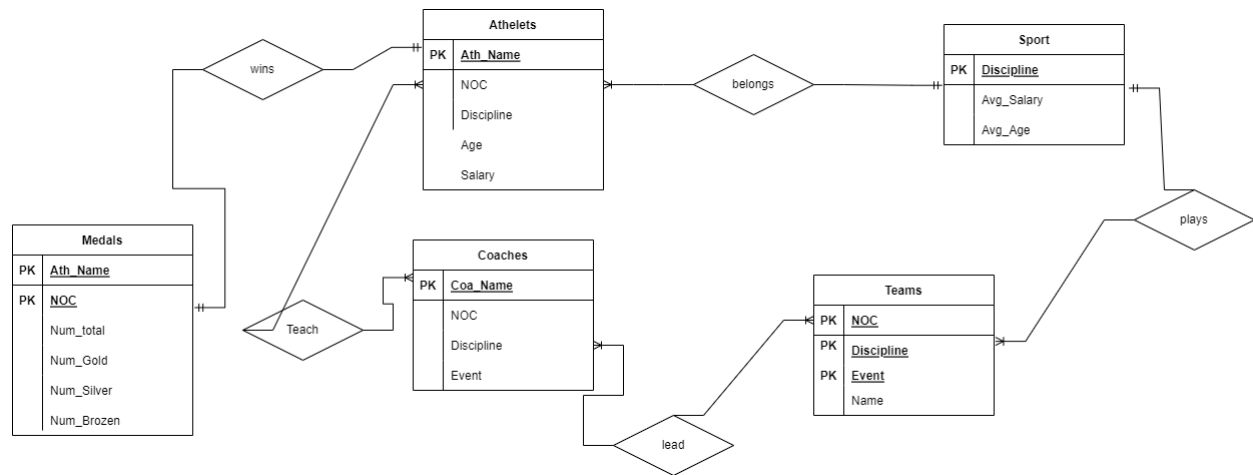


## Tokyo Olympics Wiki Project Stage 2

### Part I

#### ER/UML diagram



### Part II

#### Description of each relationship and its cardinality

- Athlete belongs in a sport: An athlete belongs in mandatory one sport, since it is highly unrealistic and unlikely that an athlete competes in two sports during the Olympics, due to its extreme physical demand. A sport containing multiple athletes is relatively common sense.
- Athletes win medals: Every row in medals is associated with a mandatory one athlete, since multiple athletes cannot win the same exact medal. An athlete is optionally associated with one row in medals, since an athlete does not necessarily win a medal.
- Coaches teach athletes: An athlete can have multiple coaches but they need to have at least one coach (mandatory) since it is not realistic for an athlete, who is part of a team, to not have a coach. This applies the other way around, as a coach can coach multiple athletes but every coach needs to coach mandatory one athlete, since it does not make sense for a coach to coach no one.
- Coaches lead a team: This is the same logic as coach teaches athletes. A team can have multiple coaches but each team needs one mandatory coach. Based on our dataset, a coach can technically coach multiple teams (since there are

different events within a sport, ie. events in Track can be 4x100 relay and 4x400 relay), but a coach needs to coach one team.

- Teams play in a Sport: Each team can only play one (mandatory) sport, however a sport can have multiple teams playing in it, however it must have many teams in the sport. It is not a competitive sport if there is only one team competing within it.<sup>1</sup>

### Part III

#### Relational schema

Medals(**Ath\_Name**:CHAR[100] [PK][FK to Athletes.Ath\_Name], **NOC**: CHAR[100] [PK], **Num\_total**:INT, **Num\_Gold**:INT, **Num\_Silver**:INT, **Num\_Bronze**:INT)

Athletes(**Ath\_Name**:CHAR[100] [PK], **NOC**: CHAR[100], **Discipline**: CHAR[100] [FK to Sport.Discipline], **Age**: INT, **Salary** REAL)

Sport(**Discipline**:CHAR[100] [PK], **Avg\_Salary** REAL, **Avg\_Age** INT)

Coaches(**Coa\_Name**:CHAR[100] [PK], **NOC**:CHAR[100], **Discipline**:CHAR[100], **Event**:CHAR[100])

Teams(**NOC**: CHAR[100] [PK], **Discipline**: CHAR[100] [PK][FK to Sport.Discipline], **Event**: CHAR[100] [PK], **Name**: CHAR[100])

Athletes\_Coaches(**Ath\_Name**:CHAR[100] [PK] [FK to Athletes.Ath\_Name], **Coa\_Name**:CHAR[100] [PK] [FK to Coaches.Coa\_Name])

Team\_Coaches(**Coa\_Name**:CHAR[100] [PK] [FK to Coaches.Coa\_Name], **NOC**: CHAR[100] [PK] [FK to Teams.NOC], **Discipline**: CHAR[100] [PK] [FK to Teams.Discipline], **Event**: CHAR[100] [PK] )