Assignment_2: Databases
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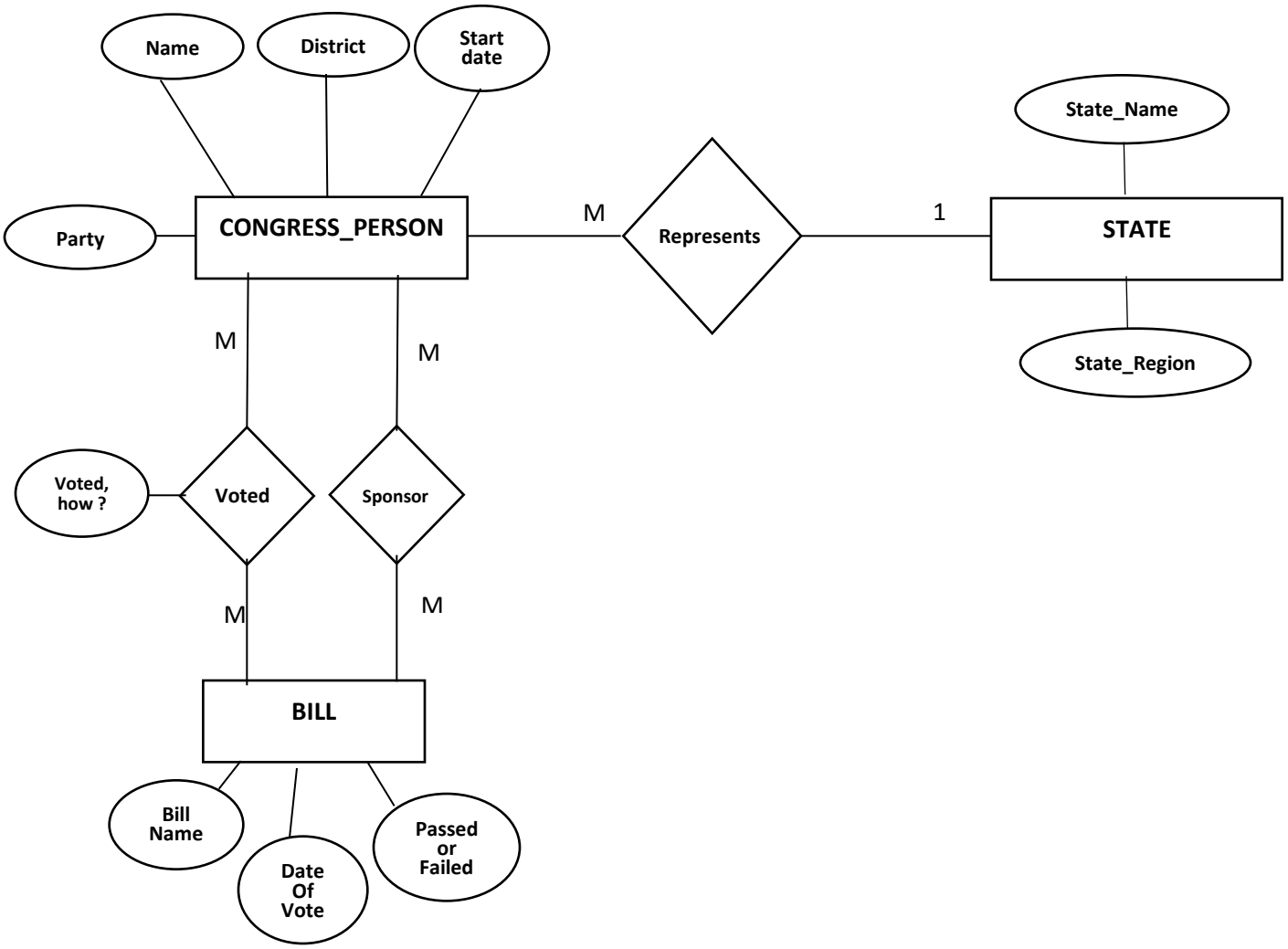
Exercise 3.21:

Design an ER schema for keeping track of information about votes taken in the U.S. House of Representatives during the current two-year congressional session. The database needs to keep track of each U.S. STATE's Name (e.g., 'Texas', 'New York', 'California') and include the Region of the state (whose domain is {'Northeast', 'Midwest', 'Southeast', 'Southwest', 'West'}). Each CONGRESS_PERSON in the House of Representatives is described by his or her Name, plus the District represented, the Start_date when the congressperson was first elected, and the political Party to which he or she belongs (whose domain is {'Republican', 'Democrat', 'Independent','Other'}). The database keeps track of each BILL (i.e., proposed law), including the Bill_name, the Date_of_vote on the bill, whether the bill Passed_or_failed (whose domain is {'Yes', 'No'}), and the Sponsor (the congressperson(s) who sponsored—that is, proposed—the bill). The database also keeps track of how each congressperson voted on each bill (domain) of Vote attribute is {'Yes', 'No', 'Abstain', 'Absent'}). Draw an ER schema diagram for this application. State clearly any assumptions you make.

Entities:
State, CONGRESS_PERSON, and BILL

Attributes:
State[State_name and Region_name], CONGRESS_PERSON[Name, district, start_data , and, domain] and
BILL [BILL_name, Date_of_vote, passed_or_failed, and sponsor]



Relationship:

Represents – A relation between state and the congress_person that is a representative of each state.

Voted: A relation between congress_person and the bill which relates congress_person voted on the bill. It has an attribute called Vote.

Sponsor: A relation that determines the congress_person that proposed the bill.

Cardinality:

1. There can be many representatives from one state, since there are 52 states.
   Any representative cannot represent two states at a time.
   So, the cardinality is 1 and M (i.e., one to many)
2. At any given time, one congress representative can vote to all the bills in the bill entity.
   A bill can be voted by many congress representatives.
   So, the cardinality is M and M (i.e., many to many)
3. Many congress persons can propose a bill.
   A bill can be proposed by many congress people.
   So, the cardinality is M and M (i.e., many to many)

Assumptions:

1. A representative cannot exist without a state.
2. Any representative can be identified with a state and the district ID.
3. Even though a person can use his vote on a bill only once. One person can vote many bills. Thus, makes it many to many relationships.