Pragati Dharmale

CS 457L LAB E-R DIAGRAM

Part 1 :

Q1 to Q8 -3 points each

Q9 – 6 point

Total : 30

Part 2 :

5 point each

Total – 20

Part 3:

12.5 points each

Total : 50 points

Total Marks : 100 points

NOTE :

1. You can use any tool of your choice to draw ERDs.

Try to stick to a professional Tool though.

2. There are different ways to draw ERD . Eg. Chens notation ,crow foot notation.

The one you practiced in the class was Crow Foot and Chen’s notation.

For this Lab please follow the one that we discussed during the lecture.

You can refer to slides uploaded in the file section-ppt.

3. Expectation : Clear ERD with cardinalities mentioned .

4. Plagiarism or any similarity identified from anywhere will be graded as 0

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A horse has a registration number, name, type (quarter horse or thoroughbred),gender, and trainer.

The heritage of every horse must also be maintained if the information is available. For example,

the mother (dam) and father (sire) should be recorded. It is also necessary to identify the offspring of a given horse. A horse is always stabled at a specific barn at the race track. Each barn has a barn ID and barn name.

Information about people involved in the horse racing business (i.e., owners, trainers, and jockeys)

should be maintained. An identifier, name, address, and phone number should be maintained about

every person. If a person is a horse trainer, the database should indicate the horses trained by that

person. A horse trainer can train many horses, but a horse is only trained by one person.

A horse can have more than one owner. An owner can own more than one horse. Information is

always recorded about the most recent date and purchase price of a horse by its current owner(s). Owners must also record their percentage of ownership of a horse. For example, a horse could be owned by three owners, where one owner has a 50% share and the other two owners each have a 25% share. Every racetrack has a race schedule indicating the date of each race day and the list of races for each race day. A race day typically has 10 scheduled races, where each race has a race number (from 1 to 10) and a purse. The purse is the amount of money awarded to the winner of the race.

Every race has several entries. Each entry indicates the horse, jockey, and gate position of the horse at the start of the race. After the race, the entry records the finishing position of the horse (first, second, third, etc.). Every horse and every jockey must be able to produce a history of the races in which they have participated.

Hands-On Demonstration

Part 1: Derive Entities and Attributes from a Text Description

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1.**Document the entities that should be added to the diagram.**

→ Entities: Horse, Barn, Person, Owner, Trainer, Jockey, Schedule, Race, Entry

2. Document possible attributes for the Horse entity based on the requirements scenario.

→ Horse Attributes: reg_id, trainer, owner, damid, sireid, name, type, gender, lastpurc_price, lastpurc_date.

3. Document possible attributes for the Barn entity based on the requirements.

→ Barn Attributes: id, name.

4. Document possible attributes for the Person entity based on the requirements.

→ Person Attributes: id, name, street, address, phone_no.

5. Document possible attributes for the Schedule entity based on the requirements.

→ Schedule Attributes: id, racedate, name.

6. Document possible attributes for the Race entity based on the requirements.

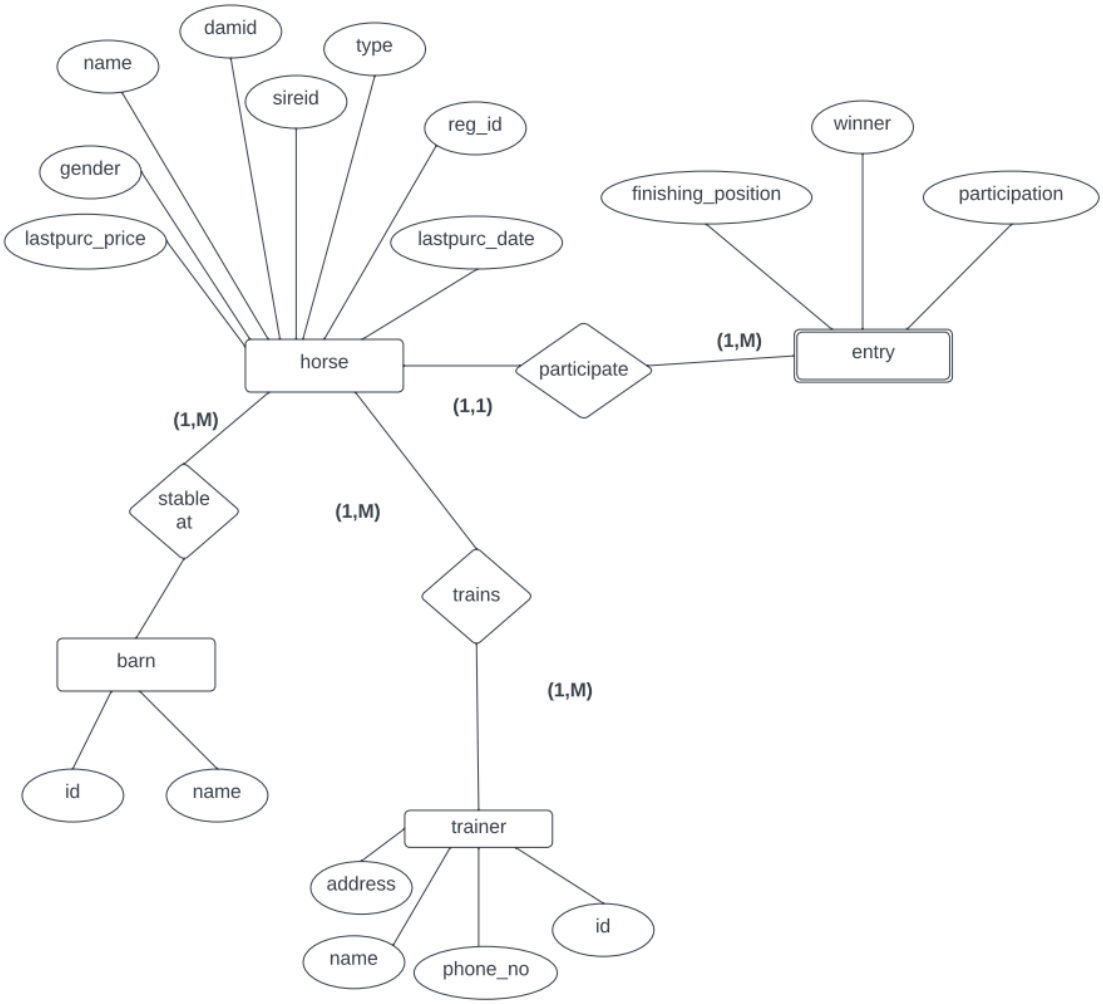
→ Race Attributes: id, name, raceno, purse.

7. Document possible attributes for the Entry entity based on the requirements.

→ Entry Attributes: winner, participation, finishing_position.

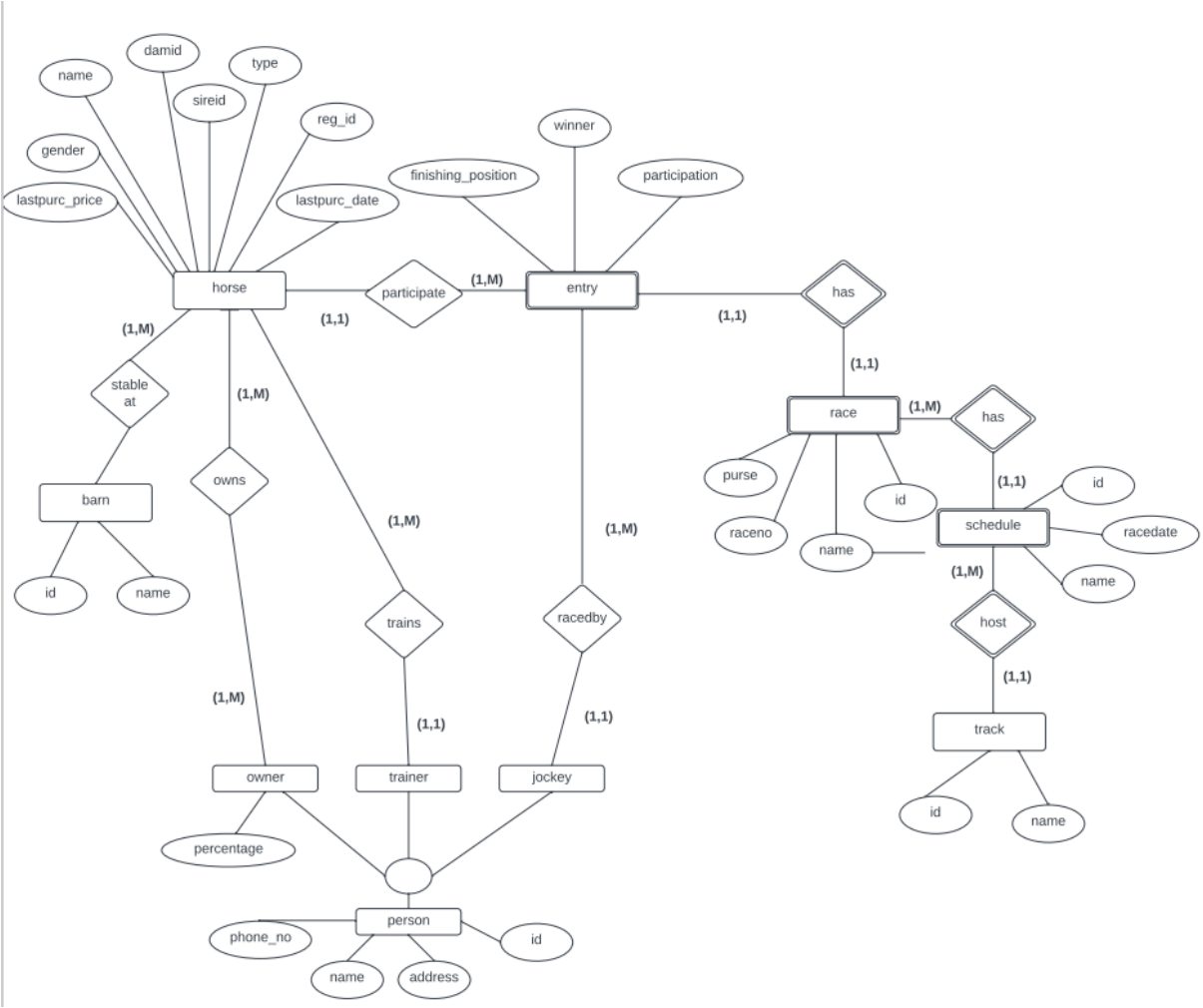
8. Make a screen capture showing the ER diagram with four entities

→



9. Make a screen capture showing the ER diagram with nine entities and their attributes for the Darling Downs Racetrack scenario.

➔



Part 2: Derive Relationships from a Text Description

1. Document your notes about potential relationships, cardinality constraints, participation constraints, and weak entities.

Notes may vary from student to student.

→ 1.sireid: cardinality: one to many, sire can be a parent to one to many offspring but an offspring can have only one sire.

2.damid: cardinality : one to many, dam can be a parent to one or many offspring. Whereas an offspring can only have one dam.

3.stable at : cardinality: one to many, a horse has a specific barn at a race, but a specific barn can host different horses on different racetracks.

4.participates : relationship : cardinality: one to many, a horse can participate in different entries, but an entry has a specific horse.

5.owns: relationship: cardinality: many to many, a horse can be owned by many owners and an owner can own multiple horses.

6.trains: relationship: cardinality: one to many, a person can train many horses. Whereas a horse can be trained by only one trainer.

7.racedby : relationship: cardinality: one to many, each entry has one specific jockey, but a jockey can take part in multiple entries.

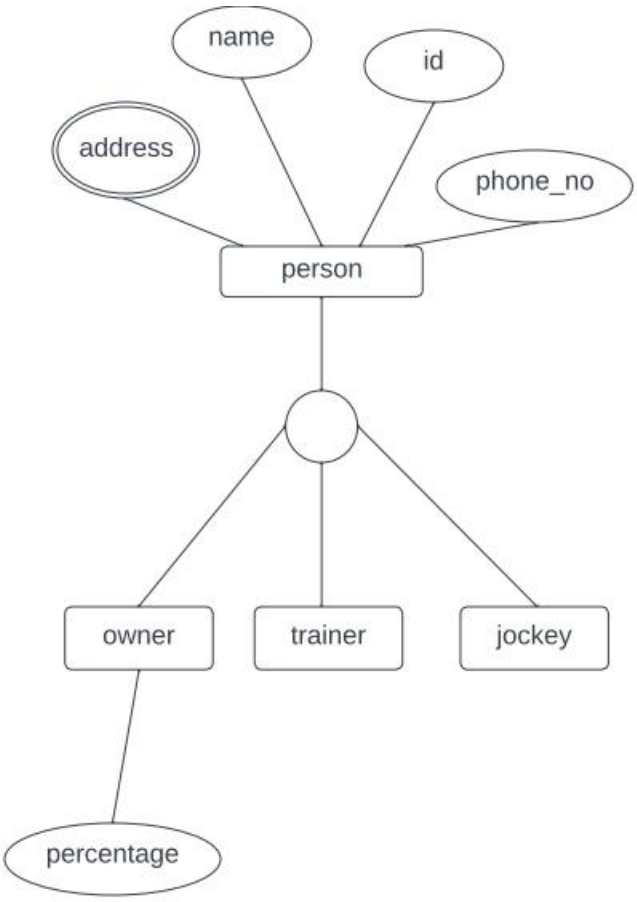
8. hasrace : relationship: cardinality: one to many, A schedule can have multiple races in it. Whereas a race can have a single schedule. Since race cannot exist without a schedule, it is a weak entity.

9.hosts: : relationship: cardinality: one to many, a track can host multiple schedules, but a specific schedule takes place in one track.

10.hasentry: relationship : cardinality : one to one, every race has an entry, and each entry is assigned to a specific race. Since entry cannot be made if the participation of jockey and horse is confirmed so it is a weak entity.

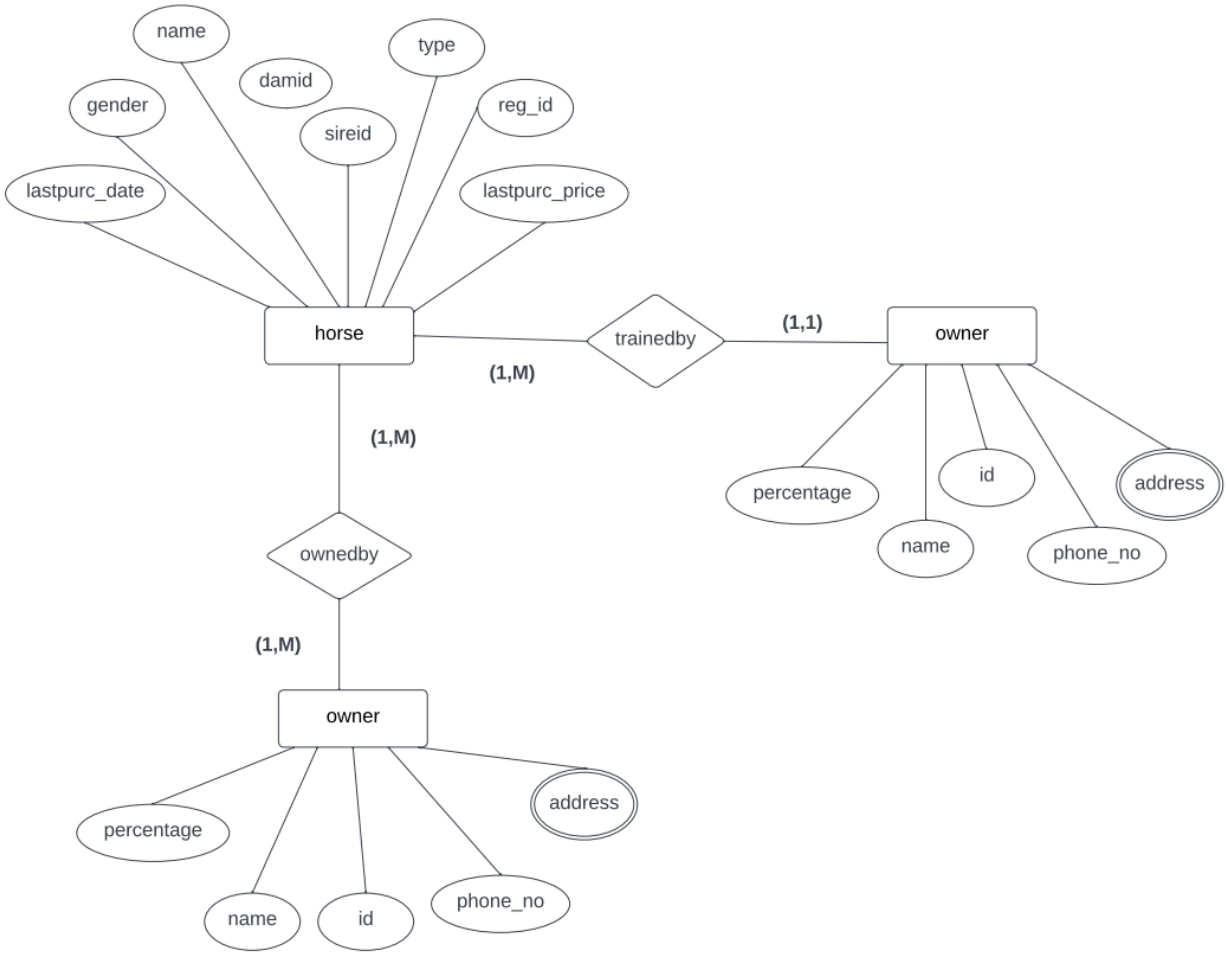
2. Make a screen capture showing the ER diagram with the Person, Owner, Trainer, and Jockey entities and the IsA relationships between them.

→



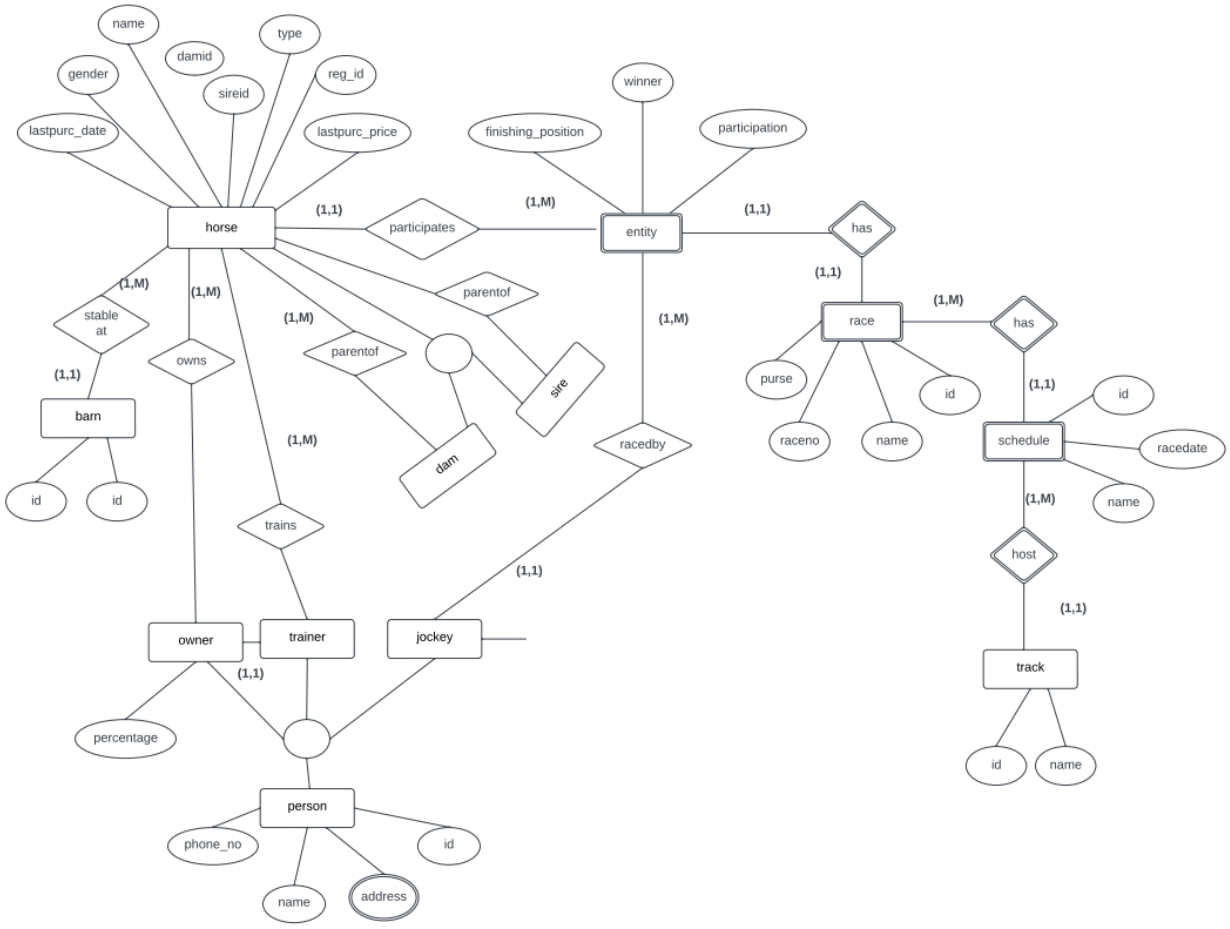
3. Make a screen capture showing the ER diagram with the Horse, Owner, and Trainer entities, the relationships between them, and their attributes.

→



4. Make a screen capture showing the ER diagram with the 7 entities, 2 weak entities, 12 relationships, and 18 attributes.

➔



Part 3: Complete an ER Diagram

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1. Document the names of each primary key attribute you selected or created for (a) Horse, (b) Barn, (c) Person, (d) Schedule, (e) Owner, (f) Trainer, and (g) Jockey.

(a) regisNumber (b) barnID (c) personID (d) scheduleID (e) ownerID (could vary, the student chooses the name) (f) trainerID (could vary, the student chooses the name) (g) jockeyID (could vary, the student chooses the name)

→ Horse: HorseId(registrationNo): reg_no

Barn: Id,

Person: Id

Owner: Id,

Horse-Owner (An Entity created because of a many to many relationship): HorseId, OwnerId

Trainer: Id

Jockey: Id

Schedule: Id,

Race: Id,

Entry: Id,

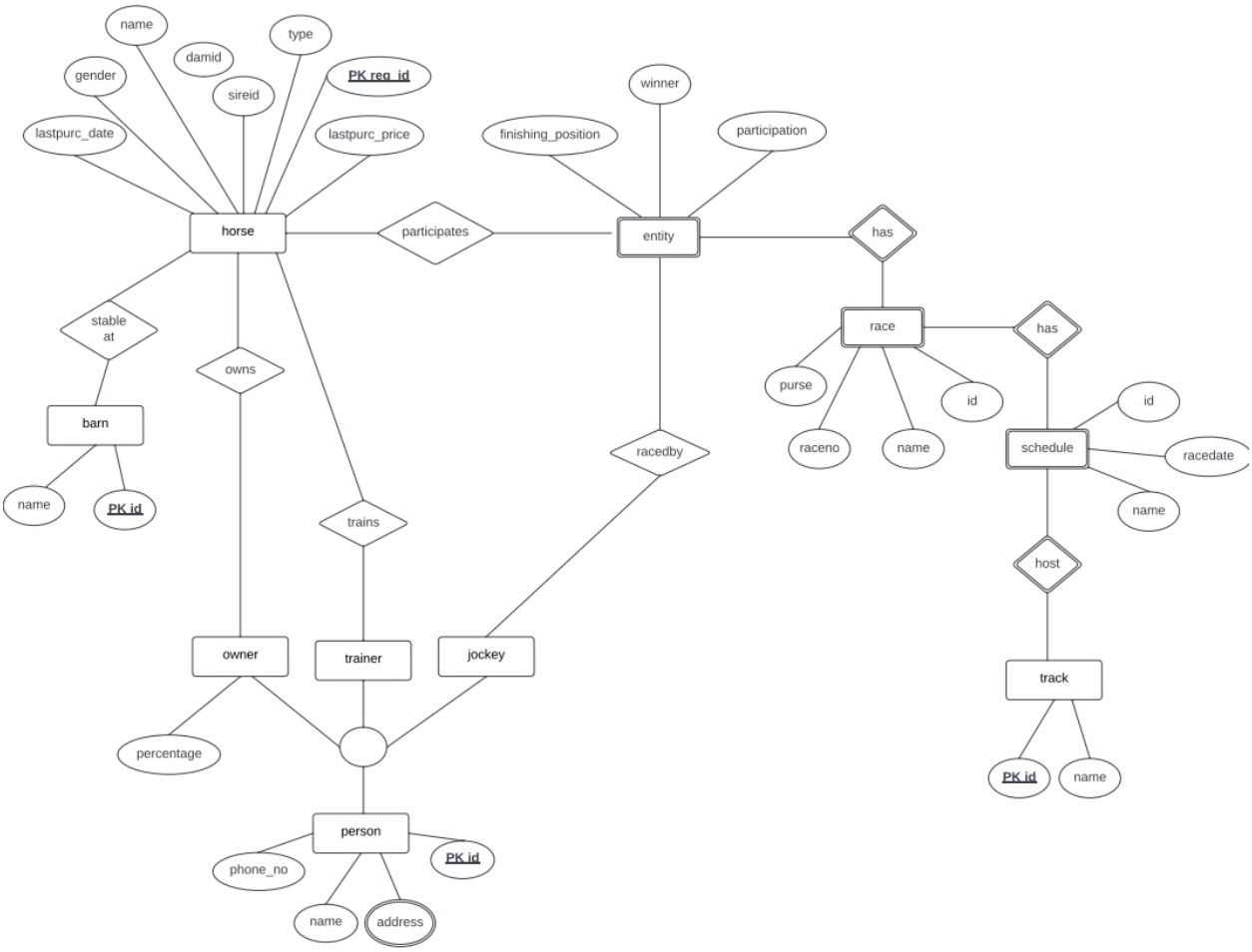
Foreign Keys

Horse: DamId, SireId

Horse-Owner: HorseId, OwnerId

2. Make a screen capture showing the ER diagram with primary keys for all the strong entities.

→



3. Document the names of the binary relationships that are missing one or both cardinality values.

➔ 1) stableat

2) runsin

3)ridesin

4)sireparents

5)damparents

6)hasentries

7) hosts

4. Document your assumptions about the missing cardinality values as an English statement that is understandable by an end user.

→ (1) A barn can have many horses stabled at it

(2) A horse may run in many entries

(3) A jockey may run in many entries

4) A track can host multiple Schedules

5) It is specified that every race has several entries. But if an Entry can participate in different races is missing.

6) A dam or sire can be a parent to one or many offspring.

Swekchha Hamal, 19700