Exercise on design patterns

Exercise - situation

- A parking tower provides several **parking slots**, in different **levels**
- In each level, the parking slots are located in different **areas**
- Each slot is identified by an **identifier** that reports also the level and the area
- The **size** of a slot can be "normal" or "large"
- Each slot can be **free** or **busy**
- A slot can also be **rented** for a given period of time, and in that period cannot be used by another car
- The parking tower is exploited by **cars** and **minibus**
- Clients arrives to park and ask for an adequate free slot:
  - for leaving the car/minibus for **few continuative hours**, not known in advance, but less than **8** hours otherwise a **fine** is applied
  - or for renting a slot for a given **period** of time (defined as argument)
- A **manager** searches for a free slot for each client, reserves it and frees it at the end

Exercise - assignment

- Define the **class diagram** that models the previously-described situation
- Define the **policies** of allocation of the free slots
- Apply at least **2 design patterns**
- Write the **code** that implements the needed classes