**Database Management System Case Studies**

**Parking Lot Management System**

**Aim:** The capstone project entitled **Parking Lot Management System** is an information system that can manage the records and transactions on parking lots and facilities. The platform also includes a booking and reservation module wherein the customers can select a parking slot and book or reserve the parking slot based on their preferred date and time.

**Description**: A typical parking lot consists of one or more blocks that are further subdivided into floors. Each floor contains multiple wings that help drivers orient themselves and remember their parking spots. These are usually labeled with letters, such as “A”, “B”, “C”, and so on. A floor usually has a height limit that restricts certain vehicles from entering the parking lot. Additionally, a floor contains several uniquely numbered parking slots. Some of these slots are reserved for handicapped people; others can be reserved by regular visitors at a certain cost.

The three main sections are as follows:-

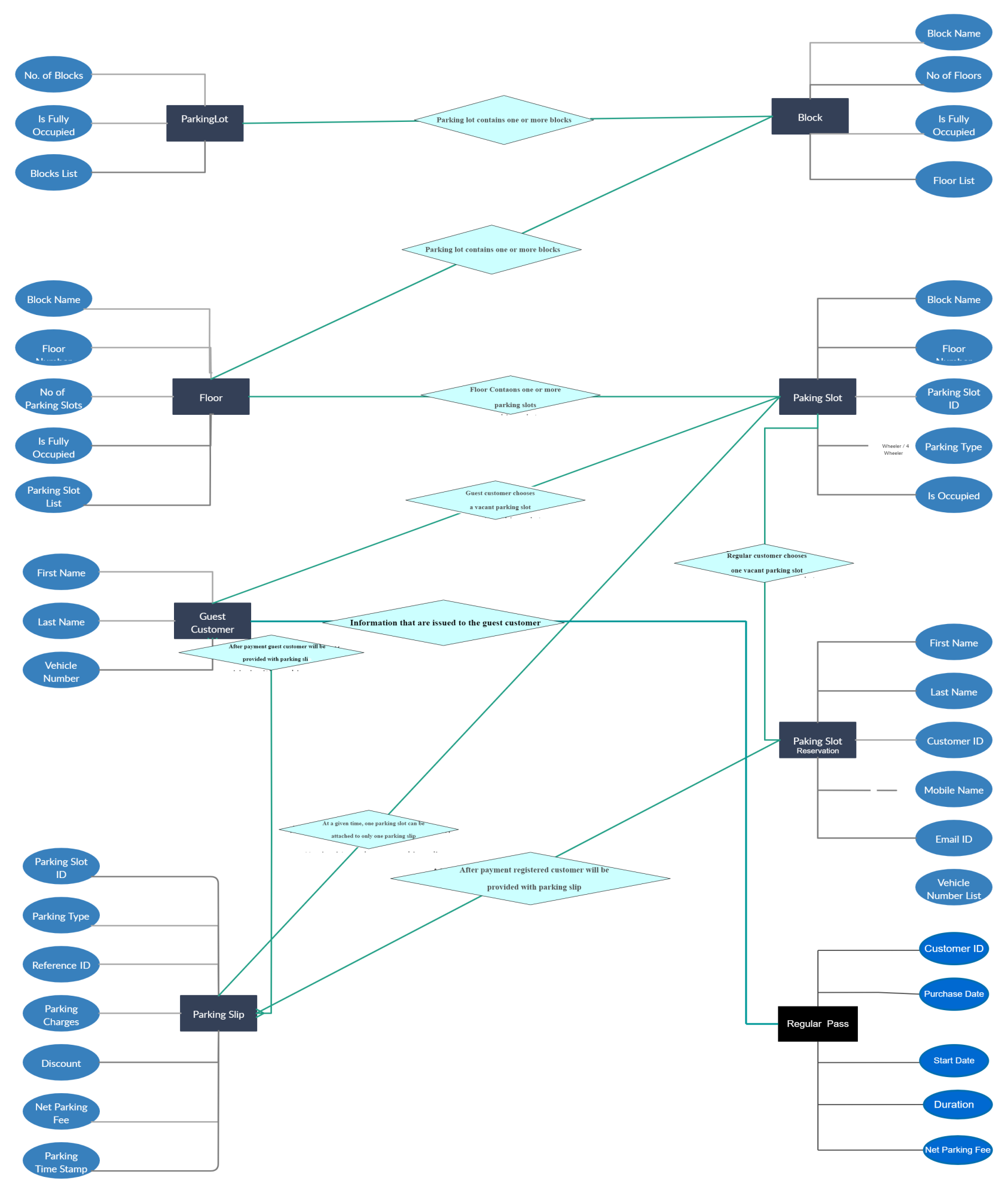
* Parking lot
* Customer
* Parking reservation

**Entities:**

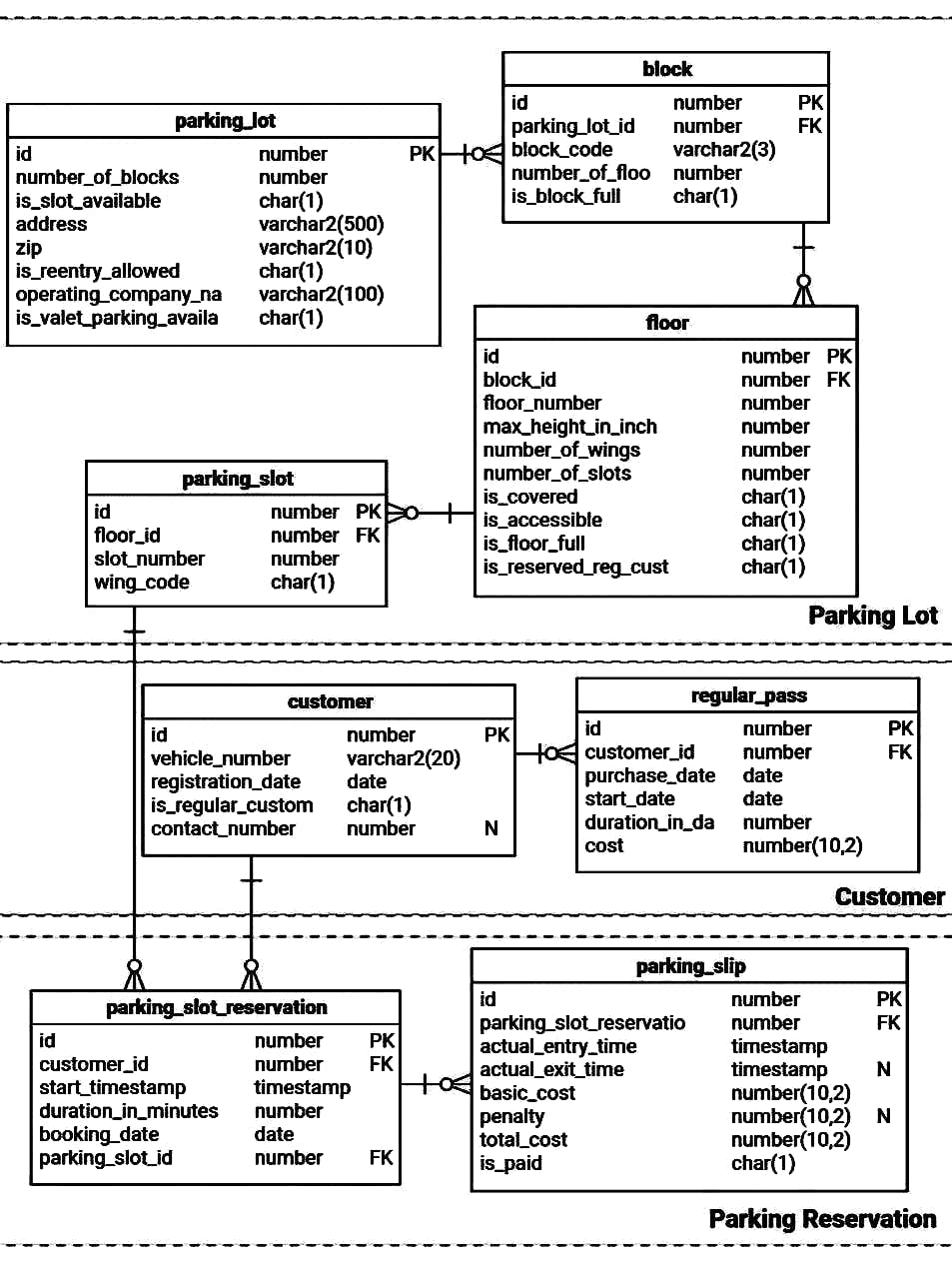
In the Parking Lot Management System we have the following entities:-

1. **Parking\_lot - The central part of the organization for which this software has been designed. It has attributes like ‘Name’ to distinguish it from any other parking lots and ‘Address’ to define its location.**
2. **Floor - The parking lot will have many parking floors.**
3. **Block - Each parking floor will have many parking spots. Our system will support different parking spots 1) Handicapped, 2) Compact, 3) Large, 4) Motorcycle, and 5) Electric.**
4. **Parking\_slot - Each parking floor will have a display board to show available parking spots for each spot type. This class will be responsible for displaying the latest availability of free parking spots to the customers.**
5. **Customer - All customers can get a parking ticket and pay for it**
6. **Regular\_pass -** **This class will encapsulate a parking ticket. Customers will take a ticket when they enter the parking lot.**
7. **Parking\_slip - This class will encapsulate all the operations that an attendant can perform, like scanning tickets and processing payments.**
8. **Parking\_slot\_reservation – Conformation of slot booked at a particular spot in the parking lot.**

## E‐R Diagram



## Tables



**Tables**

Create table parking lot (id number, number\_of\_blocks number, slot\_available char(1), address varchar2(500), zip varchar2(10), reentry\_allowed char(1), operating\_company\_na varchar2(100), is\_valet\_parking\_available char(1));

create table block(id number, parking\_lot\_id number, block\_code varchar2(3), number\_of\_floo number, is\_block\_full char(1));

Create table regular\_pass(id number,customer\_id number,purchase\_date date,start\_date date,duration\_in\_da number,cost number(10,2);

Create table customer(id number,vehical\_number varchar2(20),registration\_date date, is\_regular\_custom char(1),contact\_number number);

Create table parking\_slot(id number,floor\_id number,slot\_number number,wing\_code char(1));

Create table parking\_slot\_reservation(id number,customer\_id number,start\_timestamp timestamp,duration\_in\_minutes number,booking\_date date,parking\_slot\_id number)

Create table parking\_slip (id number,parking\_slot\_reservation number,actual\_entry\_time timestamp,actual\_exit\_time timestamp,basic\_cost number(10,2),penalty number(10,2),total\_cost number(10,2),is\_paid char(1));