Birla Institute of Technology & Science, Pilani
Data Structures & Algo (CS F211)
Lab-2

Consider a parking lot which can accommodate any number of cars at one time. The parking lot is build such a way that only the last car entered can be moved out first. Each of these cars are identified by a unique parking id, registration number, owner name.

Tasks to be performed:

a) **Create a structure for Car:**

The structure maintains the details of the cars which includes its registration number and owner name.

b) **Create a structure called ParkingLot:**

The structure allocates the unique parking ID to the cars using its registration number and owner name.

c) **Create a function Enter_ParkingLot():**

This will insert a parking lot structure to the top of a stack which is represented by using dynamic array stack. The first step is to check for an overflow condition. Overflow means inserting a parking lot structure into a stack which is full. If the top value reaches one less than the maximum size of the stack then the structure cannot be inserted into the stack. Otherwise top is incremented by one and the structure is inserted into the stack.

d) **Create a function Exit_ParkingLot():**

This will deletes a structure from the stack. The first step is to check for an underflow condition. Take out the structure where the top is pointing and then decrement top by one.

e) **Create a function Is_Parked():**

This will search the stack for a given Parking ID of the car. If the parking id exists in the stack then it should return its Parking ID, Owner Name, Registration Number.

f) **Create a function Parking_Snapshot():**

This will give a complete snapshot of the stack with all the parking id's, Owner names and registration numbers existing in a stack. Write the output to files.

Take Home:

Modify the existing code in such a way that any car can be moved out of the parking lot

Hint: Use two stacks.