

## CS302 Cars and Parking Lots

*The goal of this exercise is to work with list iterators and control statements.*

Consider the following classes and methods:

- **class Car**  

```
Car (int license)           // constructs a car with the specified license
int getLicense()           // returns the license plate of the car
```
- **class CarListIterator**  

```
//no constructor is to be used for this class
boolean hasMoreCars()     // returns true if there are more cars in this list
Car nextCar()              // returns the next car in this list
```
- **class ParkingLot**  

```
ParkingLot (int stalls)    // constructs a parking lot with the
                           // specified number of stalls
boolean addCar (Car car)   // adds car to the parking lot
int getStalls ()           // returns the parking lot's number of stalls
CarListIterator getCarListIterator() // returns a CarListIterator for the parking lot
```

**1.) Write a code fragment that creates a ParkingLot object named, lot60, with 121 stalls. Add a Car object with the license plate number 11.**

```
ParkingLot lot60 = new ParkingLot( 121 );
lot60.addCard(new Car( 11 ));
```

**2.) Write a code fragment using a loop that adds 22 cars to lot60. The cars have the following license plate numbers:**

the first car has the license plate 101,  
the second car has the plate 102,

....

the last car that has the plate 122.

```
ParkingLot lot60 = new ParkingLot( 121 );
for ( int i = 1; i <= 22 ; i++ ) {
    Car car = new Car( 100 + i );
    lot.addCar( car );
}
```

**3.) Write a class method named, getLotCount, that is passed a ParkingLot object and returns the integer number of cars that are parked in the lot. If the lot is full it should display the message "Full Lot" in the console window (use System.out.println).**

```
public static int getLotCount(ParkingLot p) {
    int count = 0;
    CarListIterator cli = p.getCarListIterator();
    while(cli.hasMoreCars()) {
        cli.nextCar();
        count++;
    }
    if (count == p.getStalls())
        System.out.println("Full Lot");
    return count;
}
```

- 4.) Write a class method named, findCar, that is passed a ParkingLot object and an integer license number. The method returns true if and only if there is a car in the lot with the specified license plate number.

```
public static boolean findCar(ParkingLot p, int licenseNumber) {
    CarList cl = p.getCarsList();

    while (cl.hasMoreCars() ) {
        Car c = cl.nextCar();
        if ( c.getLicense() == licenseNumber )
            return true;
    }
    return false;
}
```