Oefening 8 – CAR-PASS

- Bij elke onderhoudsbeurt van auto kilometerstand noteren
  - Id_registration: O = Onderhoud, K = Keuring, B = Bandencentrale
  - Rijksregisternummer niet ingevuld → voertuig van garage
  - Voertuig kan meerdere keren wijzigen van eigenaar

- Car(brand, model, chassisnumber, cylinder_volume, date_registration, date_first_use)
- Registration(kilometers, timestamp, id_registration, plate, chassisnumber, citizen_id_owner)
- Owner(citizen_id, name, address, postal_code, town)

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Oefening 8 – CAR-PASS

- Kandidaatsleutels?

- Car(brand, model, chassisnumber, cylinder_volume, date_registration, date_first_use)
- Registration(kilometers, timestamp, id_registration, plate, chassisnumber, citizen_id_owner)
- Owner(citizen_id, name, address, postal_code, town)

Oefening 8 – CAR-PASS

- Kandidaatsleutels

- Car(brand, model, ==chassisnumber==, cylinder_volume, date_registration, date_first_use)
- Registration(kilometers, ==timestamp==, id_registration, plate, ==chassisnumber==, citizen_id_owner)
- Owner(==citizen_id==, name, address, postal_code, town)

Oefening 8 – CAR-PASS

- Primaire sleutels?

- Car(brand, model, ==chassisnumber==, cylinder_volume, date_registration, date_first_use)
- Registration(kilometers, ==timestamp==, id_registration, plate, ==chassisnumber==, citizen_id_owner)
- Owner(==citizen_id==, name, address, postal_code, town)

Oefening 8 – CAR-PASS

Primaire sleutels

PK

- Car(brand, model, chassisnumber, cylinder_volume, date_registration, date_first_use)
- Registration(kilometers, timestamp, id_registration, plate, chassisnumber, citizen_id_owner)
- Owner(citizen_id, name, address, postal_code, town)

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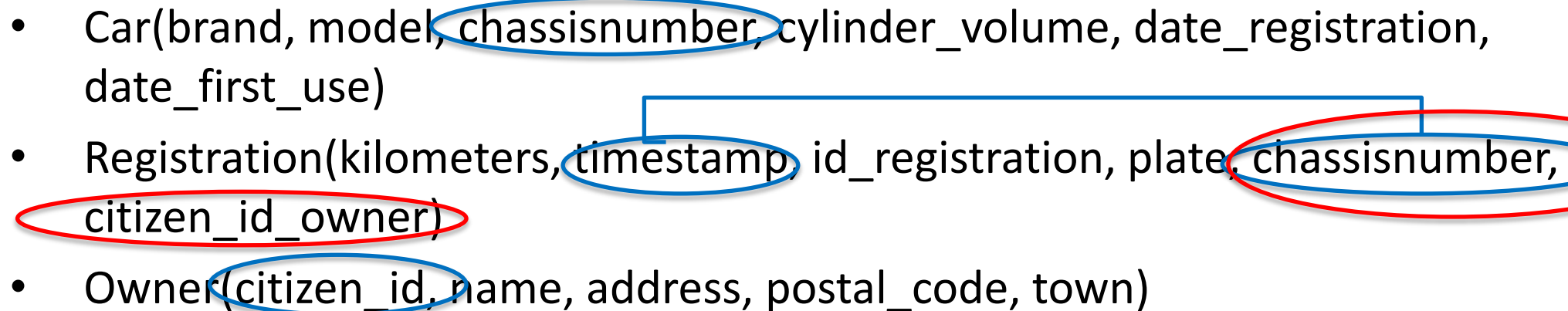
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Verwijssleutels?

PK

- Car(brand, model, chassisnumber, cylinder_volume, date_registration, date_first_use)
- Registration(kilometers, timestamp, id_registration, plate, chassisnumber, citizen_id_owner)
- Owner(citizen_id, name, address, postal_code, town)

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Oefening 8 – CAR-PASS

Verwijssleutels

PK   FK

- Car(brand, model, chassisnumber, cylinder_volume, date_registration, date_first_use)
- Registration(kilometers, timestamp, id_registration, plate, chassisnumber, citizen_id_owner)
- Owner(citizen_id, name, address, postal_code, town)

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Oefening 8 – CAR-PASS

- ERD?

Oefening 8 – CAR-PASS

- ERD

Oefening 8 – CAR-PASS

- Chassisnummers van auto's die vóór 1 januari 2019 ingeschreven zijn

```
Car(brand, model, chassisnumber, cylinder_volume, date_registration,
date_first_use)
Registration(kilometers, timestamp, id_registration, plate, chassisnumber,
citizen_id_owner)
Owner(citizen_id, name, address, postal_code, town)
```
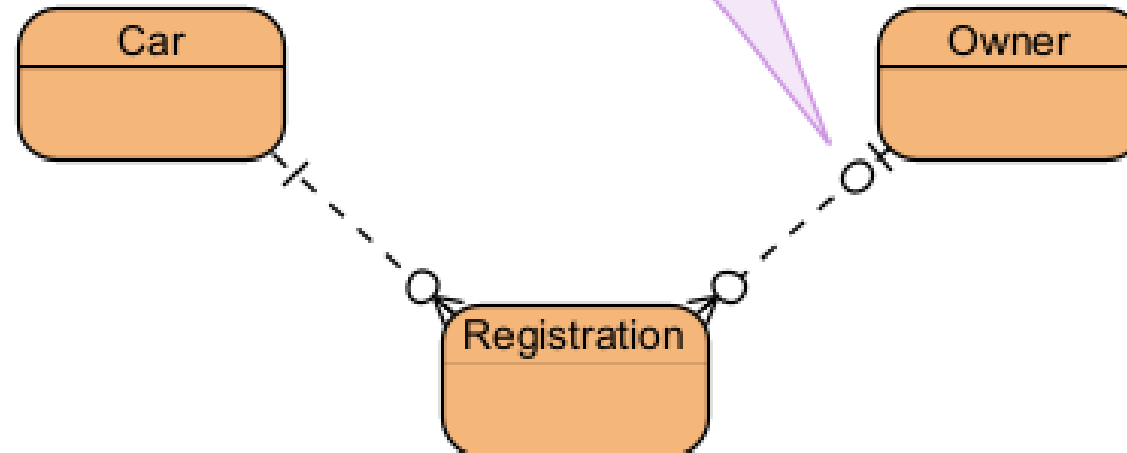
Oefening 8 – CAR-PASS

- Chassisnummers van auto's die vóór 1 januari 2019 ingeschreven zijn
  - Voor_jan = Selectie op Car met selectievoorwaarden date_registration < 1 jan 2019

  - Projectie op Voor_jan met kolomnamen (chassisnumber)

Oefening 8 – CAR-PASS

- Datum onderhoudsbeurten van auto met nummerplaat 2-EXD-643?

```
Car(brand, model, chassisnumber, cylinder_volume, date_registration,
date_first_use)
Registration(kilometers, timestamp, id_registration, plate, chassisnumber,
citizen_id_owner)
Owner(citizen_id, name, address, postal_code, town)
```

Oefening 8 – CAR-PASS

- Datum onderhoudsbeurten van auto met nummerplaat 2-EXD-643
  - 2EXD643 = Selectie op Registration met selectievoorwaarden plate = '2-EXD-643' and id_registration = 'O'

  - Projectie op 2EXD643 met kolomnamen (timestamp)

Oefening 8 – CAR-PASS

- Namen eigenaars auto met chassisnummer 1HGBH41JXMN109186

```
Car(brand, model, chassisnumber, cylinder_volume, date_registration,
date_first_use)
Registration(kilometers, timestamp, id_registration, plate, chassisnumber,
citizen_id_owner)
Owner(citizen_id, name, address, postal_code, town)
```

Oefening 8 – CAR-PASS

- Namen eigenaars auto met chassinummer 1HGBH41JXMN109186
    - Regs_1HBG = Selectie op Registration met selectievoorwaarden chassisnumber = '1HGBH41JXMN109186'

    - Eigenaars = REGS_1HGN join Owner met joinvoorwaarden Regs_1HGN.citizen_id_owner = Owner.citizen_id

    - Projectie op Eigenaars met kolomnamen (name)

Oefening 8 – CAR-PASS

- Chassisnummer auto's zonder kilometerregistratie in keuring

Car(brand, model, <u>chassisnumber</u>, cylinder_volume, date_registration, date_first_use)

Registration(kilometers, <u>timestamp</u>, id_registration, plate, <u>chassisnumber</u>, citizen_id_owner)

Owner(<u>citizen_id</u>, name, address, postal_code, town)

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Oefening 8 – CAR-PASS

- Chassisnummer auto's zonder kilometerregistratie in keuring
  - Gekeurde = Selectie op Registration met selectievoorwaarde id_registration = 'K'

  - Gekeurde_chass = Projectie op Gekeurde met kolomnamen (chassisnumber)

  - Auto_chass = Projectie op Car met kolomnamen (chassisnumber)

  - Verschil Auto_chass – Gekeurde_chass

Oefening 8 – CAR-PASS

- Eén auto verwijderen

Car(brand, model, <u>chassisnumber</u>, cylinder_volume, date_registration, date_first_use)

Registration(kilometers, <u>timestamp</u>, id_registration, plate, <u>chassisnumber</u>, citizen_id_owner)

Owner(<u>citizen_id</u>, name, address, postal_code, town)

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Oefening 8 – CAR-PASS

- Eén auto verwijderen
  - Chassisnummer opzoeken
  - In Registration: alle tupels met dat chassisnummer verwijderen
  - In Car: tupel van auto verwijderen

  - --> Volgorde belangrijk