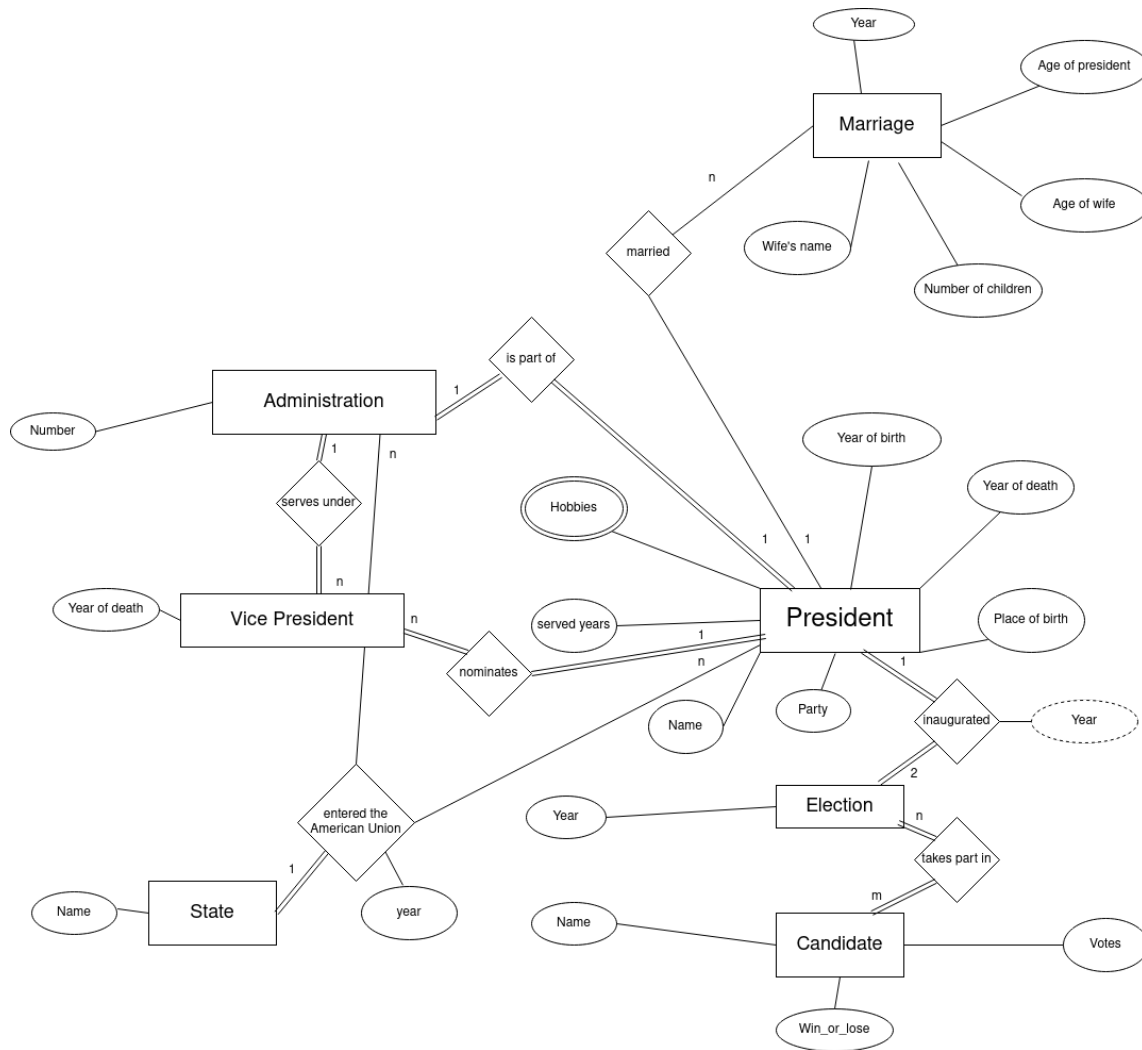


Data Bases Assignment 1

ER model and the relational model

Part 1: Entity-Relationship modeling



Part 2: The relational model

Task 1

Foreign keys:

Serial_no, Salesperson_id.

Relations (with violations):

CAR

Serial_no	Model	Manufacturer	Price
1	G-Class	Mercedes Benz	80000
2	A-Class	Mercedes Benz	30000
3	C-Class	Mercedes Benz	40000

OPTION

Serial_no	Option_name	Price
14	Personalized color	10000
15	Bluetooth	500
16	Navigation	900

SALE

Salesperson_id	Serial_no	Date	Sale_price
22	1	10/10/2019	80000
23	11	27/05/2018	3000
28	16	13/08/2019	900

Salesperson

Salesperson_id	Name	Phone
22	David James	0176 68643256
23	Karl Müller	0157 87654365
0.5	Tom Busch	0178 25465789

Relations (without violations):

CAR

Serial_no	Model	Manufacturer	Price
1	G Klasse	Mercedes	80000
2	A Klasse	Mercedes	30000
3	C Klasse	Mercedes	40000

OPTION

Serial_no	Option_name	Price
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SALE

Salesperson_id	Serial_no	Date	Sale_price
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Salesperson

Salesperson_id	Name	Phone
22	David James	0176 68643256
23	Karl Müller	0157 87654365
24	Tom Busch	0178 25465789

Task 2

SHIP_TYPE (Type, Tonnage, Hull, Sname)

STATE/COUNTRY (Name, Continent, Pname)

SEA/OCEAN/LAKE (Name, Pname)

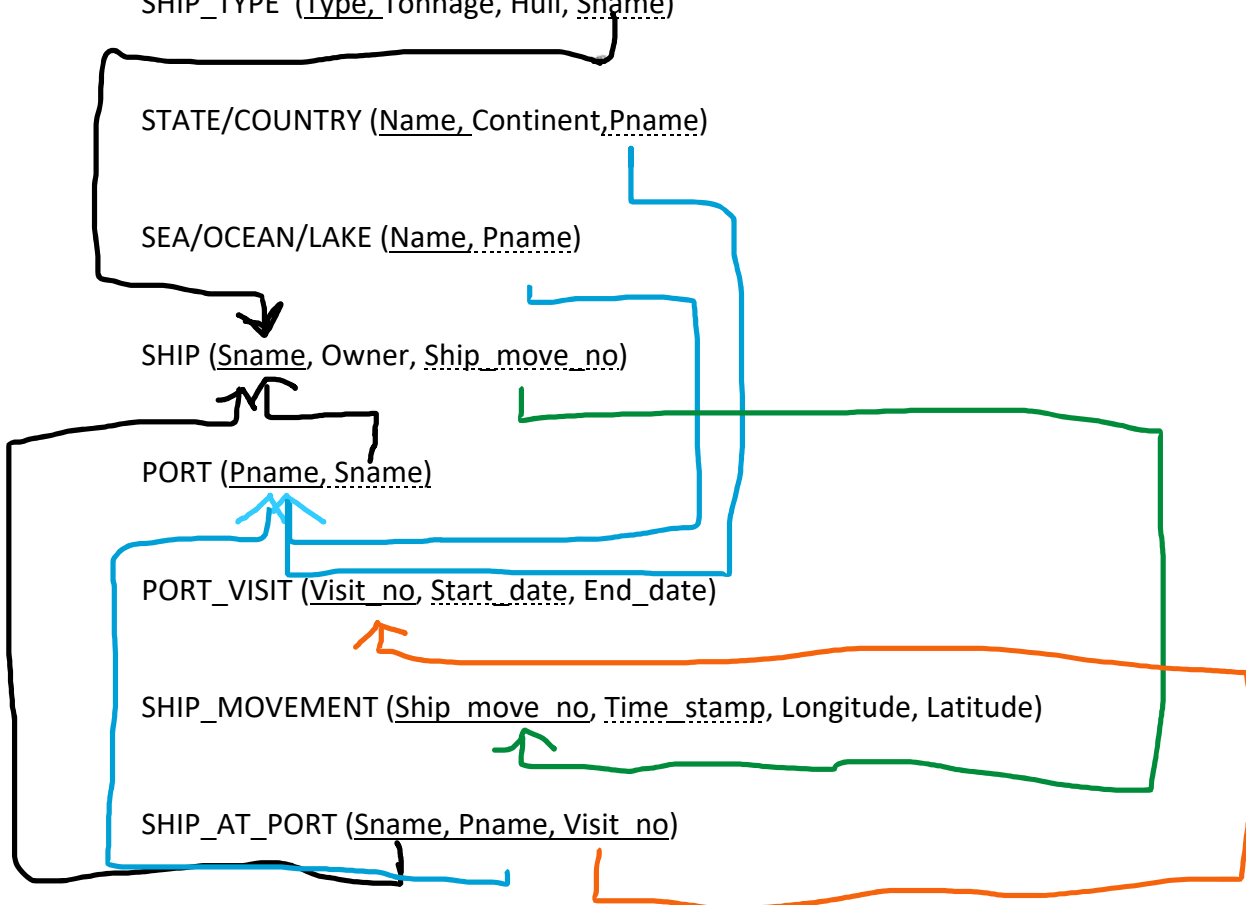
SHIP (Sname, Owner, Ship_move_no)

PORT (Pname, Sname)

PORT_VISIT (Visit_no, Start_date, End_date)

SHIP_MOVEMENT (Ship_move_no, Time_stamp, Longitude, Latitude)

SHIP_AT_PORT (Sname, Pname, Visit_no)



Task 3

Attribute constraints:

- BYEAR must be at least 21 years ago.
- NAME cannot be NULL.
- BPLACE must be in a certain state.
- SYEARS cannot be more than 8 years.
- HOBBIES cannot be NULL.
- PARTY cannot be NULL.
- DYEAR of president cannot be year after the current year.
- AGE of wife and AGE of president must be at least 18 years.
- NAME of candidate cannot be NULL.
- DYEAR of vice president cannot be year after the current year.
- STATE cannot be NULL.
- CANDIDATE must have been either “win” or “lose” after the election took place.

Tuple constraints:

- BYEAR must be before DYEAR.
- If WIN_OR_LOSE is WIN then votes must be at least 270.

Relation constraints:

- Years of election must be four years apart.
- Only one candidate can win the election.
- BYEAR of president must be at least 18 years before MYEAR.
- There cannot be two administrations with same administration number.

Database constraints:

- BYEAR must be before MYEAR.
- BYEAR must be at least 21 years before the EYEAR.
- A vice president can serve under an existing administration only.

Static constraints:

- ANUMBER must be a positive integer.
- VOTES must be a positive integer.

Students:

Group 31

- *Miriam Mzallassi*
- *Samira El Hadi*