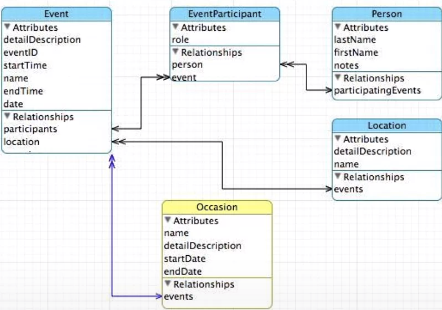
**Database Design:**

- Determining what the database should look like and how it should function before creating it  


- **One Arrow** – Signifies one to one relationship  
- **Double Arrow** – Signifies many to many relationship  
- Don’t put the same string into a database twice, use a separate table and refer back to it using *primary/foreign keys*

- To start, think about the most essential aspect of the application. Once you build that you can determine what other attributes need their own tables and what are attributes of the essential aspect table  
­- *Primary Key* – A column (or a set of columns) in a table that uniquely identifies each row in that table and is referenced in other tables  
- *Foreign Key* – A column (or a set of columns) in one table that is used to refer to the primary key in another table   
- *Logical Key* - A column or a set of columns that uniquely identify a record based on the business logic or domain requirements. Used to lookup data in database from outside world

A diagram of a track

Description automatically generated

- When creating tables in database, work from outside in and create subsidiary tables first

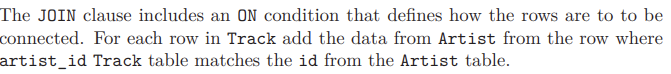
A screenshot of a computer

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- *Data Modeling* – The act of deciding how to break up your application data into multiple tables and establishing relationships between those tables  
- *Data Model* – The design document that shows the tables and their relationships  
­- *Database Normalization* – Never put the same string data in a column more than once, better to create a numeric key for the data and reference it from another table  
- Use a primary key to link one table to another, key is a number assigned into table using *id* column   
A close-up of a computer code

Description automatically generated  
- In the Artist Table, 42 is a *primary key* but in subsequent tables that reference it is known as a *foreign key* because it references data in a different table  
A text on a white background

Description automatically generated  
- When we want to retrieve data we use the JOIN keyword to properly extract it during a SELECT statement  
A close up of a text

Description automatically generated  


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