Front End Developer Exam – MovOn IOT

Problem Lot Problem

I own a parking lot that can hold up to 'n' cars at any given point in time. Each slot is given a slot number starting with 1.

I want to create a ticketing system that allows my customers to use my parking lot.

When a car enters my parking lot, I want to have a ticket issued to the driver. The ticket issuing process includes the teller documenting the plate number and the color of the car. The system will allocate an available parking slot to the car. We assume that our customers are nice enough to always park in the slots allocated to them.

At the exit the customer returns the ticket which then marks the slot they were using as available.

Due to government regulation, the system should provide me with the ability to find out:

a. Plate numbers of all cars of a particular color

b. Slot number in which a car with a given plate number is parked.

c. Slot numbers of all slots where a car of a particular color is parked.

The teller interacts with the system via a simple set of commands which produce a specific output. Please take a look at the example below, which includes all the commands you need to support - they're self explanatory.

Assuming a parking lot with 6 slots, the following commands should be run in sequence by typing them in at a prompt and should produce output as described below the command:

```
Input: create_parking_lot 6
Output: Created a parking lot with 6 slots

Input: park ABC-1234 White
Output: Allocated slot number: 1

Input: park ABC-9999 White
Output: Allocated slot number: 2

Input: park ABC-0001 Black
Output: Allocated slot number: 3

Input: park ABC-7777 Red
Output: Allocated slot number: 4

Input: park ABC-2701 Blue
Output: Allocated slot number: 5

Input: park ABC-3141 Black
Output: Allocated slot number: 6

Input: leave 4
Output: Slot number 4 is free
```

```
Input: status
Output:
Slot No. | Plate Number | Colour
1 | ABC-1234 | White
2 | ABC-9999 | White
3 | ABC-0001 | Black
5 | ABC-2701 | Blue
6 | ABC-3141 | Black

Input: park ABC-333 White
Output: Allocated slot number: 4

Input: park ABC-9998 White
Output: Sorry, parking lot is full

Input: plate_numbers_for_cars_with_colour White
Output: ABC-1234, ABC-9999, ABC-333

Input: slot_numbers_for_cars_with_colour White
Output: 1, 2, 4

Input: slot_number_for_registration_number ABC-3141
Output: 6

Input: slot_number_for_registration_number DEF-1111
Output: Not found
```