Problem description and requirement statement

You are required to complete a program that implements a basic Car Park System. The car park has a maximum of 20 parking lots and only cars, vans and motorbikes can park in the parking.

In this assignment, you will be required to implement the following functionality:

1. Design and implement a class *Vehicle* (abstract) and the subclasses *Car, Van, Motorbike.* The classes should include appropriate methods and hold information about the ID plate of the vehicle, the brand of the vehicle and the entry time/date in the parking.

In particular:

- The *Car* class should also include appropriate methods and hold information about the number of the doors of the car and the color.
- The *Van* class should also include methods and information about the cargo volume of the van.
- The class *Motorbike* should also have methods and information about the size engine of the motorbike.

You should implement a class *DateTime* to represent the time/date of the entrance of the vehicle in the parking. Do not use any predefined library.

2. Design and implement a class called *WestminsterCarParkManager*, which extends the interface *CarParkManager*. *WestminsterCarParkManager* maintains the list of the vehicles currently in the parking.
The class should display in the console a menu from which the user can select among the following management actions:

- Add a new vehicle in the parking if there are free lots (considering that the max number of lots is 20) and return the number of the free lots remaining. Consider that a Van occupied 2 lots. Display a message with the number of free lots or informing that there are no lots available.
- Delete a vehicle, selecting the ID plate, from the list when the vehicle leaves the car park and return the vehicle instance. Display the type of the vehicle leaving the parking (if it is a car, a van or a motorbike).
- Print the list of the vehicles currently parked. For each vehicle print the ID plate, and the entry time and the type of vehicle (if is a car, a van or a motorbike). The list should be ordered chronologically, displaying the last vehicle entered in the parking as the first in the list.

- Print some statistics:
    - The percentage of cars, the percentage of vans and the percentage of motorbikes currently parked.
    - The vehicle that is parked for the longest time and the last vehicle that was parked. You should show the ID plate, the type and the entry time and date for these two vehicles.
- Print the list of vehicle, which enter in the parking in a specified day: the user has to enter the day and year from the console and the list of the vehicles that entered that day will be printed. A message will notify if no vehicles were parked in that day.
- The car park charge 3£ per hour for the first three hours. The car park charges an additional 1£ per hour after the first three hours. The maximum charge for any 24 hours periods is 30£. Display on the screen the parking charges for each customer who parked in the garage (IdPlate and the final price).