

Design a Reservation and payment system for a parking garage

* Product Requirements

- Need to be able to reserve a parking spot and receive some kind of receipt or ticket
- system needs to have a high consistency (no two people can reserve the same spot at the same time)
- prices: flat rate based on time
but
different rate based on vehicle type
- Need to be able to pay for a parking spot
- 3 types of vehicles (compact, regular, and large)

* Public Endpoints

- /reserve
 - ↳ parameters: - garage_id
- start_time
- end_time
 - ↳ returns: - spot_id
- reservation_id
 - /cancel
 - ↳ params: - reservation_id
 - /payment
 - ↳ parameters: reservation_id
- * we could build a payment system ourselves
- OR use a third party service like stripe, Square

* Internal Endpoints

- /calculate payment
 - ↳ params: - reservation_id
 - /allocatespots
 - ↳ params: - garage_id
- vehicle_type
- time
 - /freespots
 - ↳ params: - garage_id
- vehicle_type
- time
 - /create_account
 - ↳ params: - email
- password
- fullName
 - /login
 - ↳ params: - email
- password
- * smaller cars can fit into large spots if necessary and therefore should be included in the overall number of spots
- * could also use Facebook/google to login

* Data Schema

Reservations

id	Primary Key, serial
garage_id	foreign Key, int
spot_id	foreign Key, int
start	time stamp
end	time stamp
paid	boolean

Garage

id	Primary Key, serial
zipcode	varchar
rate_compact	decimal
rate_reg	decimal
rate_large	decimal

spots

id	Primary Key, serial
garage_id	foreign Key, int
vehicle_id	enum
status	enum

Users

id	Primary Key, serial
garage_id	foreign Key, int
vehicle_type	enum
status	enum

Vehicle

id	Primary Key, serial
user_id	foreign Key, int
license	varchar
vehicle_type	enum

