Final Project CS307

House of Representatives.

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1.1: Database Modelling / SQL :

Construct an entity relational diagram (ERD) for the requirements specification. Then, map this diagram into a relational model diagram (RMD).

The following stages should be undertaken:

- Identify the relevant Entities and label them appropriately.
- Link these with the relevant Relationships, these should be: Labeled appropriately.
- Define the type of relationship (1:1, 1:M or M:M)
- Resolve any many-to-many relationships.
- Identify attributes for each entity and identify Primary and Foreign Keys.

Specification: U.S. House of Representatives

- 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.

Objectives:

1. 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'}).

Objectives (Continued):

2. 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’}).

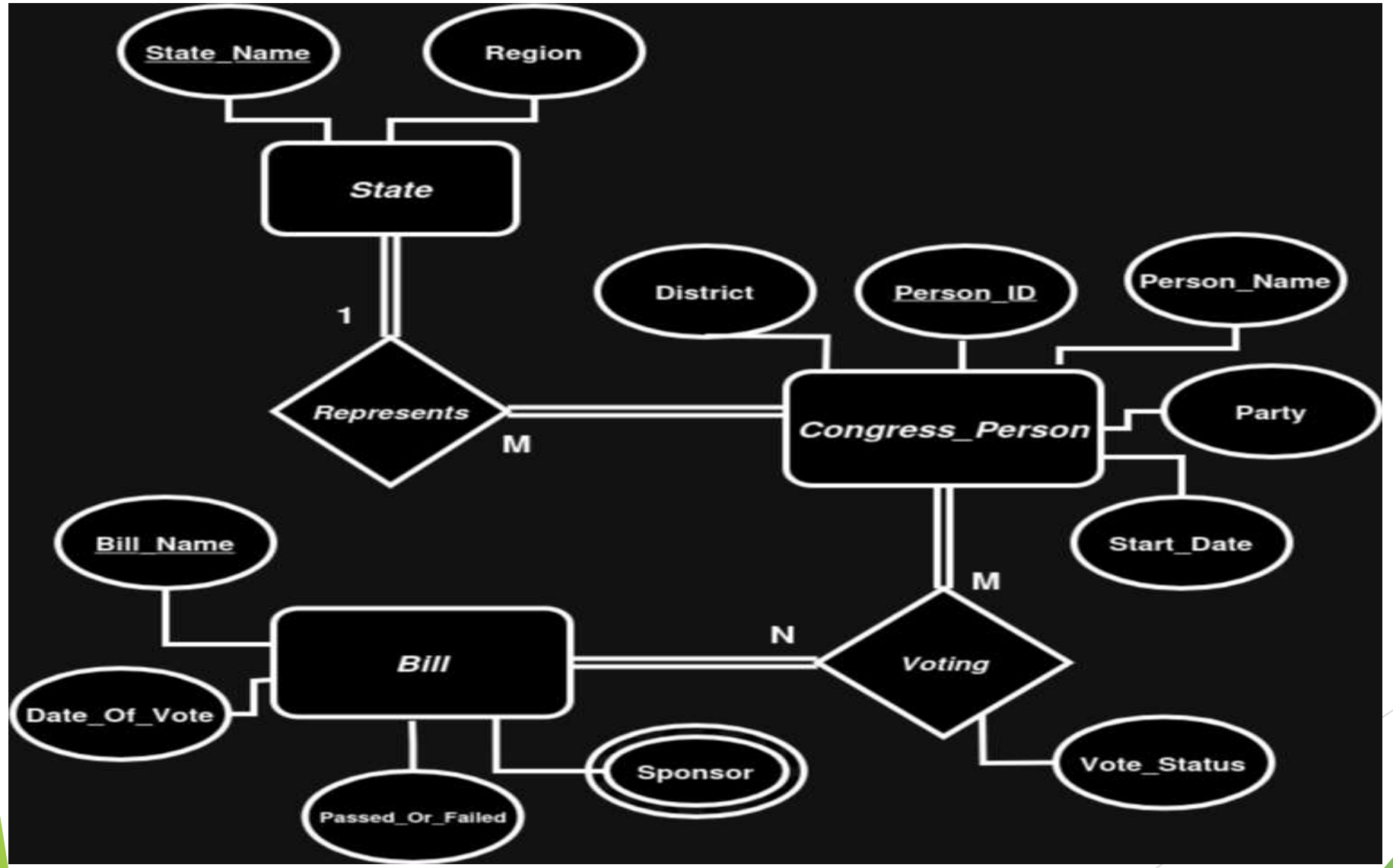
Objectives (Continued):

3. 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’}).

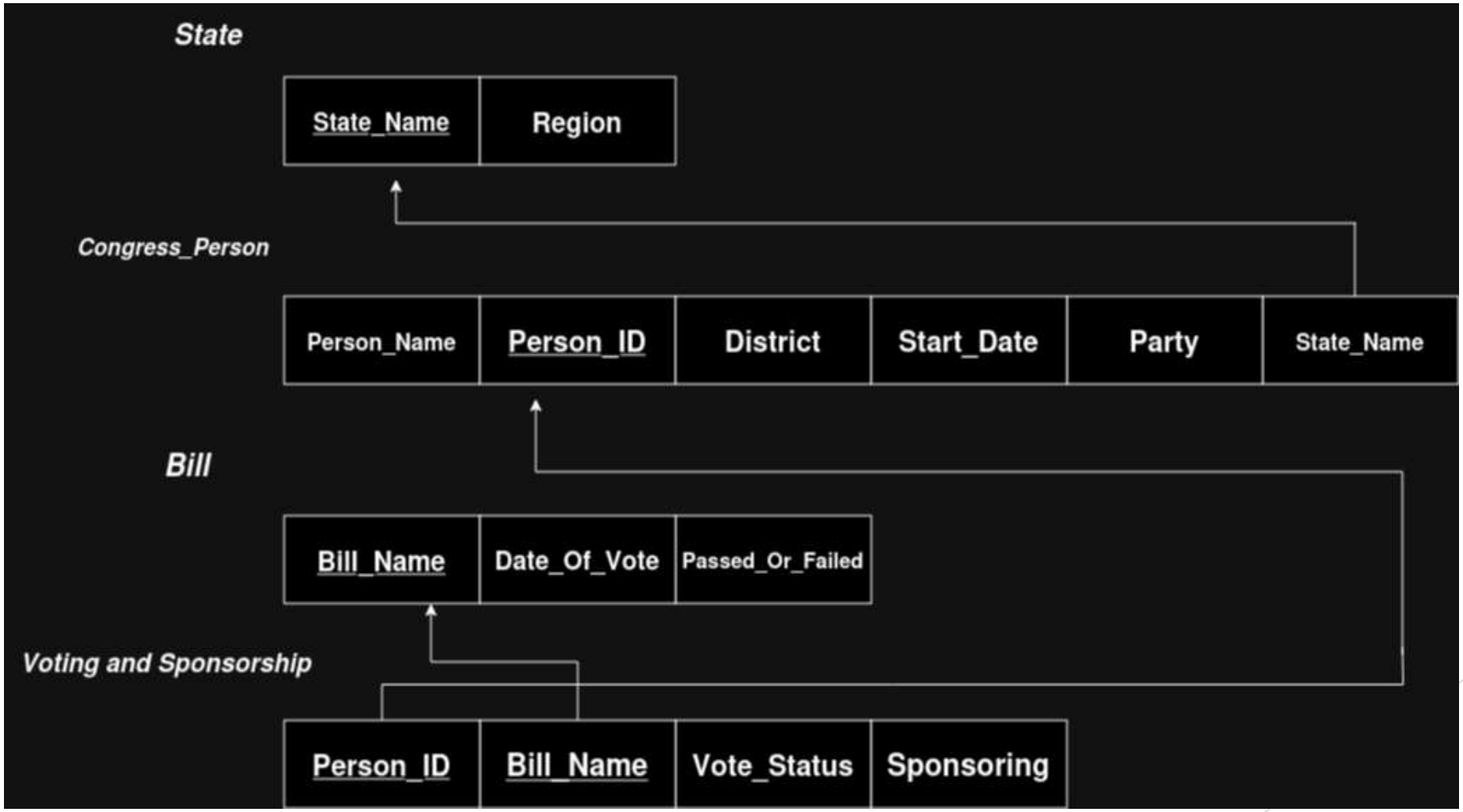
Additional Information:

- There are 435 congresspersons in the U.S. House of Representatives.
- States have between one (AK, DE, MT, ND, SD, VT, and WY) and 52 (CA) representatives.
- N represents the number of bills during the 2-year session.

The ERD:


State_Name
Region
State
1
Represents
M
District
Person_ID
Person_Name
Congress_Person
Party
Start_Date
Bill_Name
M
N
Bill
Voting
Date_Of_Vote
Sponsor
Vote_Status
Passed_Or_Failed

The Relational Model:



1.2 Design Tables:

- Login to oracle through Oracle SQL Developer and create appropriate tables with all constraints which reflects the ER diagram designed in Q1.1.
- The report needs to have all SQL scripts to create tables, add constraints on them.

Design State table:

-- Create state table (for sampling only 1 city from the 5 regions, Could use a check constraint on the name to be one of the current 50 states):

```
Create Table State(State_Name Varchar2(25)
Constraint X1 Primary Key, Region Varchar2(25)
Constraint X2 Check(Region In('Northeast', 'Midwest',
'Southeast', 'Southwest','West')));
```

Design Congressperson Table:

-- Create congress_person table (for sampling only 15 congress persons):

Create Table Congress_Person (Person_Id Number(3) Constraint X3 Primary Key, Person_Name Varchar2(25) Constraint X4 Not Null,

District Varchar2(25) Constraint X5 Not Null, Start_Date Date Constraint X6 Not Null, Party Varchar2(25) Constraint X7

Check(Party In('Republican','Democrat', 'Independent','Other')),

State_Name Varchar2(25) Constraint X8 References State(State_Name));

Create Bill Table:

```
-- Create bill table (for sampling only 4 bills):
Create Table Bill(Bill_Name Varchar2(25)
Constraint X9 Primary Key, Date_Of_Vote
Date Constraint X10 Not Null,
Passed_Or_Failed Varchar2(25) Constraint X11
Check (Passed_Or_Failed In('Yes', 'No')) );
```

Create Voting_Sponsorship Table:

-- Create voting_sponsorship table (that is going to have 60 records for our sample):

Create Table Voting_Sponsorship (Person_Id Number(3) Constraint X12 References Congress_Person(Person_Id),

Bill_Name Varchar2(25) Constraint X13 References Bill(Bill_Name), Voting_Status Varchar2(25) Constraint X14

Check(Voting_Status In('Yes', 'No', 'Abstain', 'Absent')),

Sponsorship Varchar2(25) Constraint X15 Check (Sponsorship In('Yes', 'No')), Constraint X16 Primary Key(Person_Id, Bill_Name));

1.3 Insert Data:

- Now write an appropriate SQL statement (INSERT) to populate the tables with records under the previous specification.

Dynamic Insertion:

Insert Into State

Values('&state_name', '&region');

Insert Into Congress_Person

Values (&person_Id, '&person_name', '&district','&date', '&party', '&state_name');

Insert Into Bill

Values ('&bill_name', '&date_of_vote', '&passed_or_failed');

Insert Into Voting_Sponsorship

Values (&person_Id, '&bill_name', '&voting_status', '&sponsor_ship');

1.4 SQL VIEWS:

- A. Create a view named ‘SponsoredBills’ which displays the bills and the congresspersons who sponsored them.
- B. Ensure that the view is READ-ONLY

View Using Our Modification:

```
Create Or Replace View SponsoredBills
As Select Bill_Name "Bill", Person_Id
"Congresspersons"
From Voting_Sponsorship
Where Sponsorship = 'Yes'
With Read Only;
```