

## Requirements:

Python 3.8.5 ( <https://www.python.org/downloads/release/python-380/> )

## Assumptions:

- The input file is in the same folder as the Solution File.
- Commands are case-sensitive.

## Variables:

- parkingLotCapacity: int: stores maximum number of vehicles that can be parked in the parking-lot.
- vacantSlots: list[int]: stores available slots from parking-lot in min-heap manner.
- slots: list[list[int]]: stores [vehicle number, driver age] for a given slot
- driverAges: list[list[int]]: stores [slot, vehicle number] for a driver age
- slotVehicleMap: dict: stores slot for a vehicle number

## Explanation:

- `__init__`:
  - constructor is used to initialise parkingLotCapacity to -1.
  - vacantSlots is initialized to an empty list.
  - For each slot, we will be storing vehicleNumber & driverAge. As there can be maximum 1000 slots, we have taken a 2D list.
  - For every possible age of driver, we maintain a list which stores slot & vehicleNumber. As the maximum age can be 1000, we need a 2D list.
  - We need a map (dict) to store slots against vehicle number.
- `setCapacity(cap)`:
  - parkingLotCapacity is initialized to *cap* in the function.
  - vacantSlots is filled with slot numbers from 1 to *cap*.
  - Min heap is created for vacantSlots.
- `parkVehicle(driverAge, vehicleNo)`:
  - The nearest vacant slot is popped from the vacantSlots heap.
  - [slot, *vehicleNo*] is stored for *driverAge*.
  - [*vehicleNo*, *driverAge*] is mapped to the available slot.
  - *vehicleNo* is mapped to the available slot.
- `getSlotsWithDriverAge(driverAge)`:
  - Information is retrieved from *driverAge* mapping.

- `getSlotForVehicleNumber(vehicleNo)`:
  - Information about the slot is retrieved from *slotVehicleMap*.
- `vacateSlot(slot)`:
  - if *slot* is valid & not empty
    - *driverAge* & *vehicleNo* is retrieved from *slots* mapping.
    - mapping against *driverAge* is erased from *driverAges*.
    - mapping against *vehicleNo* is erased from *slotvehicleMap*.
    - mapping against *slot* is erased from *slots*.
    - *slot* is made available to min heap *vacantSlots*.
- `getCarsWithDriverAge(driverAge)`:
  - Information of cars is retrieved from *driverAges* mapping.