



Vehicle Registration Centre

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For fulfilment of

CS-142 Programming Fundamentals

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Functional requirements

- This is a program for vehicle registration.
- There will be a login screen asking for username & password.
- As administrator, I will be able to:
 - Add a registrar.
 - Change password of registrar.
 - View all registrars.
 - Log out.
- As a registrar, I will be able to:
 - Add a vehicle.
 - Change vehicle owner.
 - View all vehicles.
 - Sort vehicles with latest being first.
 - Register an imported vehicle.
 - Imported cars Tax defaulters.
 - View all imported vehicles.
 - Log out.

******Vehicle Registration Centre******

Log in screen

Enter username: _____

Enter password: _____

*** Welcome Administrator***

- 1: Add a registrar.
- 2: Change password.
- 3: View all registrars.
- 4: Log out.

Select your option: _____

Admin option 1

Enter name of registrar: _____

Enter password of registrar: _____

Admin option 2

Enter name of registrar: _____

Enter new password: _____

Admin option 3

Following registrars are enrolled:

Registrar 1

Registrar 2....

Welcome Registrar

- 1: Add Vehicle
- 2: Change vehicle owner
- 3: View all vehicles
- 4: Sort vehicles with latest being first
- 5: Register an imported vehicles
- 6: View imported cars tax defaulters
- 7: Show all imported vehicles
- 8: Log out

Registrar option 1

Enter name of owner: _____

Enter plate number of vehicles: _____

Enter model year of vehicle: _____

Registrar option 2

Enter name of owner: _____

Enter new owner: _____

Registrar option 3

Following vehicles are registers:

<i>Owner</i>	<i>Plate Number</i>	<i>Model Year</i>
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Registrar option 4

Vehicles with latest models are:

<i>Owner</i>	<i>Plate Number</i>	<i>Model Year</i>
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Registrar option 5

Register an imported vehicle

Enter name of owner: _____

Enter number plate of vehicle: _____

Is tax paid? _____

Registrar option 6

Following imported vehicles are registered:

<i>Owner</i>	<i>Number Plate</i>	<i>Tax payment</i>
.	.	.
.	.	.

Registrar option 7

The tax defaulters are as follows:

<i>Owner</i>	<i>Number Plate</i>
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.	.
.	.
.	.

Data structure

Variables

Strings:

- username
- password
- riz
- abc
- name
- newPin
- newOwner
- previous
- Reg
- sOwner
- Reg
- Pin
- sTax
- sImportedOwner

String Arrays:

- reg[10]
- pin[10]
- owner[10]
- tax[10]
- importedOwner[10]

Integers:

- adminOption
- option
- total
- counter
- import
- large
- small
- regOption
- OP
- Idx
- sPlate
- sModel
- sImportedPlate

Integer Arrays:

- plate[10]
- model[10]
- importedPlate[10]
- duplicate[10]
- final[10]

Functions

- Int adminMenu();
- Void addReg();
- Int changeReg();
- Int regMenu();
- Void addVehicle();
- Void changeOwner();
- Void latestFunction();
- Void taxFunction();
- Void addImported();
- void storeReg(string Reg, string Pin);
- void storeVehicle(string Owner,int Plate,int Model);
- void storeImported(string ImportedOwner, int ImportedPlate, string Tax);
- void demo_view_vehicles();
- void demo_view_registrars();
- void demo_view_imported();
- Void pressKey();

Algorithm

- Declare admin's "username" & "password" as "riz" & "abc".
- Also declare two arrays as reg[10] and pin[10] for other user.
- At first, Login screen appears.
- If user enters "riz" as username & "abc" as password, then admin menu will show:'

1: Add a registrar.

2: Change password.

3: View all registrars.

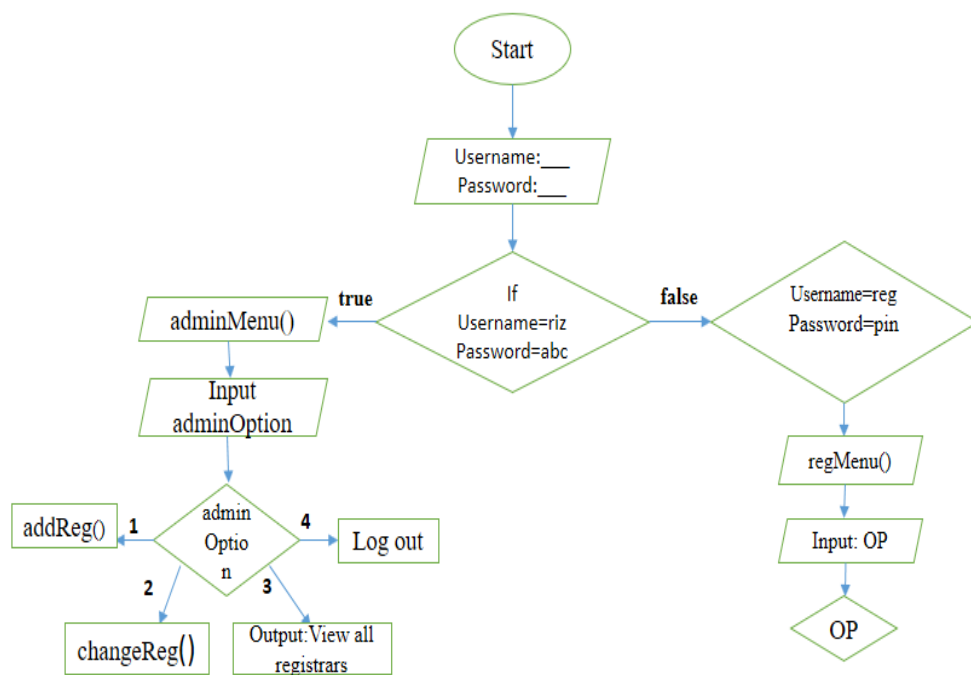
4: Log out.

- If admin selects declared "**option**" as **1**, he will be able to store a new user(registrar) in array: reg[total]

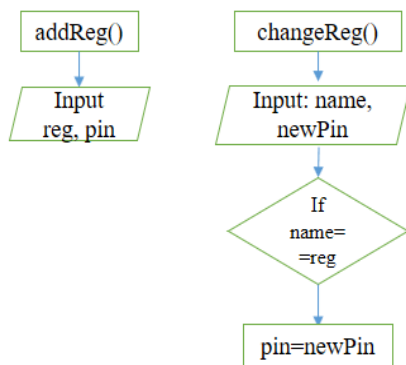
and password in array: pin[total].

- A counter named "total" will increment every time a user is added.
- If admin selects **option 2**, he will be able to change password of any enrolled registrar. First a loop will run, if the entered name matches the enrolled name, a new pin will be asked and be stored in same index of array.
- If admin selects **option 3**, he will be able to view all enrolled registrars. This operation uses a loop.
- If admin selects **option 4**, he will log out from system.
- After log out, log-in screen will appear again.

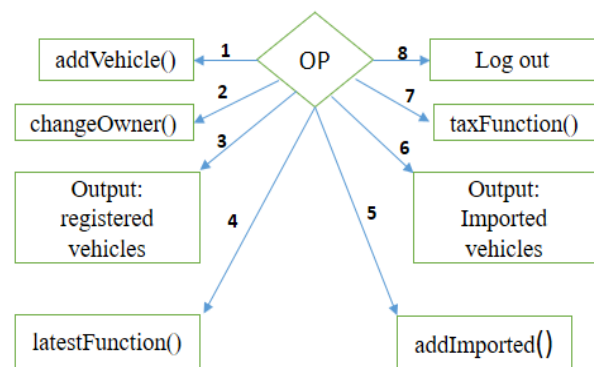
- Now enrolled registrars will be able to enter their name and passwords to see following menu:
 - 1: Add Vehicle
 - 2: Change vehicle owner
 - 3: View all vehicles
 - 4: Sort vehicles with latest being first
 - 5: Register an imported vehicles
 - 6: Show all imported vehicles
 - 7: View imported cars tax defaulters
 - 8: Log out
- If registrar selects **option 1**, he will be able to add a new vehicles' owner name in "owner" string array, number plate of vehicle in "plate" string array and model year in "model" integer array.
- A counter named "counter" will increment every time after this step.
- If registrar uses **option 2**, a loop will run for all enrolled registrars. Whenever entered name matches the one who is already enrolled, system will ask for new owner.
- If registrar selects **option 3**, he will be to view all registered vehicles. A loop will be used in this step.
- If registrar selects **option 4**, all vehicles will be sorted in such a way that latest comes first. First the array "model[10]" will be copied in another array "duplicate[10]". Then we will run a loop and compare every index of "duplicate" with integer large(-1000). Whenever a value of "duplicate" is larger than "large", the value of "duplicate" is stored in "large" and its index is stored in another variable "idx".
- This process is being carried out in another loop. Now the values of indexes are being stored in an array "final[]", and replace that specific value of "duplicate" with -1. A last loop will run to sort the owner, number plate and model year according to newly gained index numbers.
- If registrar selects **option 5**, he will be able to add an imported vehicle by entering his owner name in "importedOwner" array, his plate number in "importedPlate" array and also record if he has paid custom tax or not.
- If registrar selects **option 6**, he will be able to view all imported vehicles with the help of loop.
- If registrar selects **option 7**, he will be able to view all the tax defaulters in imported vehicle section.
- Here a Boolean type operation will work which will check "yes" or "no" every time a new vehicle is registered. A loop will run and the vehicles with "no" will be shown as tax defaulters.
- If registrar selects **option 8**, he will log out.

Flowchart

admin functions:



registrar options:



Registrar options

