

# DSA ASSIGNMENT (PART-2)

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Date:- 19/6/22

Problem: Vehicle Showroom

## Problem Statement :-

Write a program to manage a vehicle showroom regarding sales and buying manufactured vehicles.

Code will do the following:-

- (1) Add new vehicles in showroom (bikes & cars separately)
- (2) Display all vehicles (bikes and Cars Separately)
- (3) Sell the selected vehicle.
- (4) Search for vehicle if its available and in what quantity.
- (5) Calculate individual profit according to deal.
- (6) Calculating net profit flow in day.

## Node looks like:-

Company [17];
Name [17];
Price;
Manufact;
Quantity

} for both car & bike; it looks same.  
(Two different lists)

## Reason:-

- \* Why only linked list is used because ; it gets its memory allocated dynamically and not much memory is wasted , by not leaving space for unnecessary data.
- \* If we use array ; we need to waste a lot of memory by giving excess allowance of memory or face problems later if we give less memory allowance.
- \* If we use stacks or queues ; we need to sell vehicles in same order they are inserted (queue) or sell vehicles in exactly reverse order they are inserted (stack).
- \* And to access between nodes ; it will require shifting data everytime.

## Possibilities

- \* For adding new vehicle; new node must be created if it's the first of that type; if not;  
by taking company ad name details;
  - If it matches: [we update number of vehicles]
  - If it doesn't: [new node will get linked containing all the data].
- \* We can display the cost of bikes and cars separately by traversing and printing.
- \* If we want to sell; we need to choose bike or car.
  - If user knows what he wants to buy (he will press 1)
    - We will take company name + name of vehicle.
    - If it matches; we display no. of vehicles + make deal accordingly
  - If not; we will tell they are not available
  - If user doesn't know what he wants; we display all cars/bikes he wants to see and let him choose what he wants to buy.
- \* If he asks for more than what are available; we tell him that may not available.

- \* If finally deal is made; we calculate profit for the deal accordingly and store it to use later.
- \* The summation of all profits stored is the net profit and it is displayed when required.

### Example

→ Firstly we enter what all cars & bikes are there with us.

#### bikes:-

- 1) Honda (Company)
- 2) Activa (name)
- 3) 90,000 (pri)
- 4) 50,000 (Man cost)
- 5) 20 (quantity)

we press 'Y' to next screen

- 1) Yamaha (company)
- 2) FZ (name)
- 3) 1,20,000 (price)
- 4) 60,000 (manucessy)
- 5) 5 (quantity)

We press '0' to stop bike insertion.

### Cars:-

- 1) Maruti
- 2) Bravia
- 3) 11,00,000
- 4) 8,00,000
- 5) 3 (quantity)

We press '0' to stop car insertion.

We will get options available (1 to 5)

We press '3', we press '6' to add car.

- 1) Toyota
- 2) Innova
- 3) 20,00,000
- 4) 14,00,000
- 5) 2

} adding new company & car

We press 3: add 'B' to add bike again:

- 1) Yamaha
- 2) FZ
- 3)

(quantity)

} adding same bike  
which is available.

Now we will see if vehicles are added or not;

Press 1: press b to see bikes:

displayed	Company	Name	Price	Quantity
	Honda	Achva	90,000	20
	Yamaha	FZ	120,000	8 (3+5)

Press 1, press c to see cars:

	Company	Name	Price	Quantity
	Maruti	Belta	11,00,000	3
	Toyota	Prius	20,00000	2

Press-2 (sell)

press 'B' to sell bike:

(a) If user knows what he wants to buy (he presses 1)  
(b) If user doesn't know what he wants (press 9)

- Selling process
- (a) → tell customer company & name
  - if we have ~~not~~ ~~more~~ items; we tell its available  
and ask how many he wants to buy.
  - If he wants more than what all available; we say don't tell only some are left
  - If he wants less than or equals what is remaining; we accept deal,  
sell it and update no. of vehicles and calculate profit.

(b) We display what we have and ask what he wants to buy; when he selects it;  
we ask how many he want.

~~If he will not take~~

(Repeat Selling Process)

Let us say he chooses 0 → Honda  
Acura → 10

The vehicle H.E = 10;

Profit = 4,00,000.

When it asks make choice:  
Press sell(1), press (L); press (0)

Type → Toyota → 3

Innora

It shows there may not available; only 2 left

Make choice = (2)

Press b for bike:

Press '1' because; we know what to sell

Company = Yamaha → ~~Print~~  
Name = FZ → Print(Y is available)  
How many = 3

Vehicles left = 5

Profit for deal = 1,80,000

Press '4' to calculate total profit; (in make choice)

Total profit = 5,80,000 ( $4,00,000 + 1,80,000$ )

Press '5' to exit :).

~~XXX~~