HANOI UNIVERSITY OF SCIENCE AND TECHNOLOGY
School of Information and Communications Technology

REPORT
Oriented – Object Programming

TOPIC 7. PARKING MANAGEMENT SYSTEM

Group : 10
Class ID : 135089
Lecturer : PhD. Đỗ Thị Ngọc Diệp
Students :

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Ha Noi, 01/2023

No	***Name***	***Email***	***Work assignment***	***Completion***
01	Nguyen Quang Huy Hoang	hoang.nqh207605 @sis.hust.edu.vn	***-Coding functions add, update information , calculate.*** ***- Designing GUI.*** ***-Report for system analysis and class design.***	***100%***
02	Hoang Ha My	my.hh207644@sis. hust.edu.vn	***-Coding functions delete, update fee, search.*** ***-Designing GUI.*** ***-Report for GUI design and self-assessment.***	***100%***

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1. PROBLEM INTRODUCTION

Topic 7. Parking Management

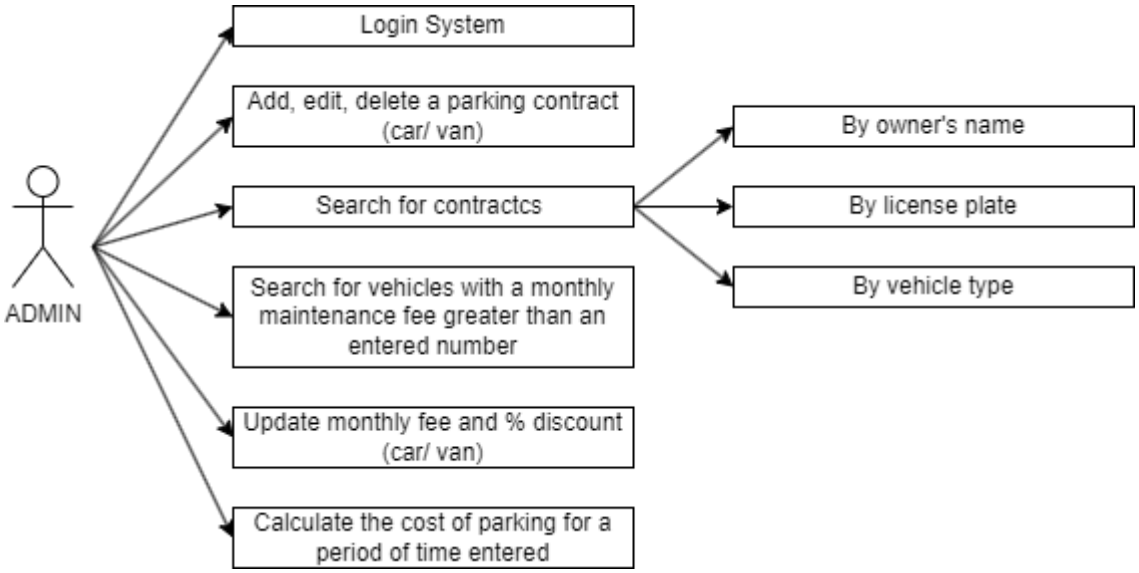
A parking lot holds 2 types of vehicles: cars and trucks. Parking fee depends on type of vehicles. For cars, the monthly maintenance fee is 1,000,000 VND. Parking fee for trucks depends on the load of the vehicle, and is calculated by load in Tons * 700,000 VND/month. If these cars sign a contract for more than 5 years, the fee will be discount by 20% for cars, 25% for vans. Building a parking management program including the following functions:

- Add, edit, delete a parking contract.
- Search for contracts by car owner's name, license plate, vehicle type.
- Search for vehicles with a monthly maintenance fee greater than an entered number.
- Update monthly fee and % discount for vehicles when required by the warehouse.
- Calculate the cost of parking for a period of time entered (from day/month/year... to day/month/year).

2. SYSTEM ANALYSIS

We built this parking management system by using Java and SQL.

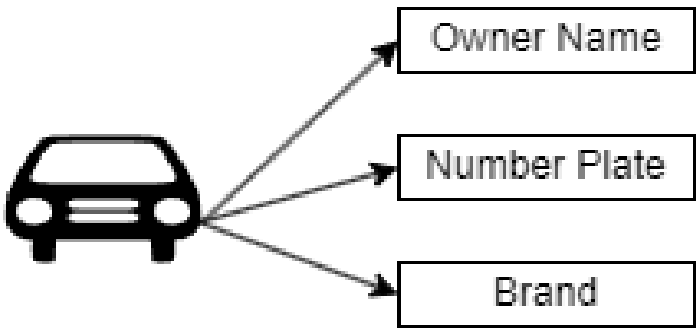
2.1. Activity description



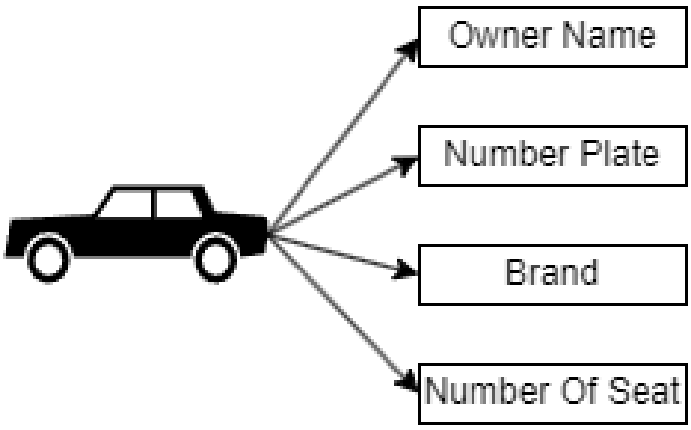
In order to easier to use, all functions of the system are completed with basic GUI.

2.2. Object description

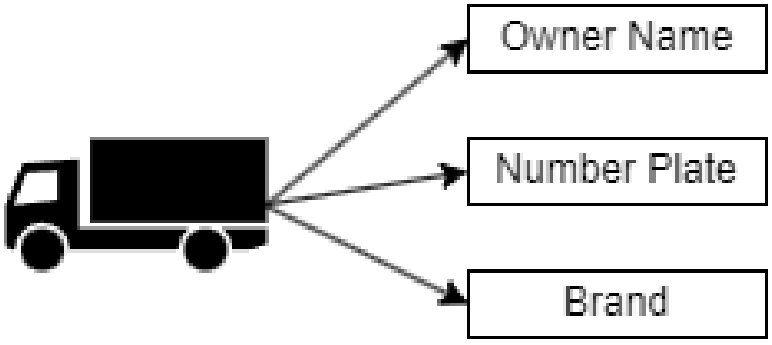
2.2.1. Object Vehicle



2.2.2. Object CAR



2.2.3. Object VAN

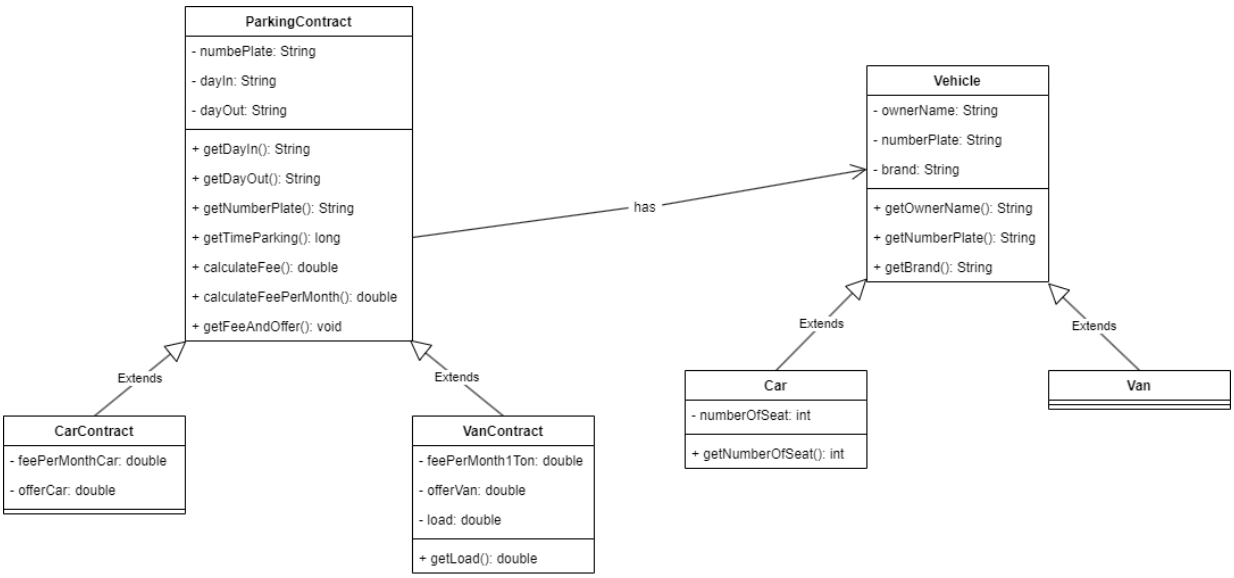


2.2.4. Object PARKINGCONTRACT

2.2.5. Object CARCONTRACT

2.2.6. Object VANCONTRACT

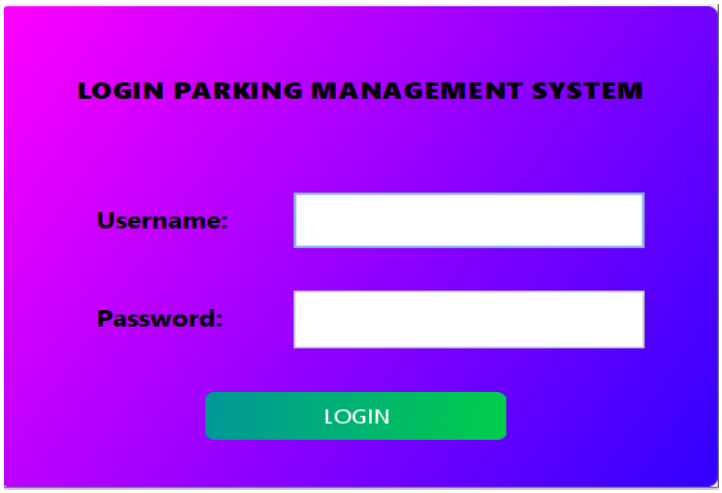
3. CLASS DESIGN



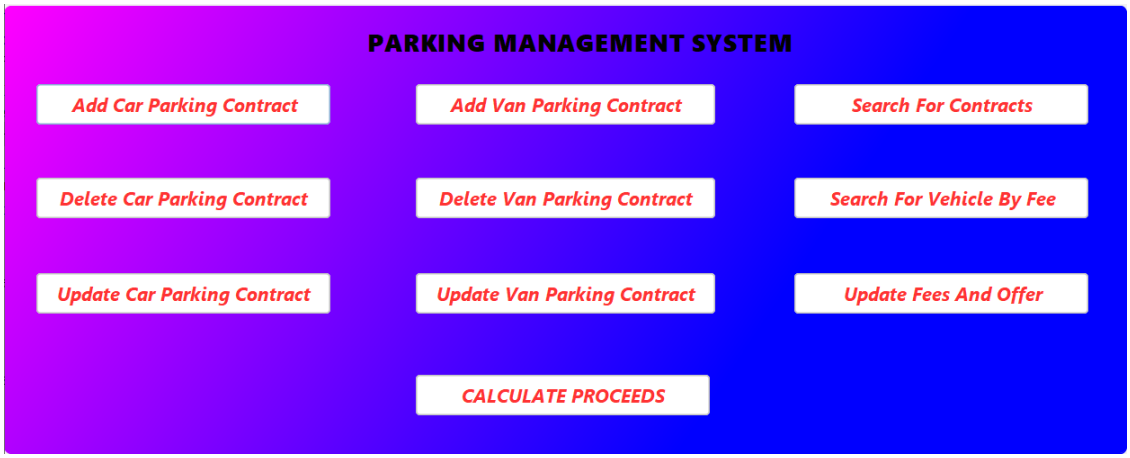
4. GUI DESIGN

In order to easier to use, all functions of the system are completed with basic GUI.

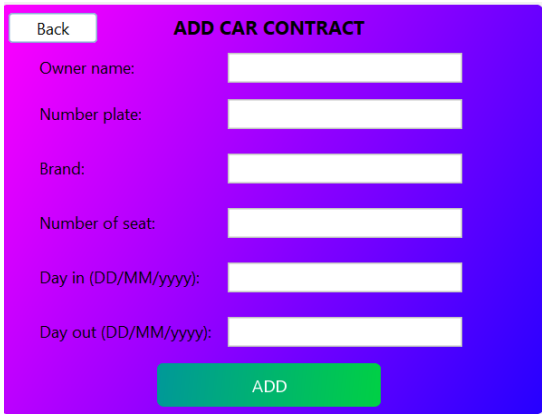
4.1. Login GUI

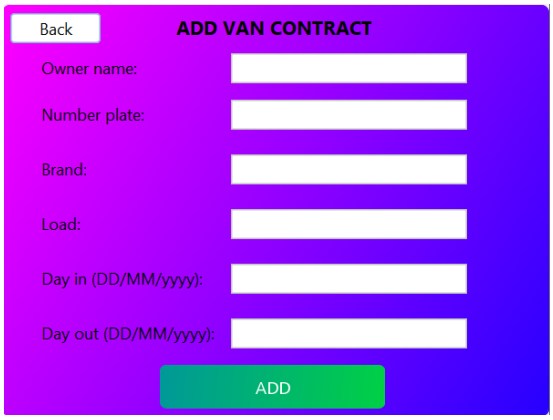


4.2. Menu GUI



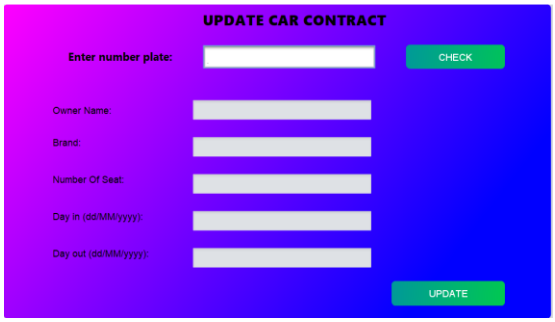
4.3. Add car/van parking contract GUI

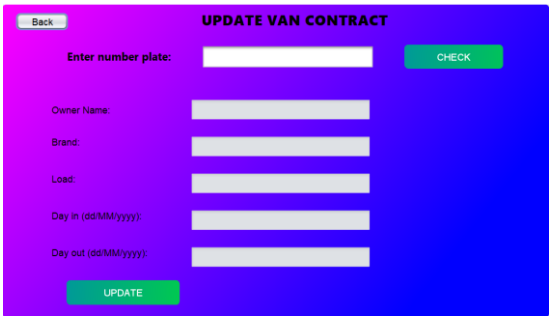




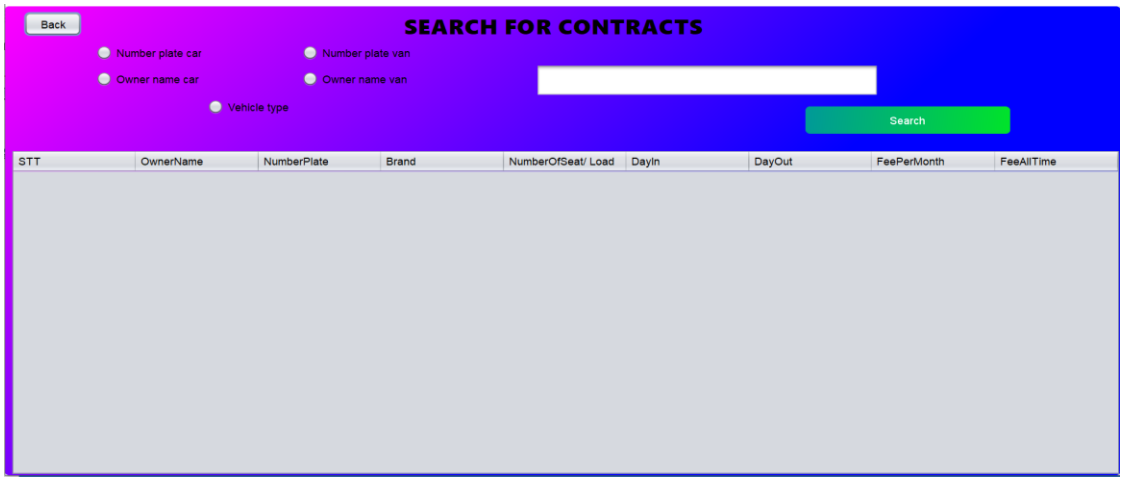
4.4. Delete car/van parking contract GUI

4.5. Update car/van parking contract GUI

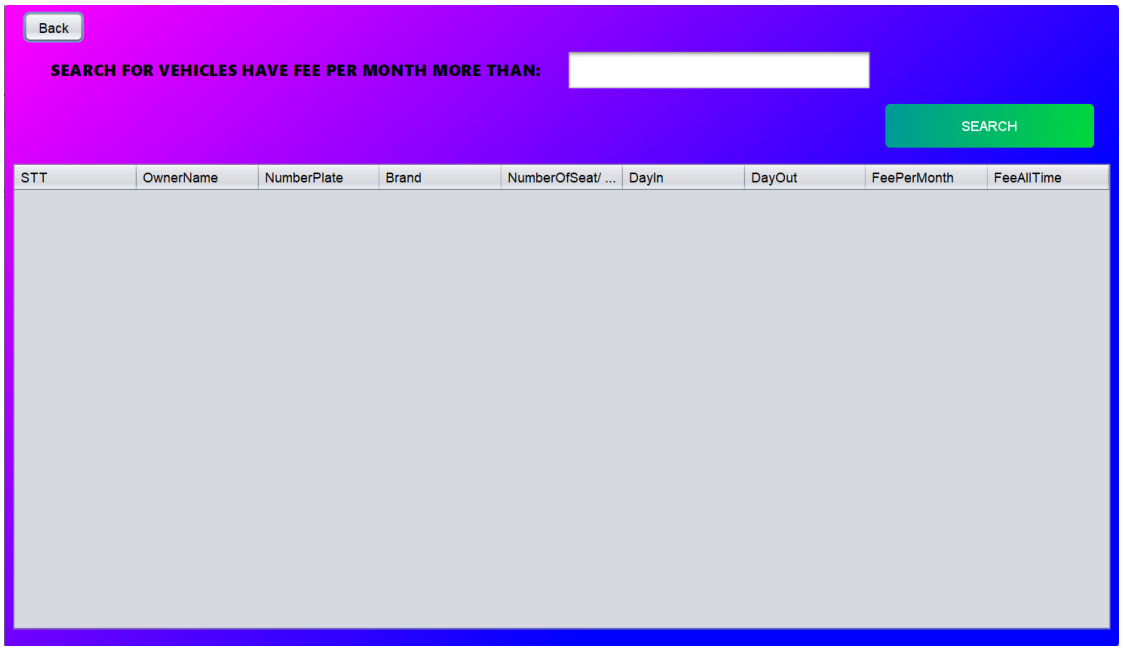




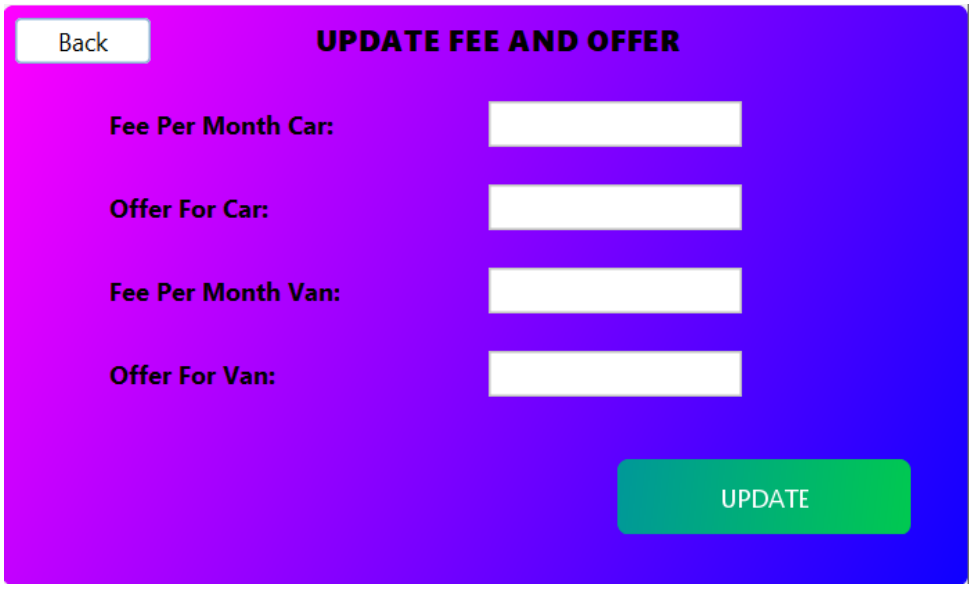
4.6. Search for contracts GUI



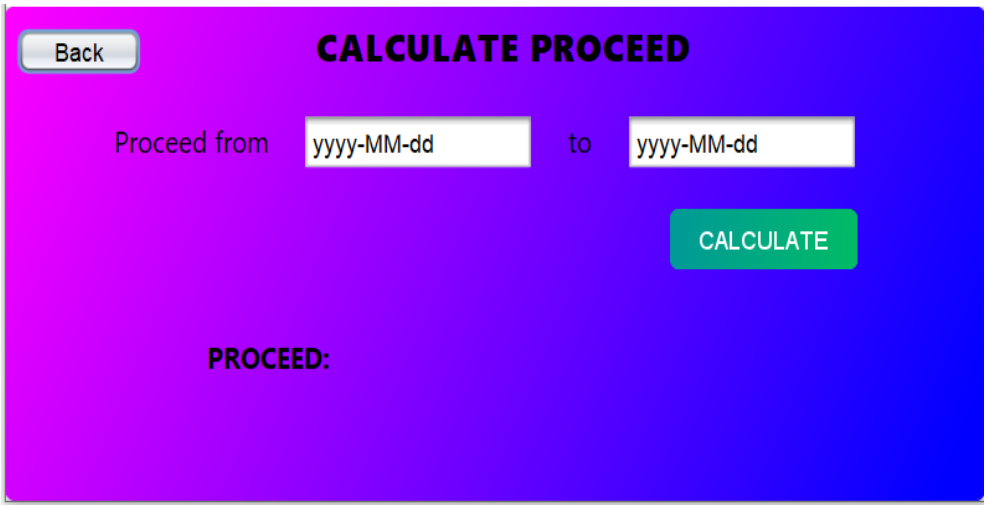
4.7. Search for vehicles by fee GUI



4.8. Update fees and offer GUI



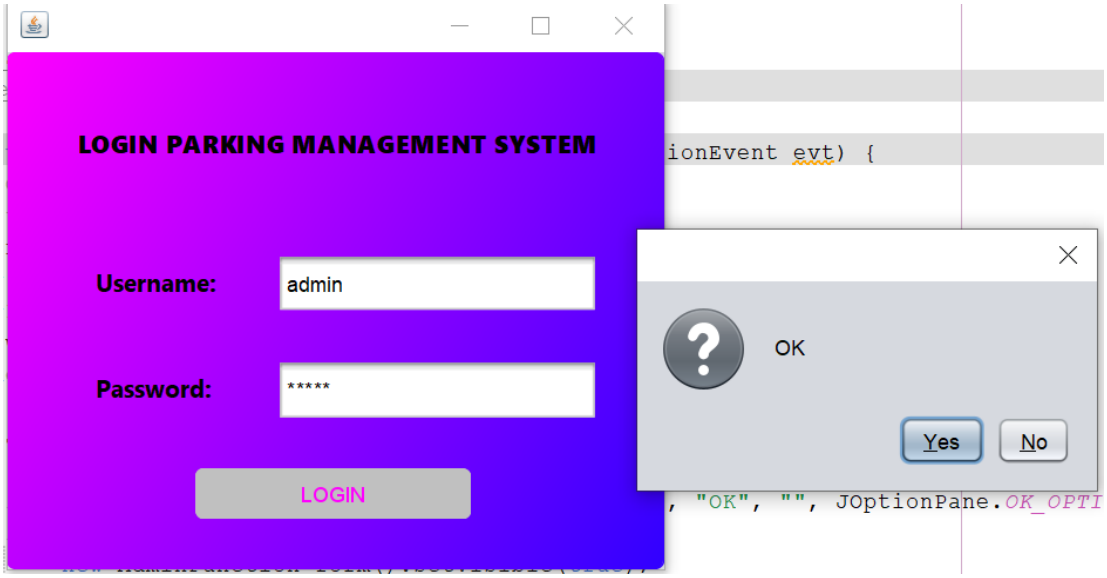
4.9. Calculate proceed GUI



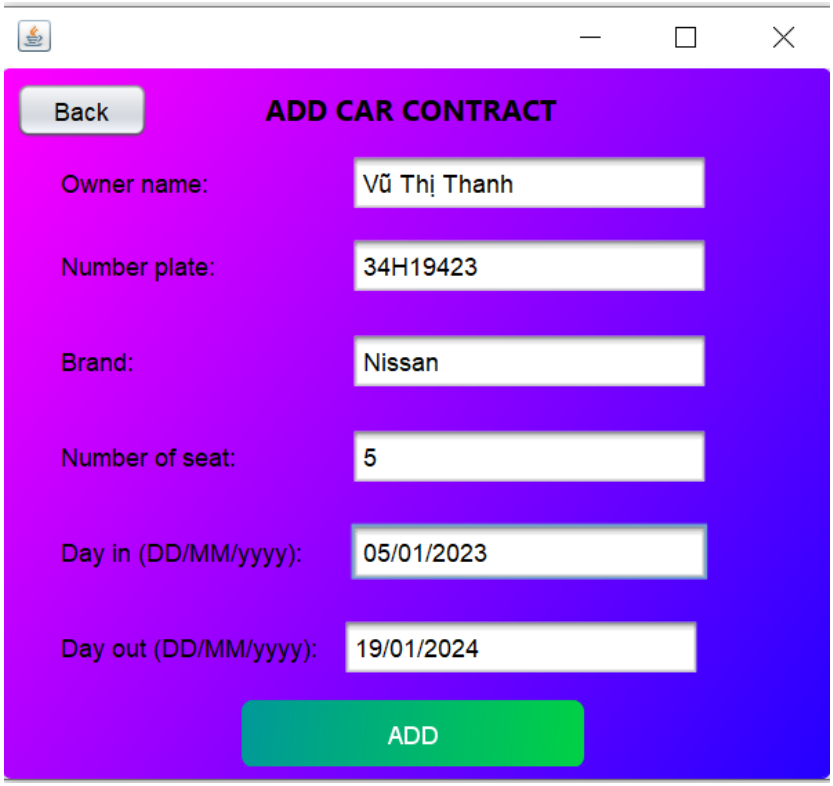
5. SELF-ASSESSMENT

5.1. Results

5.1.1. Login activity



5.1.2. Add car contract



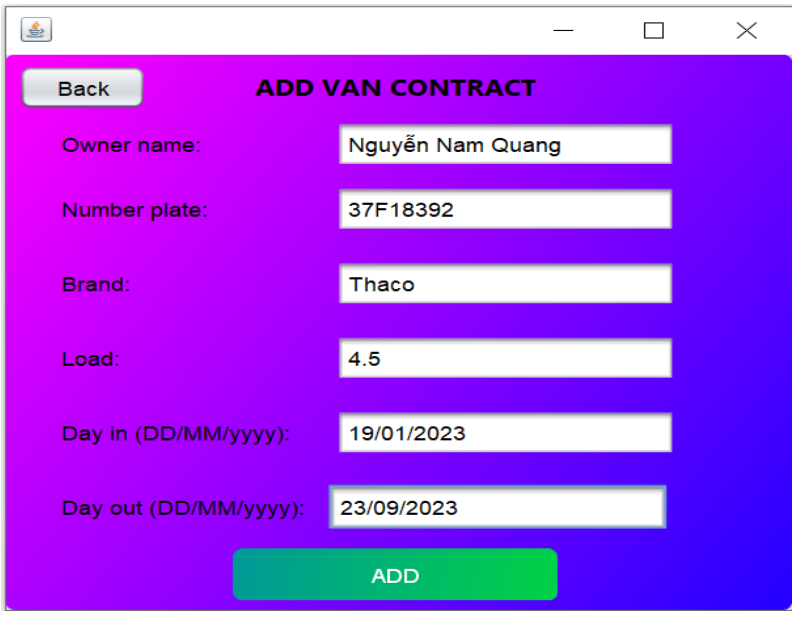
OwnerName	NumberPlate	Brand	NumberOfSeat
Hoang My	19A48455	Honda	5
Nguyen Van A	30K41975	Toyota	4
Vũ Thị Thanh	34H19423	Nissan	5
Vũ Thị Hoài Thu	51F19140	Mitsubishi	7
Le Van Nam	99A13299	Lexus	7
Hoang Van Nam	99H11292	Lexus	7
NULL	NULL	NULL	NULL

Table 'car' in SQL

NumberPlate	DayIn	DayOut	FeePerMonth	FeeAllTime
19A48455	2018-01-18	2018-03-18	900000	1800000
30K41975	2023-02-18	2023-10-20	765000	6120000
34H19423	2023-01-05	2024-01-19	765000	9945000
51F19140	2022-11-01	2023-04-15	765000	4590000
99A13299	2022-12-23	2023-05-25	765000	3825000
NULL	NULL	NULL	NULL	NULL

Table 'carcontract' in SQL

5.1.3. Add van contract



	OwnerName	NumberPlate	Brand
▶	Quang Huy Hoang	19C10122	Howo
	Nguyễn Nam Quang	37F18392	Thaco
	Le Van Tuy	89C89212	Suzuki
*	NULL	NULL	NULL

Table 'van' in SQL

	NumberPlate	LoadVan	DayIn	DayOut	FeePerMonth	FeeAllTime
▶	19C10122	5.5	2023-09-30	2023-10-31	3575000	3575000
	37F18392	4.5	2023-01-19	2023-09-23	2340000	18720000
	89C89212	2.5	2022-09-30	2023-03-03	1300000	6500000
*	NULL	NULL	NULL	NULL	NULL	NULL

Table 'vanrcontract' in SQL

5.1.4. Delete car contract

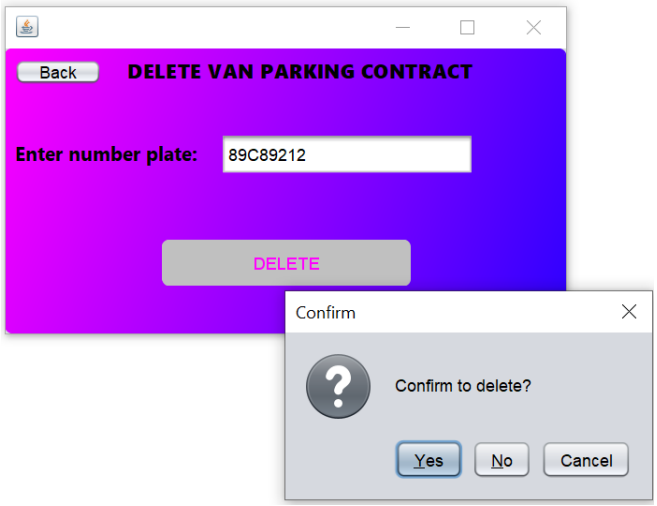
	OwnerName	NumberPlate	Brand	NumberOfSeat
▶	Hoang My	19A48455	Honda	5
	Vũ Thị Thanh	34H19423	Nissan	5
	Vũ Thị Hoài Thu	51F19140	Mitsubishi	7
	Le Van Nam	99A13299	Lexus	7
	Hoang Van Nam	99H11292	Lexus	7
*	NULL	NULL	NULL	NULL

Table 'car' in SQL

	NumberPlate	DayIn	DayOut	FeePerMonth	FeeAllTime
▶	19A48455	2018-01-18	2018-03-18	900000	1800000
	34H19423	2023-01-05	2024-01-19	765000	9945000
	51F19140	2022-11-01	2023-04-15	765000	4590000
	99A13299	2022-12-23	2023-05-25	765000	3825000
*	NULL	NULL	NULL	NULL	NULL

Table 'carcontract' in SQL

5.1.5. Delete van contract



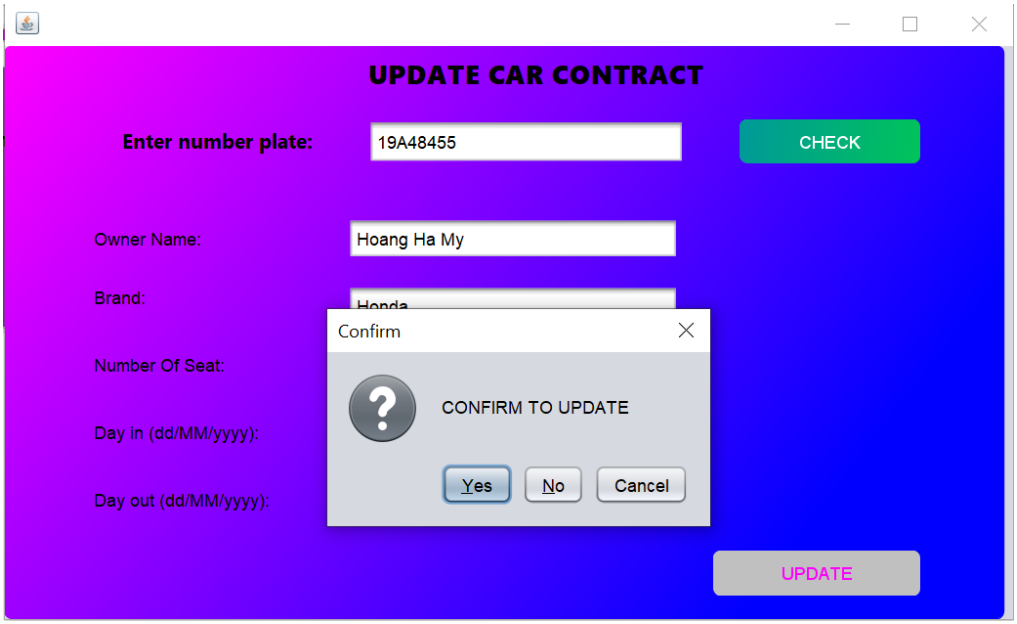
	OwnerName	NumberPlate	Brand
▶	Quang Huy Hoang	19C10122	Howo
	Nguyễn Nam Quang	37F18392	Thaco
*	NULL	NULL	NULL

Table 'van' in SQL

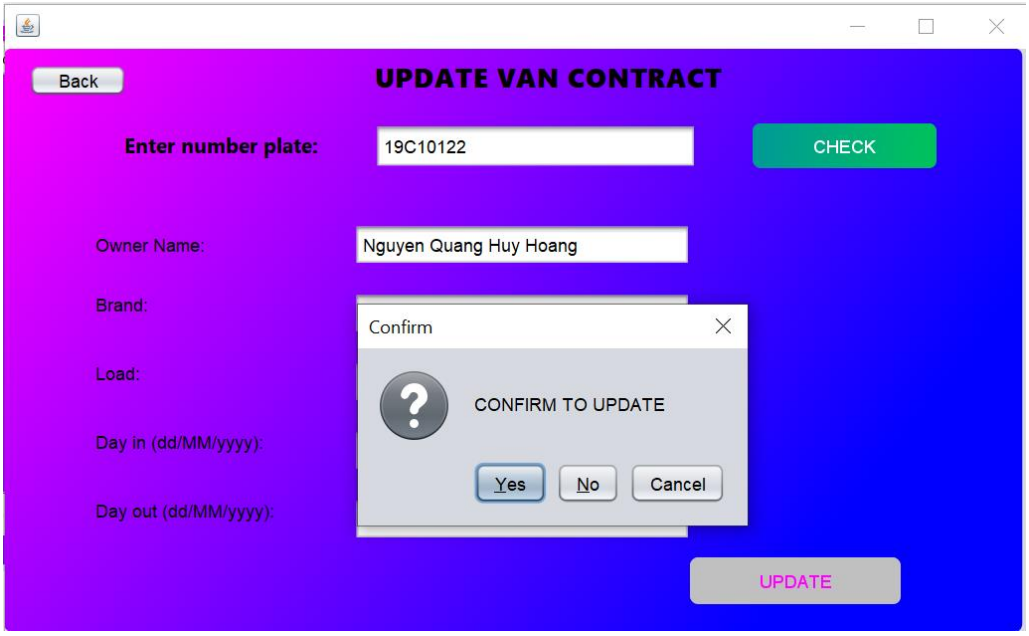
	NumberPlate	LoadVan	DayIn	DayOut	FeePerMonth	FeeAllTime
▶	19C10122	5.5	2023-09-30	2023-10-31	3575000	3575000
	37F18392	4.5	2023-01-19	2023-09-23	2340000	18720000
*	NULL	NULL	NULL	NULL	NULL	NULL

Table 'vancontract' in SQL

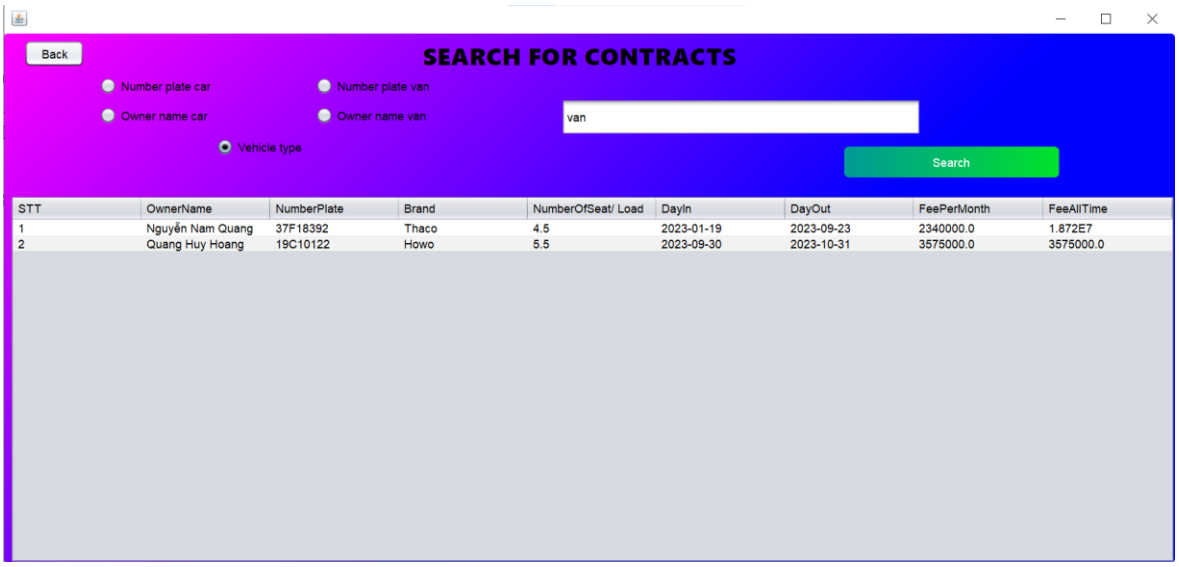
5.1.6. Update car contract



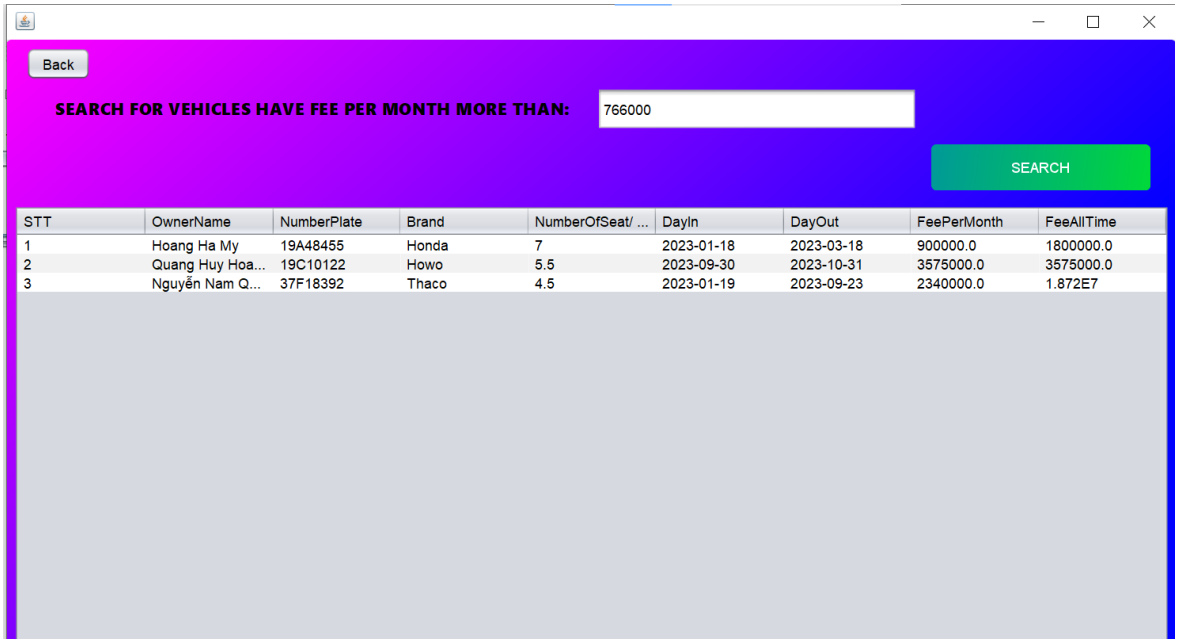
5.1.7. Update van contract



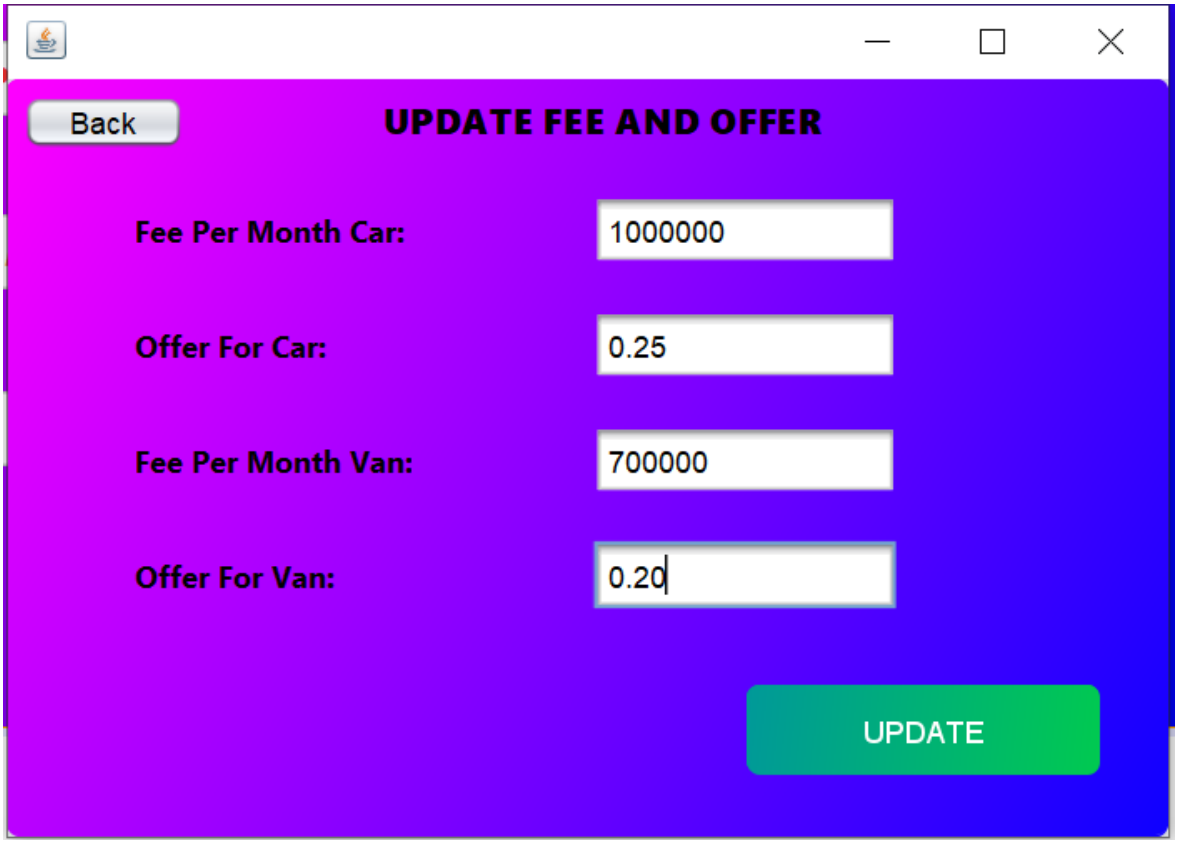
5.1.8. Search for contract



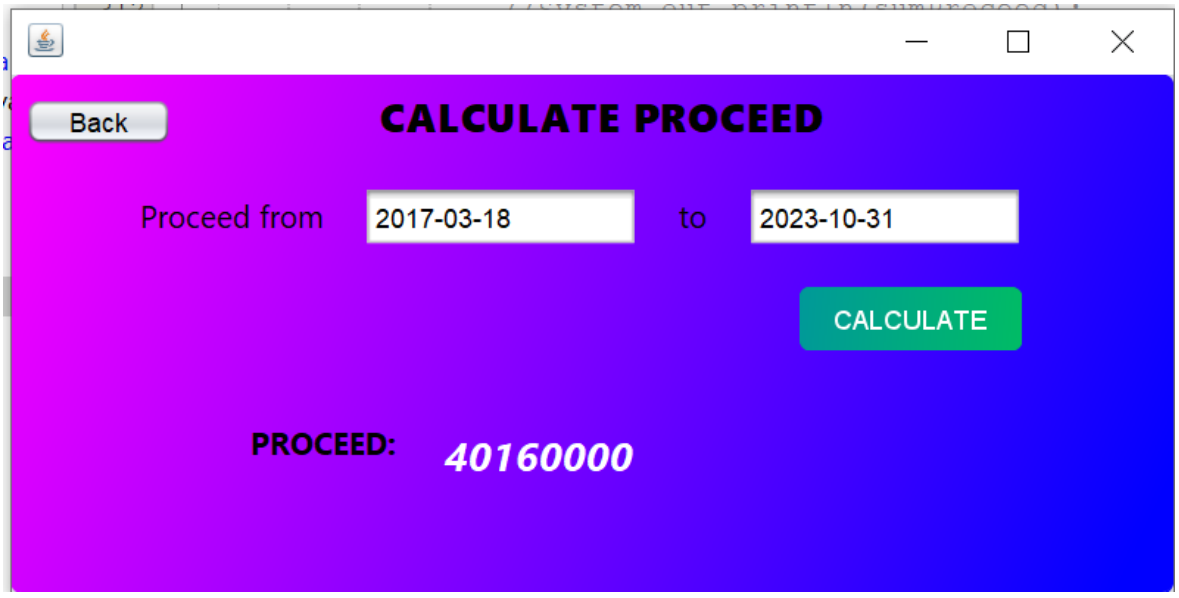
5.1.9. Search by fee



5.1.10.Update fee and offer



5.1.11.Calculate proceed



⇨ **All functions are completed**

5.2. Limitation

- This system cannot manage the parking position of each vehicle.
- Some part of code are a bit cumbersome.

6. SOURCE CODE

Link Google Drive: https://bit.ly/40jCbGL