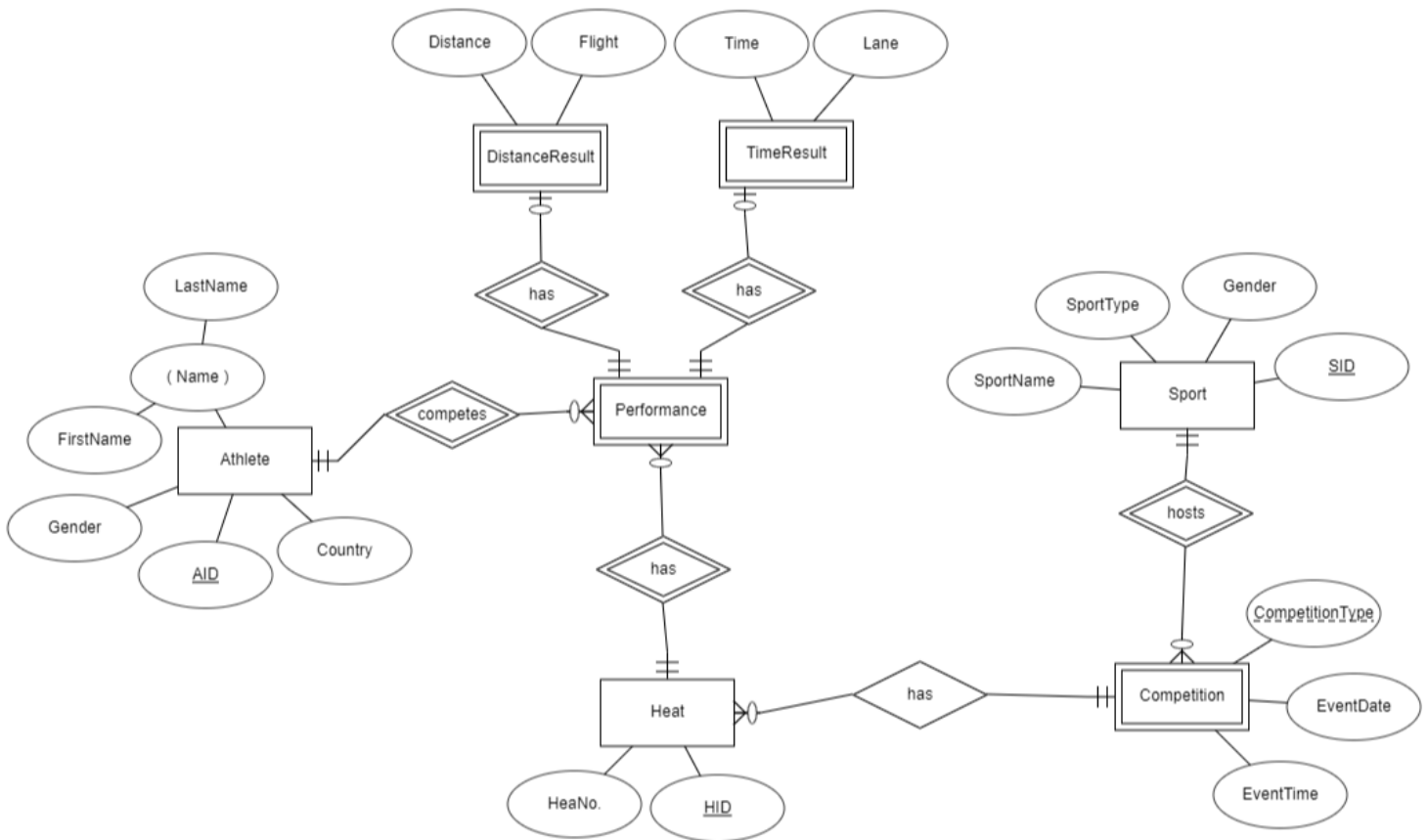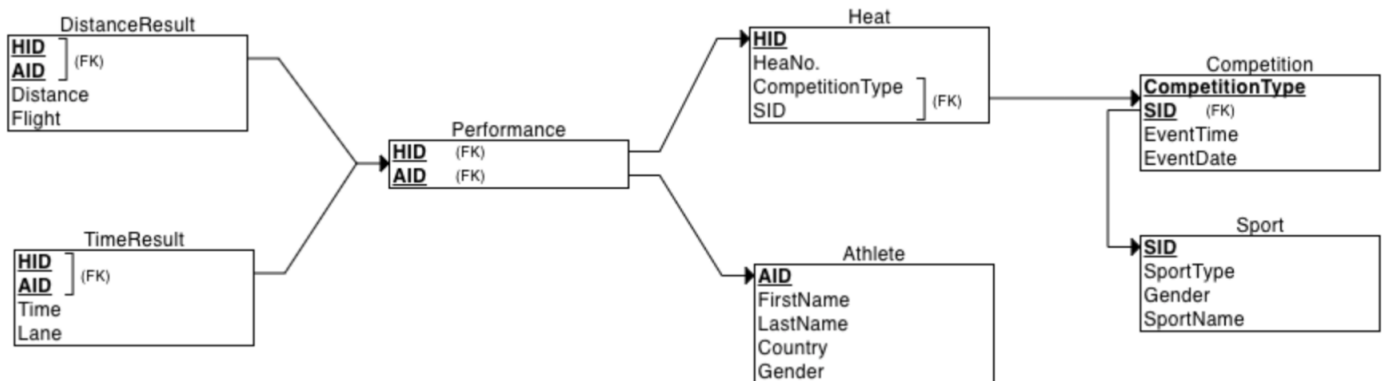# Project 1
Team Badger

Part 1: ERD Diagram

Assumptions:

- Looking at individual athletes performance in a certain event
- An athlete can only represent 1 country
- All field events have a distance result
- All track events have a time result
- The database will only record the best attempt in a field event

Part 2: Relational Diagram

Part 3: Implementation Code

```
CREATE TABLE Athlete
(
  AID INT NOT NULL,
  FirstName VARCHAR(45) NOT NULL,
  LastName VARCHAR(45) NOT NULL,
  Country VARCHAR(45) NOT NULL,
  Gender VARCHAR(45) NOT NULL,
  PRIMARY KEY (AID)
);
INSERT INTO Athlete VALUES (101,'Boris','Grant','France','Male');
INSERT INTO Athlete VALUES (102,'Gal','Demir','Turkey','Female');
INSERT INTO Athlete VALUES (103,'Vladimir','Von Sputnik','Russia','Male');
INSERT INTO Athlete VALUES (104,'Queen','Elizabeth','England','Female');
INSERT INTO Athlete VALUES (105,'Sally','Seashells','Ireland','Female');
INSERT INTO Athlete VALUES (106,'Harry','Larry','Switzerland','Male');
INSERT INTO Athlete VALUES (107,'Cheese','Wheel','Italy','Male');
INSERT INTO Athlete VALUES (108,'Machine Gun','Kelly','US','Male');


CREATE TABLE Sport
(
SID VARCHAR(45) NOT NULL,
SportName VARCHAR(45) NOT NULL,
```

```sql
SportType VARCHAR(45) NOT NULL,
Gender VARCHAR(45) NOT NULL,
PRIMARY KEY (SID)
);
INSERT INTO Sport VALUES ('LJM','Long Jump','Field','Men');
INSERT INTO Sport VALUES ('LJW','Long Jump','Field','Female');
INSERT INTO Sport VALUES ('HTM','Hammer Throw','Field','Men');
INSERT INTO Sport VALUES ('PVW','Pole Vault','Field','Female');
INSERT INTO Sport VALUES ('SPW','Shot Put','Field','Female');
INSERT INTO Sport VALUES ('1500MW','1500 Meter','Track','Female');
INSERT INTO Sport VALUES ('100MM','100 Meter','Track','Men');
INSERT INTO Sport VALUES ('400MW','400 Meter','Track','Female');


CREATE TABLE Competition
(
  SID VARCHAR(45) NOT NULL,
  CompetitionType VARCHAR(45) NOT NULL,
  EventDate VARCHAR(45) NOT NULL,
  EventTime VARCHAR(4) NOT NULL,
  PRIMARY KEY (CompetitionType, SID),
  FOREIGN KEY (SID) REFERENCES Sport(SID)
);
INSERT INTO Competition VALUES ('LJM','Qualifiers','2022-07-15','1800');
INSERT INTO Competition VALUES ('LJM','Finals','2022-07-18','1835');
INSERT INTO Competition VALUES ('LJW','Semifinals','2022-07-22','1700');
INSERT INTO Competition VALUES ('LJW','Qualifiers','2022-07-23','1200');
INSERT INTO Competition VALUES ('LJW','Heptathlon','2022-07-18','0930');
INSERT INTO Competition VALUES ('HTM','Qualifiers','2022-07-15','0905');
INSERT INTO Competition VALUES ('HTM','Finals','2022-07-16','1200');
INSERT INTO Competition VALUES ('PVW','Qualifiers','2022-07-15','1720');
INSERT INTO Competition VALUES ('SPW','Heptathlon','2022-07-17','1345');
INSERT INTO Competition VALUES ('1500MW','Finals','2022-07-15','1950');
INSERT INTO Competition VALUES ('100MM','Semifinals','2022-07-15','1800');
INSERT INTO Competition VALUES ('400MW','Qualifiers','2022-07-15','1345');


CREATE TABLE Heat
```

```sql
(
  HID VARCHAR(45) NOT NULL,
  SID VARCHAR(45) NOT NULL,
  CompetitionType VARCHAR(45) NOT NULL,
  HeaNo INT NOT NULL,
  PRIMARY KEY (HID),
  FOREIGN KEY (CompetitionType, SID) REFERENCES Competition(CompetitionType,
SID)
);
INSERT INTO Heat VALUES ('H431','100MM','Semifinals',1);
INSERT INTO Heat VALUES ('H771','PVW','Qualifiers',1);
INSERT INTO Heat VALUES ('H772','PVW','Qualifiers',2);
INSERT INTO Heat VALUES ('H773','PVW','Qualifiers',3);
INSERT INTO Heat VALUES ('H501','1500MW','Finals',1);
INSERT INTO Heat VALUES ('H271','LJW','Heptathlon',1);
INSERT INTO Heat VALUES ('H272','LJW','Heptathlon',2);
INSERT INTO Heat VALUES ('H275','LJW','Semifinals',1);
INSERT INTO Heat VALUES ('H276','LJW','Semifinals',2);
INSERT INTO Heat VALUES ('H321','LJM','Qualifiers',1);
INSERT INTO Heat VALUES ('H322','LJM','Qualifiers',2);
INSERT INTO Heat VALUES ('H323','LJM','Qualifiers',3);
INSERT INTO Heat VALUES ('H324','LJM','Qualifiers',4);
INSERT INTO Heat VALUES ('H441','HTM','Finals',1);


CREATE TABLE Performance
(
  HID VARCHAR(45) NOT NULL,
  AID INT NOT NULL,
  PRIMARY KEY (HID, AID),
  FOREIGN KEY (HID) REFERENCES Heat(HID),
  FOREIGN KEY (AID) REFERENCES Athlete(AID)
);
INSERT INTO Performance VALUES ('H501',104);
INSERT INTO Performance VALUES ('H501',102);
INSERT INTO Performance VALUES ('H321',101);
INSERT INTO Performance VALUES ('H323',103);
INSERT INTO Performance VALUES ('H322',108);
INSERT INTO Performance VALUES ('H441',103);
```

```sql
INSERT INTO Performance VALUES ('H271',104);
INSERT INTO Performance VALUES ('H271',102);
INSERT INTO Performance VALUES ('H431',101);
INSERT INTO Performance VALUES ('H431',106);


CREATE TABLE DistanceResult
(
  HID VARCHAR(45) NOT NULL,
  AID INT NOT NULL,
  Flight INT NOT NULL,
  Distance FLOAT NOT NULL,
  PRIMARY KEY (HID, AID),
  FOREIGN KEY (HID, AID) REFERENCES Performance(HID, AID)
);
INSERT INTO DistanceResult VALUES ('H271',102,2,6.17);
INSERT INTO DistanceResult VALUES ('H271',104,2,7.64);
INSERT INTO DistanceResult VALUES ('H321',101, 4, 8.24);
INSERT INTO DistanceResult VALUES ('H322',108,1,4.56);
INSERT INTO DistanceResult VALUES ('H441',103,2,6.45);


CREATE TABLE TimeResult
(
  HID VARCHAR(45) NOT NULL,
  AID INT NOT NULL,
  Lane INT NOT NULL,
  Time NUMERIC(10,4) NOT NULL,
  PRIMARY KEY (HID, AID),
  FOREIGN KEY (HID, AID) REFERENCES Performance(HID, AID)
);
INSERT INTO TimeResult VALUES ('H501',104,1,9.55);
INSERT INTO TimeResult VALUES ('H501',102,3,5.37);
INSERT INTO TimeResult VALUES ('H431',101,3,10.37);
INSERT INTO TimeResult VALUES ('H431',106,7,11.44);
```

Part 4: SQL Commands

1. **List the sport name, gender, and competition type of the events on July 15th**
    select SportName, Gender, CompetitionType
    from Competition c, Sport s
    where c.sid = s.sid
    and EventDate = '2022-07-15';

SportName	Gender	CompetitionType
1500 Meter	Female	Finals
400 Meter	Female	Qualifiers
Hammer Throw	Men	Qualifiers
Long Jump	Men	Qualifiers
Pole Vault	Female	Qualifiers
100 Meter	Men	Semifinals

2. **List the count of the men and women events**
    select gender, count(SID) as EventNo
    from Sport
    group by gender

gender	EventNo
Female	5
Men	3

3. **What was the longest distance for the Long Jump Women's jump**
    select max(distance)
    from Sport s, Competition c, Heat h, DistanceResult t
    where s.sid = c.sid
    and c.sid = h.sid
    and h.hid = t.hid
    and s.sportname = 'Long Jump'
    and s.gender = 'Female'

max(distance)
7.639999866485596

4. **Display the names, times, and rankings of the runners in the 100M (v11.0)**
   a. select firstName, lastName, time,
      row_number() over(partition by s.sid order by time asc) as run_rank
      from Sport s, Competition c, Heat h, TimeResult t, Athlete a
      where s.sid = c.sid
      and c.sid = h.sid
      and h.hid = t.hid
      and t.aid = a.aid
      and SportName = '100 Meter';

firstname	lastname	time	run_rank
Boris	Grant	10.3700	1
Harry	Larry	11.4400	2

5. **How many athletes participate in more than one event?**
   select count(*) from
   (select a.aid, firstname, lastname, count(*)
   from Athlete a, Performance p, Heat h, Competition c, Sport s
   where a.aid = p.aid
   and p.hid = h.hid
   and h.sid = c.sid
   and h.competitiontype = c.competitiontype
   and c.sid = s.sid
   group by a.aid) as t2
   where count >1

count
4

6. What was the longest distance for the Long Jump Women's jump

```
select max(distance)
from Sport s, Competition c, Heat h, DistanceResult t
where s.sid = c.sid
and c.sid = h.sid
and h.hid = t.hid
and s.sportname = 'Long Jump'
and s.gender = 'Female'
```

max
7.64