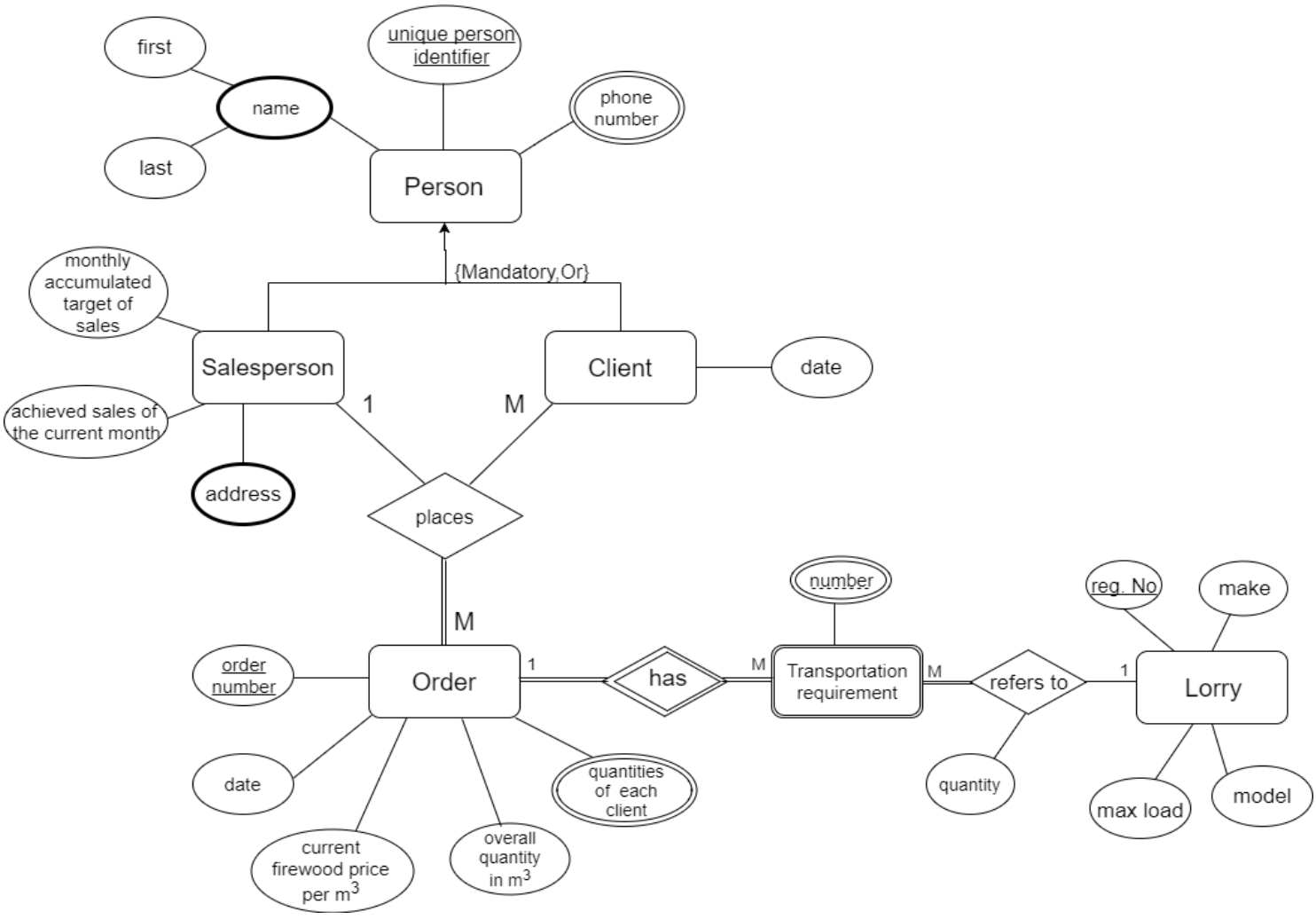
1.




2.

a) There can be an order that is neither a phone order nor a table order because they are sub-entities of Order whose specialisation constraint is optional, meaning an order doesn't have to be one of its sub-entities.

b) Name, the primary key of restaurant, and number, as partial key, uniquely identify a table.

c) It is possible to compute the total billing amount of all orders in a restaurant: we identify the restaurant by its name and the orders by billingNo, and we sum all the totals of the orders.

3.

a) It is already expressed in the EER model because the cardinality constraint for table order is that it originates from one table and since table is a weak entity type with cardinality constraint M:1, each table belongs to exactly one restaurant.

b) It cannot be expressed in the EER model because we can only say that a table can have many orders with dateTime as an attribute. We cannot put a conditional on the attribute, meaning to say that a table can have many orders if they have different dateTimes.

4.

Restaurant(name)
    Primary key name
Phone numbers(phone_num, name)
    Primary key (phone_num, name)
    Foreign key name references Restaurant(name)
    Name not null
Table(name, number)
    Primary key (name, number)
    Foreign key name references Restaurant(name)
    Name not null
Order(billingNo, dateTime, total)
    Primary key billingNo
PhoneOrder(billingNo, street, postcode, city, name, phone_line)
    Primary key billingNo
    Foreign key billingNo references Order(billingNo), name references Restaurant(name)
    Name not null
TableOrder(billingNo, waiter, name, number)
    Primary key billingNo
    Foreign key billingNo references Order(billingNo), (name, number) reference Table(name, number)
    (Name, number) not null