Part 1: Derive Entities and Attributes from a Text Description

1. Document the entities that should be added to the diagram.
    - Barn, Horse, Race, Entry, Schedule, Owner, Trainer, Jockey

2. Document possible attributes for the Horse entity based on the requirements scenario.
    I. Horse:
        A. Registration number
        B. Name
        C. Type (quarter horse or thoroughbred)
        D. Gender
        E. Trainer
        F. Dam (mother)
        G. Sire (father)
        H. Offspring

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

    A. Barn ID
    B. Barn name

4. Document possible attributes for the Person entity based on the requirements.
    I. Person entity:
        A. Identifier
        B. Name
        C. Address
        D. Phone number

5. Document possible attributes for the Schedule entity based on the requirements.
    I. Schedule:
        A. Date of each race day
        B. List of races for each race day

6. Document possible attributes for the Race entity based on the requirements.
    I. Race:
        A. Race number
        B. Purse

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

    I. Entry entity:

A. Horse
B. Jockey
C. Gate position at the start of the race
D. Finishing position of the horse

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 Race Track scenario

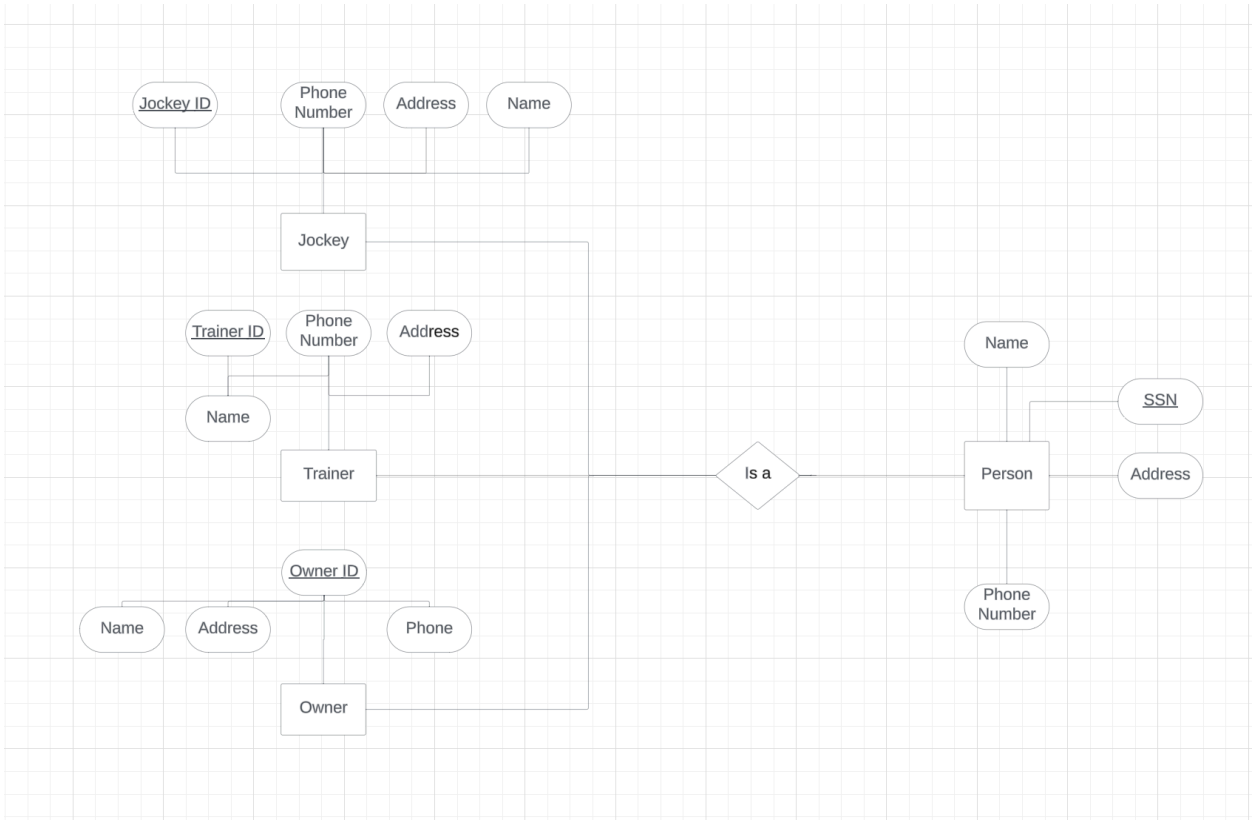
Part 2: Derive Relationships from a Text Description

1.
Document your notes about potential relationships, cardinality constraints, participation constraints, and weak entities. Notes may vary from student to student

1. Potential Relationships:
    - A horse is trained by a person (Trainer).
    - A horse is owned by one or more persons (Owners).
    - A horse is stabled at a barn.
    - A person (Owner) owns one or more horses.
    - A person (Trainer) trains one or more horses.
    - A race includes one or more horses (Entries).
    - A race is part of a schedule.
2. Cardinality Constraints:
    - One horse can be trained by only one trainer but a trainer can train many horses.
    - One horse can be owned by one or more owners and an owner can own one or more horses.
    - Each horse is stabled at one barn.
    - Each race can have multiple entries but each entry is associated with one race.
3. Participation Constraints:
    - Every horse must have a trainer.
    - Every horse must be stabled at a barn.
    - Every owner must own at least one horse.
    - Every race must have at least one entry.

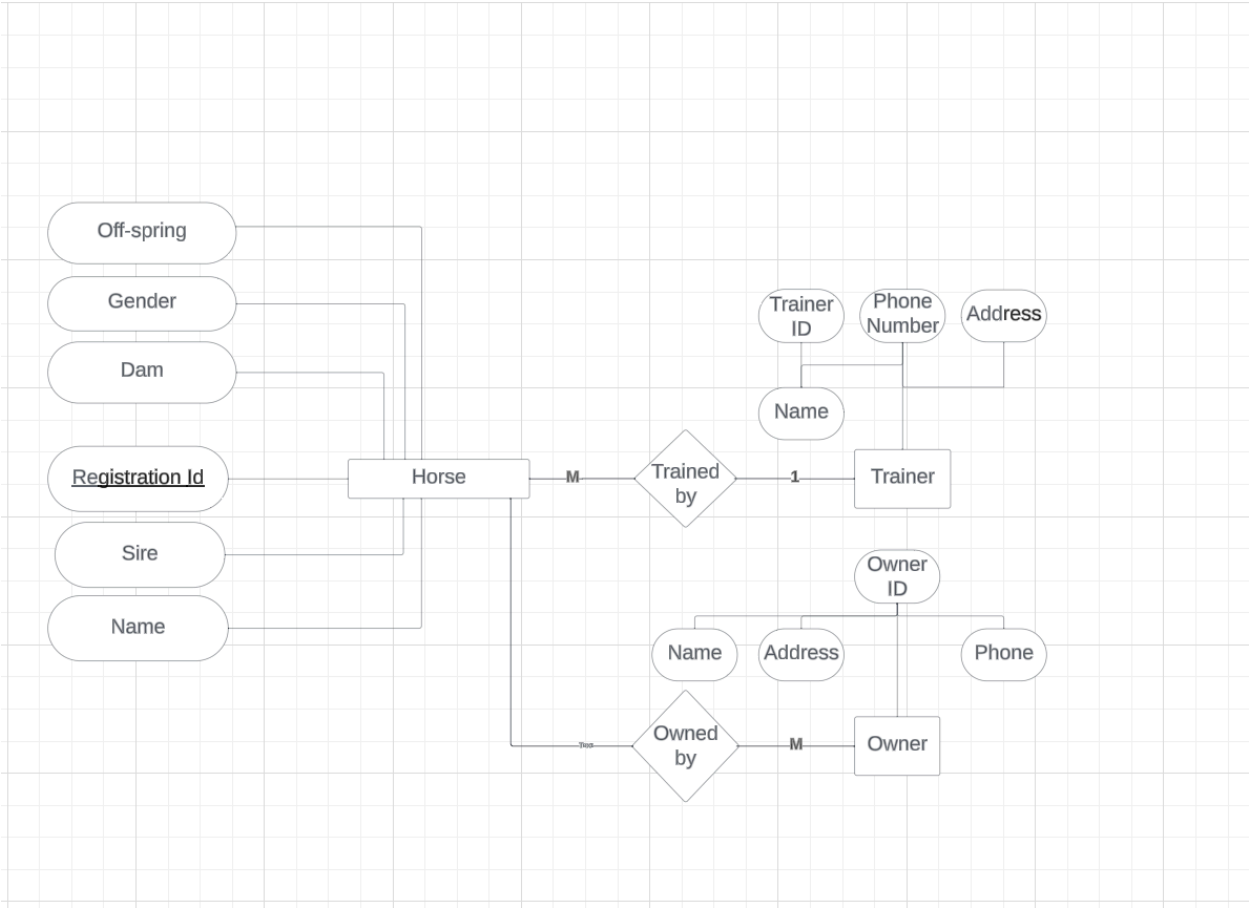
4. Weak Entity: Trainer and owner could be weak entities as they are dependent on the Horse Entity. If there is no horse entity, the owner and trainer entity cannot exist.

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



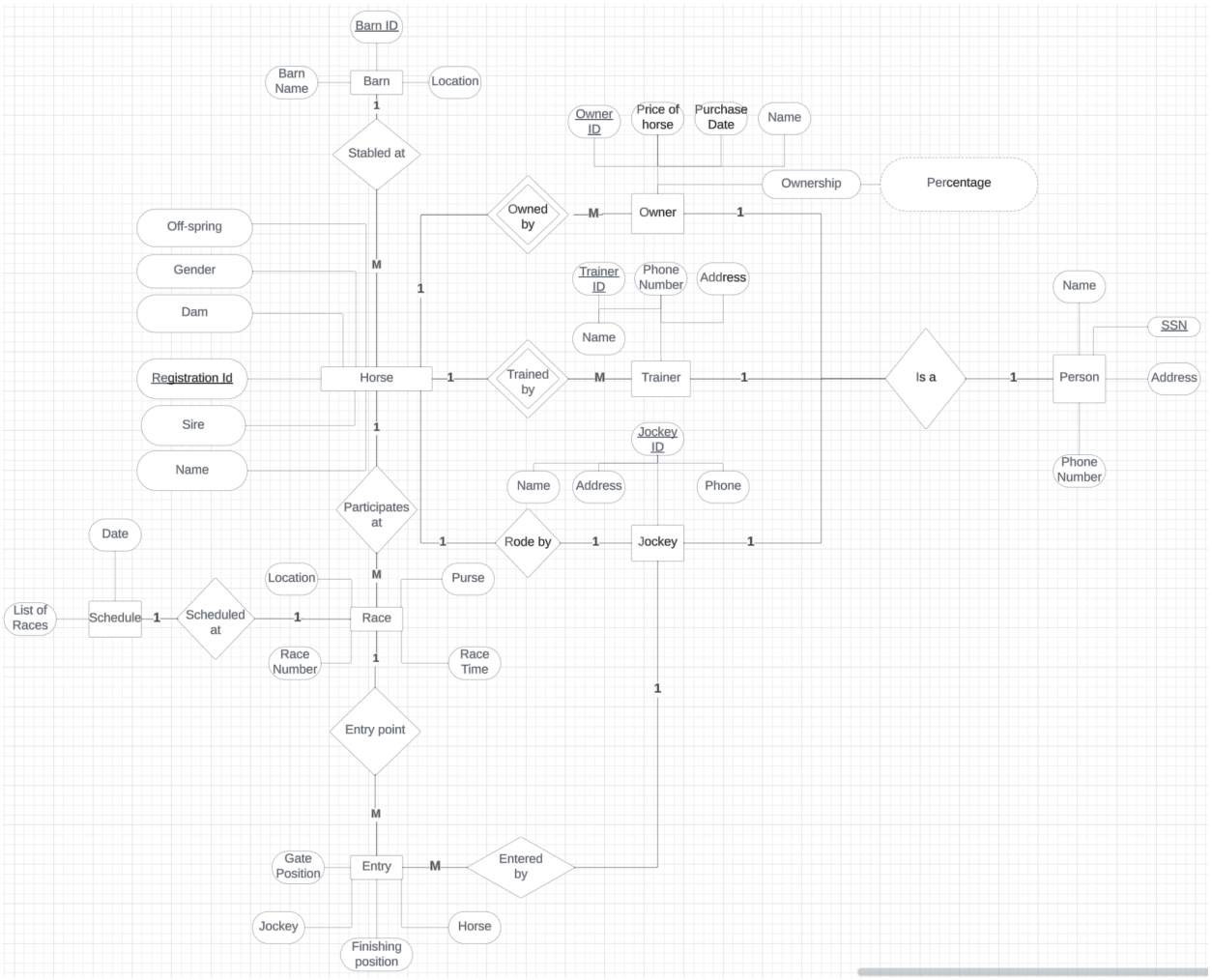
Figure

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



Figure

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



Figure

Part 3: Complete an ER Diagram

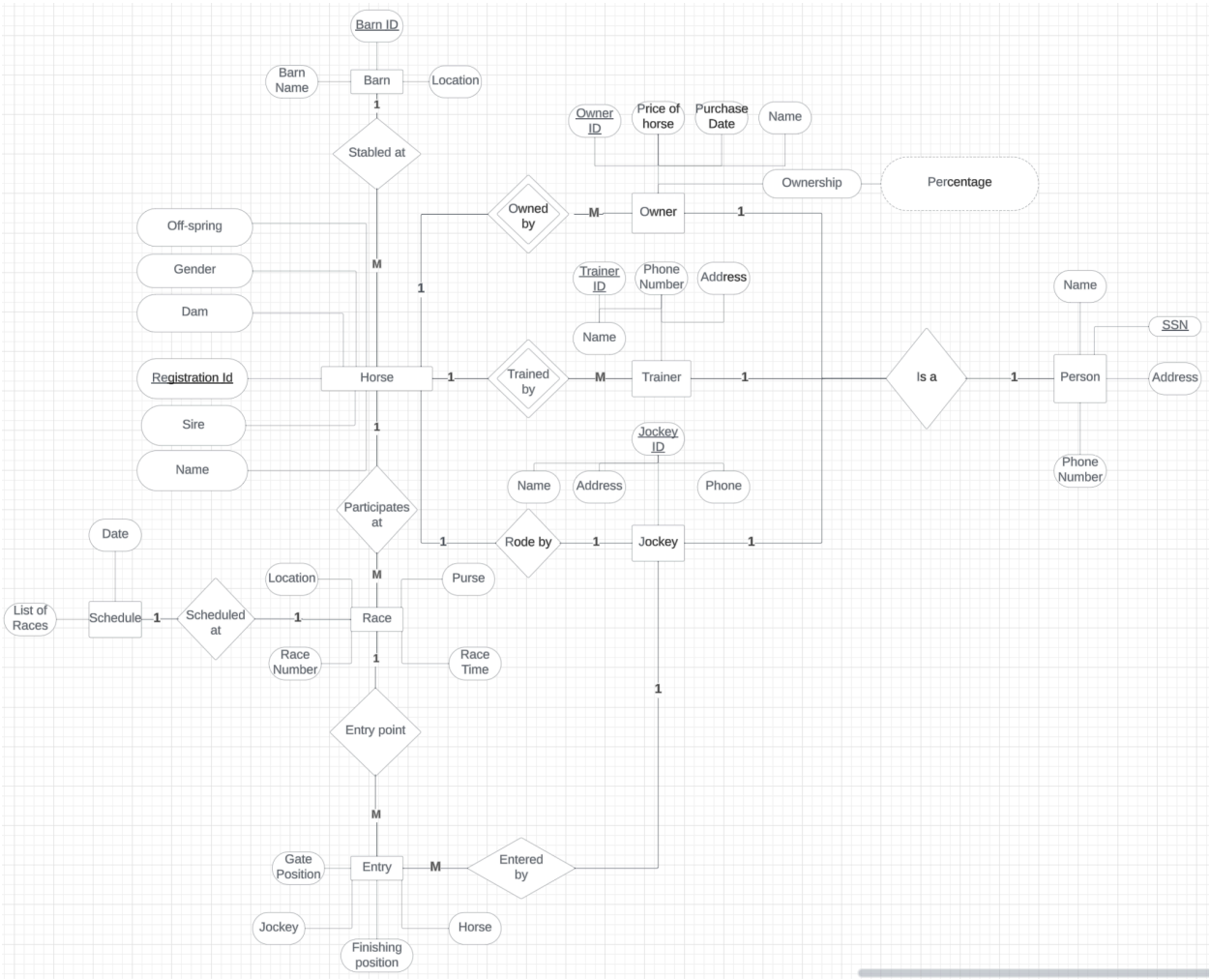
1. Document the names of each primary key attribute you selected or created for (a) Horse,

(b) Barn, (c) Person, (d) Schedule, (e) Owner, (f) Trainer, and (g) Jockey

a. Horse: registration_number
b. Barn: barn_id
c. Person: SSN
d. Schedule: schedule_id
e. Owner: owner_id
f. Trainer: trainer_id
g. Jockey: jockey_id

(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)

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



Figure

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

values.

(1) StabledAt (2) RunsIn (3) RidesIn
Answer:

1. Ownedby
2. Trainedby
3. Participatesat

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

Answer:

- A horse can be trained by one trainer, but a trainer can train many horses.
- A horse can participate in many races.
- An owner can own many horses and a horse can be owned by many owners.