

## LLD.01

Design and implement in Go a parking lot system. There are multiple floors in the parking lot. Each floor has parking spots for different vehicle types: bicycles, motorcycles and automobiles. Parking spots are arranged in rows and columns. Some of the parking spots are inactive.

Note: The parking lot has multiple gates, ensure the code is thread-safe for concurrent access.

### Constraints

- $1 \leq \text{floors} \leq 8$
- $1 \leq \text{rows} \leq 1000$
- $1 \leq \text{column} \leq 1000$
- Each floor will have the same number of rows
- Each rows will have the same number of columns
- Each parking spot is of the following type:
  - "B-1", active for bicycles
  - "M-1", active for motorcycles
  - "A-1", active for automobiles
  - "X-0", inactive

### Requirements

- Park vehicle. Given a vehicle type, assign an empty parking spot id and map the vehicleNumber. **spotId** is **floor-row-column**. If no free spot is found, return an error.
  - `park(vehicleType, vehicleNumber)`
- Unpark vehicle. Removes vehicle from parking spot. Return an error for failure to unpark a vehicle.
  - `unpark(spotId, vehicleNumber)`
- Available spot. Display the free spots for each vehicle type.
  - `availableSpot(vehicleType)`
- Search vehicle. If the vehicle has been **unparked**, get its last **spotId**.
  - `searchVehicle(vehicleNumber)`