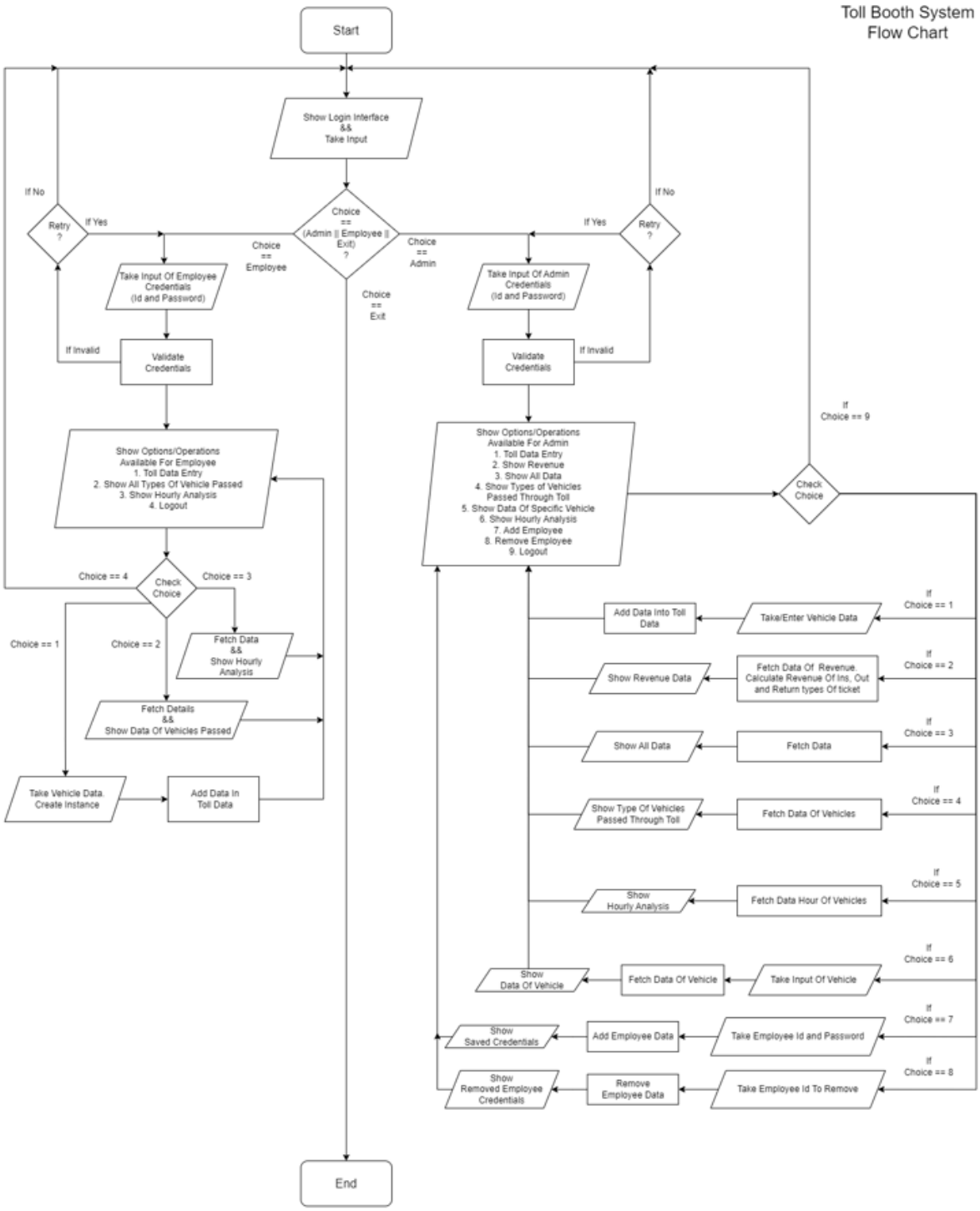


FLOW CHART


Toll Booth System
Flow Chart
Start
Show Login Interface
&&
Take Input
Choice
==
(Admin || Employee ||
Exit)
?
Choice
==
Employee
Choice
==
Admin
Choice
==
Exit
If Yes
Retry
?
If No
Take Input Of Employee
Credentials
(Id and Password)
Validate
Credentials
If Invalid
Show Options/Operations
Available For Employee
1. Toll Data Entry
2. Show All Types Of Vehicle Passed
3. Show Hourly Analysis
4. Logout
Check
Choice
Choice == 1
Choice == 2
Choice == 3
Choice == 4
Take Vehicle Data
Create Instance
Add Data In
Toll Data
Fetch Details
&&
Show Data Of Vehicles Passed
Fetch Data
&&
Show Hourly
Analysis
Take Input Of Admin
Credentials
(Id and Password)
Show Options/Operations
Available For Admin
1. Toll Data Entry
2. Show Revenue
3. Show All Data
4. Show Types of Vehicles
Passed Through Toll
5. Show Data Of Specific Vehicle
6. Show Hourly Analysis
7. Add Employee
8. Remove Employee
9. Logout
If
Choice == 9
Add Data Into Toll
Data
Take/Enter Vehicle Data
If
Choice == 1
Show Revenue Data
Fetch Data Of Revenue
Calculate Revenue Of Ins, Out
and Return types Of ticket
If
Choice == 2
Show All Data
Fetch Data
If
Choice == 3
Show Type Of Vehicles
Passed Through Toll
Fetch Data Of Vehicles
If
Choice == 4
Show
Hourly Analysis
Fetch Data Hour Of Vehicles
If
Choice == 5
Show
Data Of Vehicle
Fetch Data Of Vehicle
Take Input Of Vehicle
If
Choice == 6
Show
Saved Credentials
Add Employee Data
Take Employee Id and Password
If
Choice == 7
Show
Removed Employee
Credentials
Remove
Employee Data
Take Employee Id To Remove
If
Choice == 8
End

3.2 System Requirements

System Requirements are types of functional requirements. These are features that are required in order for a system to function.
Software Interface:
Operating System: Windows XP (32/62 bit) and Linux which supports networking.
Hardware Interface:
Hardware requirements are:

1) Processor: i3 or above
2) ROM: 1TB (SSD/HDD)
3) RAM: 8 GB or above

NON-FUNCTIONAL REQUIREMENTS

1. **Maintainability**: Software must be capable of being maintained cost-effectively throughout its lifetime and can be modified with additional requirements

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2. **Performance:** Software must be quick to respond to given actions. Commands must not take much time to run.

3. **Compatibility**: Software must be compatible with all Linux environments.

4. **Scalability:** Performance must be as expected even if the workload is high.

EXTERNAL INTERFACE REQUIREMENTS

I. User Interface:

a) GUI: There is no GUI involved or created for the project/application

b) CLI: The application is based on CLI, and the commands are given through it. II. Hardware Interface:

The Application uses/accesses the hard disk for storing the data and to access the files. Access to the hardware requirements is managed by the operating system and the application.

a) LINUX-based operating system.
b) Terminal to run

FUTURE ENHANCEMENTS

This Project is limited for five type of vehicles. In future can improve it, so that any kind of vehicle can pass through toll.