

Lab 2: ER Diagrams

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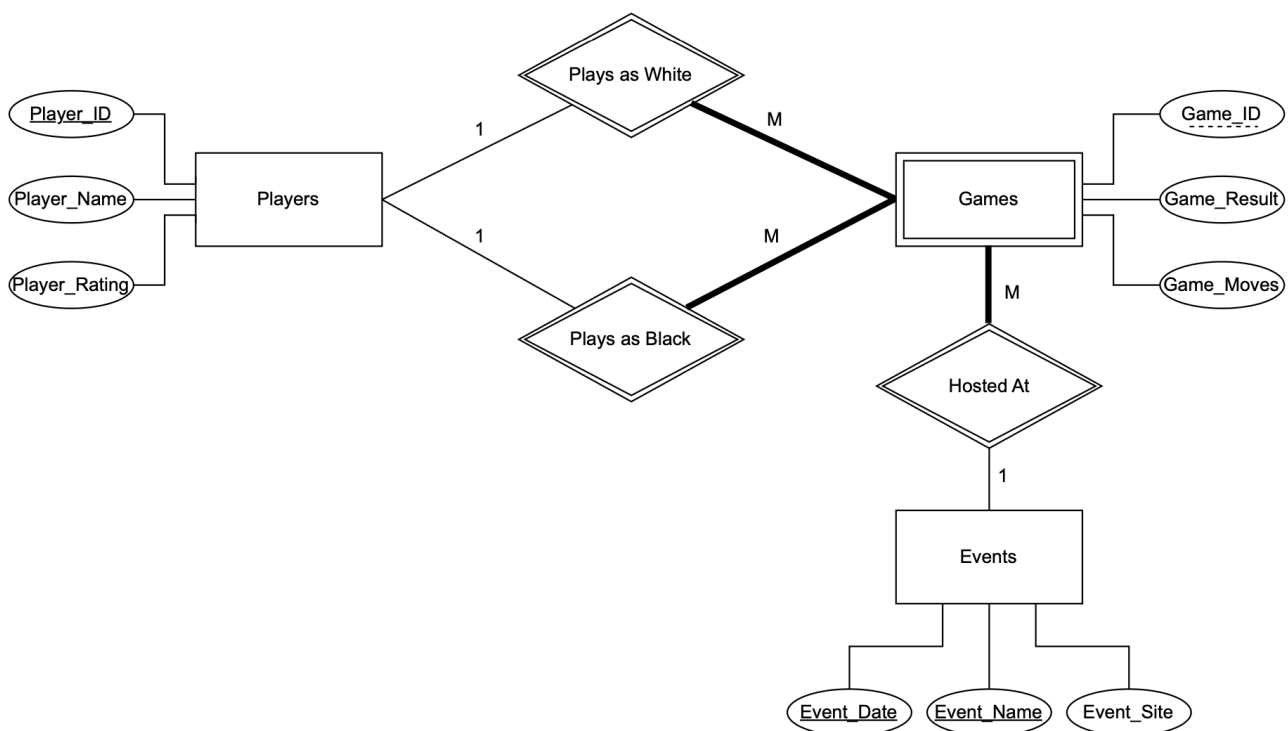
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CS 6016: Database Systems & Applications

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Part 1: ER Diagram - Chess Events

NOTE: For this assignment, I used **Game_ID** as the name for what the instructions called a game "round or number".



We have three **entities**:

- **Players**
- **Events**
- **Games** (weak -- exists when **Players** play them at **Events**)

and three *relationships*:

- **Games** are *hosted at* **Events**
 - Many **Games** are *hosted at* at 1 **Event**
 - But many **Events** do not *host* 1 **Game**
- **Players** play **Games** (as the White side or as the Black Side)
 - 1 **Player** can *play* many **Games** - as the White Side
 - 1 **Player** can *play* many **Games** - as the Black Side
 - But 1 **Game** is not *played* by many **Players**

Part 2: SQL Tables - Chess Events

The tables below are generally reflective of the ER diagram with some implementation differences:

- Additional attributes were included in the **Games** relation to define **Games** with **Players** (there are two FK's, that reference the **Players** relation)
- **Events** has an **Event_ID** merely to make a simpler, integer-type PK than having both (**Event_Name**, **Event_Date**) be the PK.

Players[__Player_ID__ (INT UNSIGNED), Player_Name (VARCHAR), Player_Rating (SMALLINT)]

```
CREATE TABLE Players (  
  Player_ID INT UNSIGNED NOT NULL AUTO_INCREMENT,  
  Player_Name VARCHAR(255) NOT NULL,  
  Player_Rating SMALLINT NOT NULL,  
  PRIMARY KEY (Player_ID)  
);
```

Events[__Event_ID__ (INT UNSIGNED), Event_Name (VARCHAR), Event_Date (DATE), Event_Site(VARCHAR)]

```
CREATE TABLE Events (  
  Event_ID INT UNSIGNED NOT NULL AUTO_INCREMENT,  
  Event_Name VARCHAR(255) NOT NULL,  
  Event_Date DATE NOT NULL,  
  Event_Site VARCHAR(255) NOT NULL,  
  PRIMARY KEY (Event_ID)  
  UNIQUE KEY (Event_Name, Event_Date)  
);
```

Games[__Game_ID__ (INT UNSIGNED), Game_Result (VARCHAR), Game_Moves (TEXT), White_Player (INT), Black_Player(INT), Event_ID (INT UNSIGNED)]

```
CREATE TABLE Games (  
  Game_ID INT UNSIGNED NOT NULL AUTO_INCREMENT,  
  Game_Result VARCHAR(12) NOT NULL,  
  Game_Moves TEXT NOT NULL,  
  White_Player INT UNSIGNED NOT NULL,  
  Black_Player INT UNSIGNED NOT NULL,  
  Event_ID INT UNSIGNED NOT NULL,  
  PRIMARY KEY (Game_ID),  
  FOREIGN KEY (White_Player) REFERENCES Players(Player_ID),  
  FOREIGN KEY (Black_Player) REFERENCES Players(Player_ID),  
  FOREIGN KEY (Event_ID) REFERENCES Events(Event_ID)  
);
```

