

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

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

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

Horse Attributes, registration\_number, name, type, gender, trainer\_id, mother\_id, father\_id, barn\_id

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

Barn Attributes: barn 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:schedule id, racedate, name.

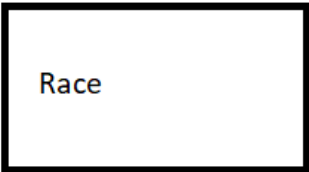
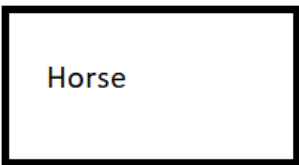
**6. Document possible attributes for the Race entity based on the requirements.**

Race Attributes: race id, name, race no, 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 Race Track scenario.

Horse	
registration_number	int
name	varchar(40)
type	varchar(30)
gender	varchar(5)
trainer_id	int
father_id	int
mother_id	int
barn_id	int
last_sold_date	Date
last_price	int

Race	
race_id	int(PK)
schedule_id	int
purse	int

Owner	
owner_id	int
person_id	int
horse_id	int
percentage_ownership	Decimal

Barn	
barn_id	int
barn_name	varchar(40)

jockey	
jockey_id	int
person_id	int

Schedule	
schedule_id	int
date	Date

Person	
Person_id	int
name	varchar(40)
address	varchar(90)
phone_number	varchar(10)

trainer	
trainer_id	int
person_id	int

Entry	
entry_id	int
race_id	int
horse_id	int
jockey_id	int
gate_position	int
rank	int

# Part 2

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

1. **Horse-Trainer Relationship:** A Trainer can train multiple horses. (One-to-Many)

2. **Horse-Owner Relationship:** A horse can have multiple Owners as well as an Owner can own multiple horses. (Many-to-Many)

3. **Horse-Barn Relationship:** A Barn can accommodate multiple horses. (One-to-Many)

4. **Entry-Horse Relationship:** A Horse can have multiple Entries. (One-to-Many)

5. **Entry-Jockey Relationship:** A Jockey can participate in multiple Entries. (One-to-Many)

6. **Race-Entry Relationship:** A Race can have multiple Entries. (One-to-Many)

## Participants constrain.

1. **Horse-Trainer Relationship:** Every horse must have a Trainer assigned.

2. **Horse-Barn Relationship:** Every horse must be stabled at a barn.

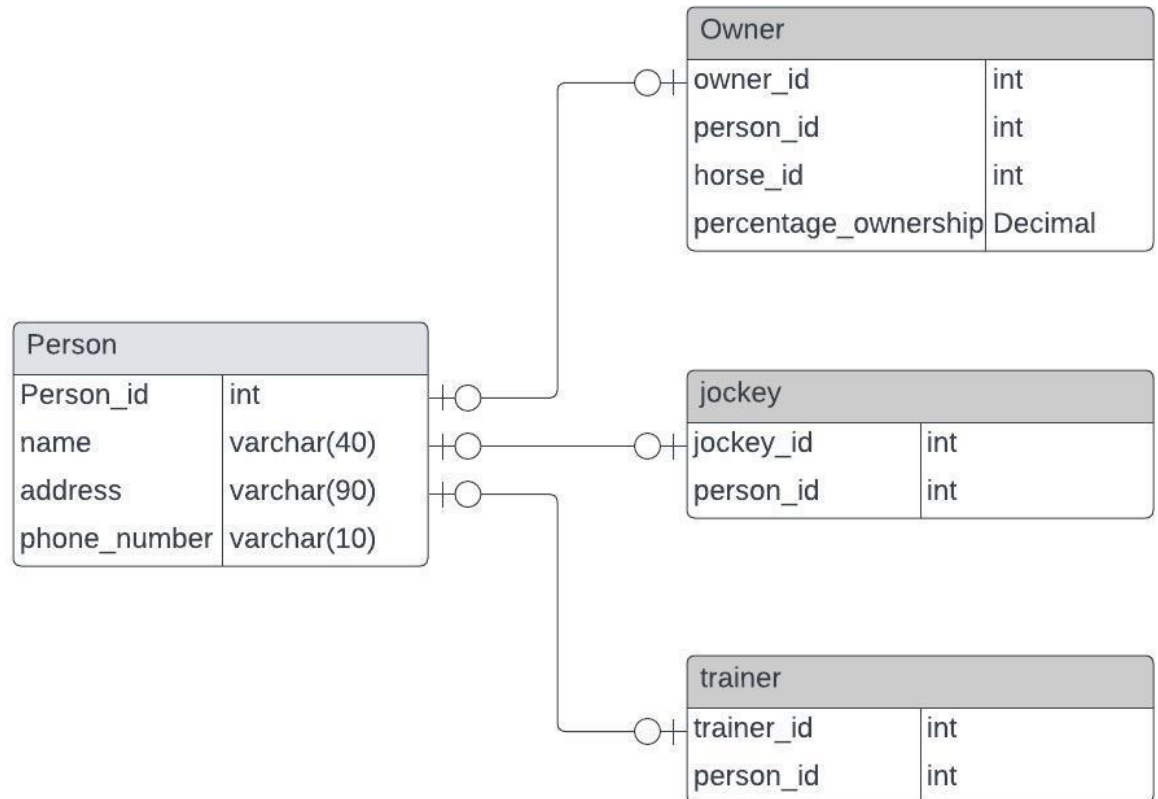
3. **Horse-Owner Relationship:** Every horse must have at least one owner.

4. **Person-Trainer Relationship:** Every person involved in horse racing is not necessarily a trainer.

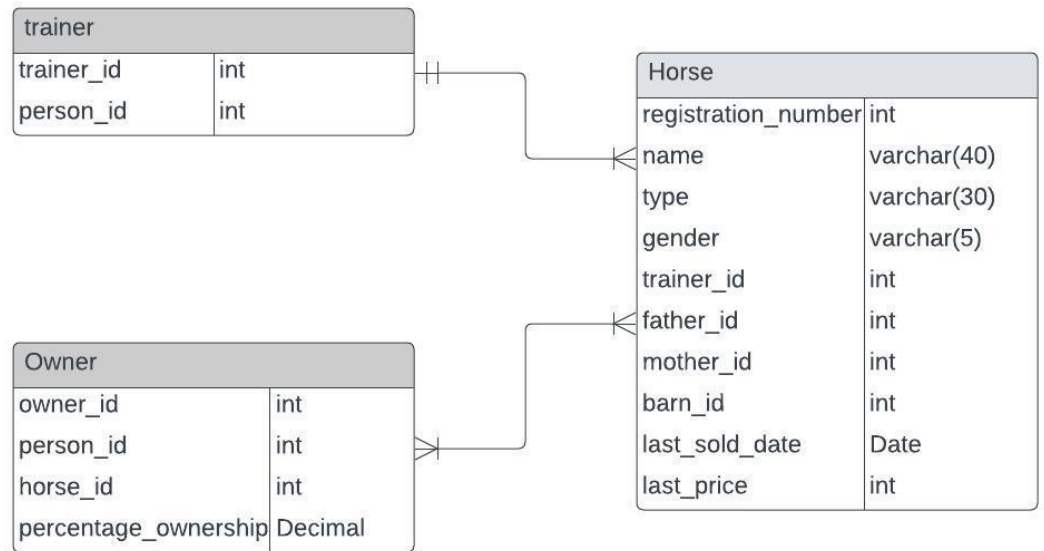
Here, weak entities are trainers, and Entries depend on other entities to exist.

For instance, Entries depend on Horse, jockey and race and trainer depends on Horse and Person.

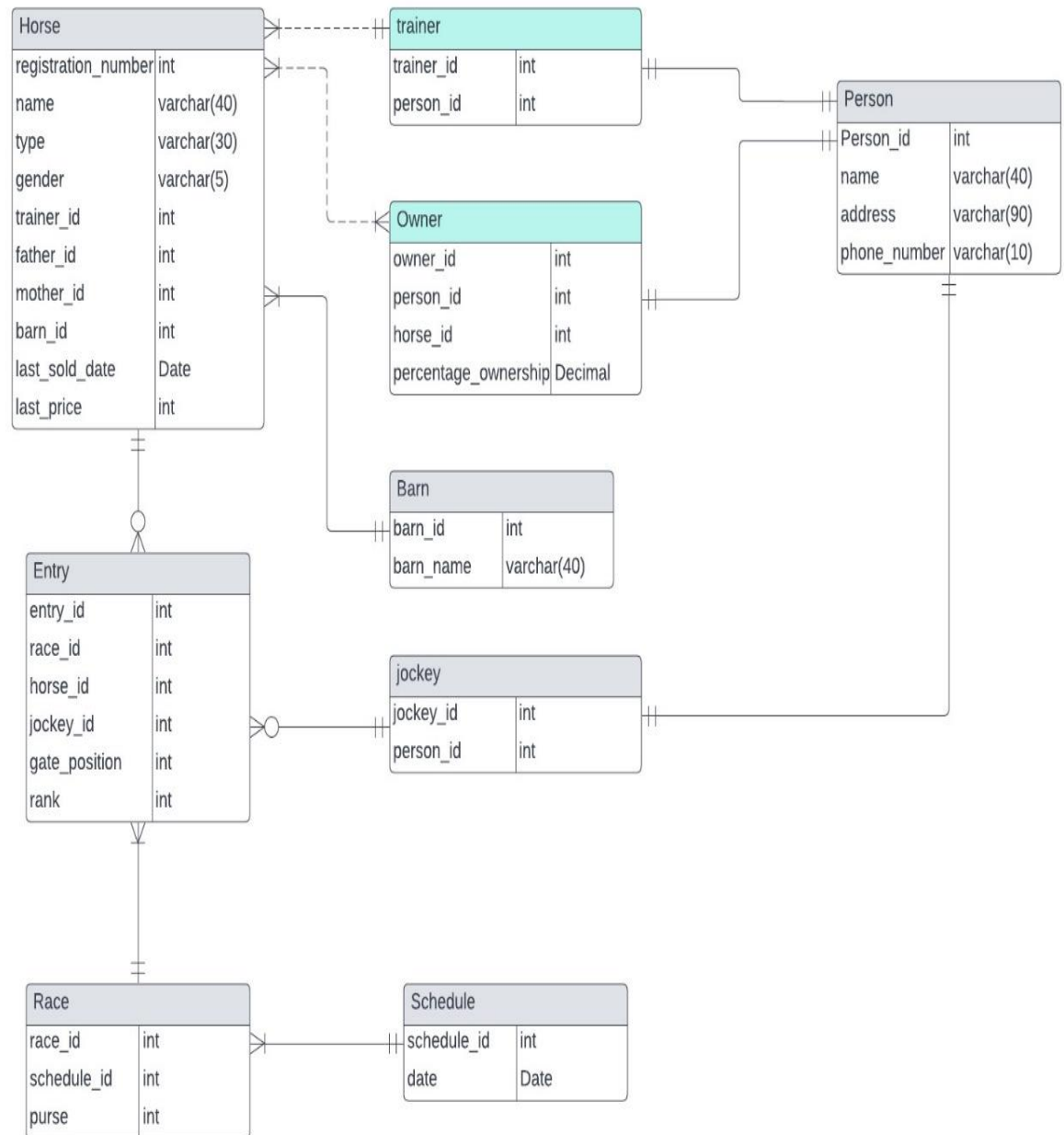
2. Make a screen capture showing the ER diagram with the Person, Owner, Trainer, and Jockey entities and the IsA relationships between them.



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. \*aqua color shows weak entities in this case.



## Part 3

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.

**Horse:** registration\_number

**Barn:** barn\_id

**Person:** person\_Id

**Schedule:** schedule\_id

**Owner:** owner\_id

**Trainer:** trainer\_id

**Jockey:** jockey\_id



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

\*aqua color shows strong entities in this case.



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

1. stablein
2. runsin
3. ridesin
4. Hosts
- 5.sireparents
- 6.damparents

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

1. A barn can have many horses stabled
2. A horse may run in many entries
- 3.A jockey may run in many entries
4. A track can host multiple races.
5. A dam or sire can be a parent to one or many offspring.