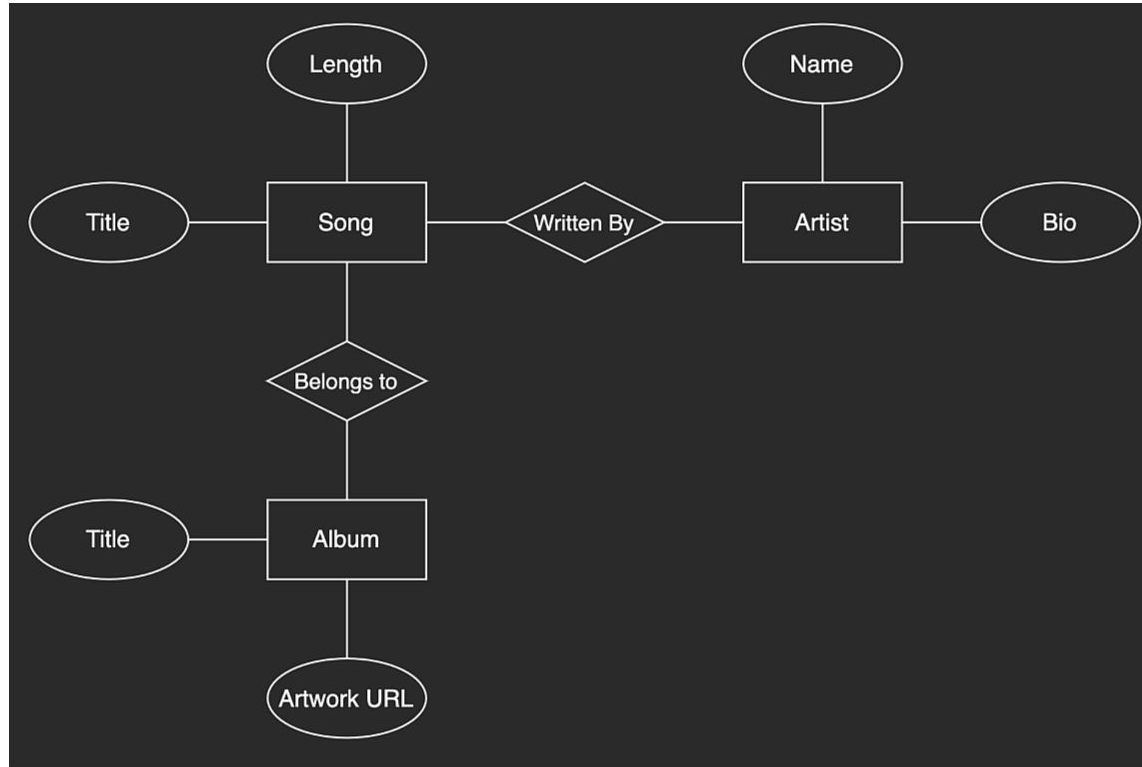


# Relationship Participation

# Relationship participation



# Required participation

Recall:

"Song belongs to Album"

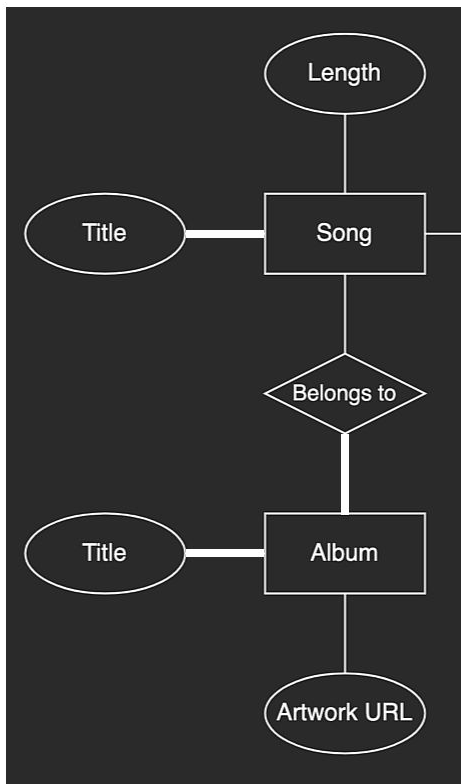
"Album has Song"

Notation:

Bold line between entity and relationship

New Requirements:

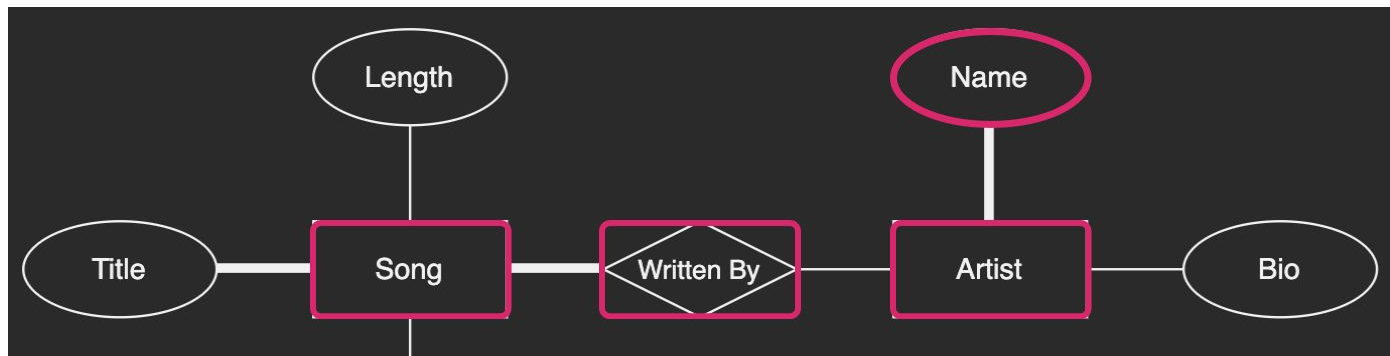
1. A Song must have a Title
2. An Album must have a Title



## Required participation

New requirements:

1. An Artist must have a name
2. A Song is written by 1 or more Artists
3. An Artist writes 0 or more Songs



# Participates at most once

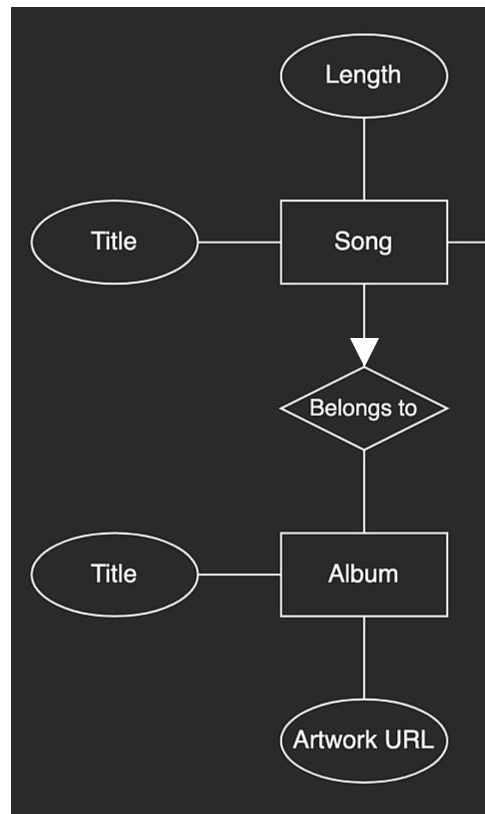
How to specify that an entity participates at most once?

Notation:

Arrow from entity to relationship

New Requirements:

1. A Song may belong to 0 Albums
2. A Song may belong to 1 Album
3. A song may **not** belong to multiple Albums



# Participates at most once

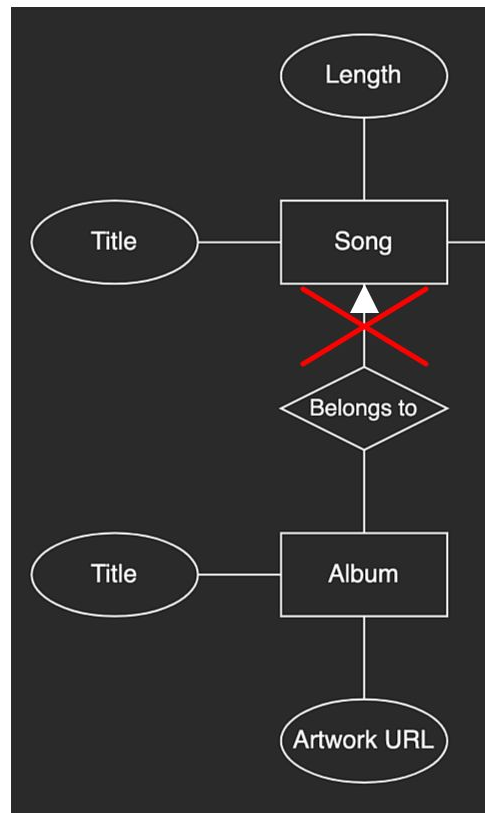
How to specify that an entity participates at most once?

Notation:

Arrow from entity to relationship

New Requirements:

1. A Song may belong to 0 Albums
2. A Song may belong to 1 Album
3. A song may **not** belong to multiple Albums



# Participates exactly once

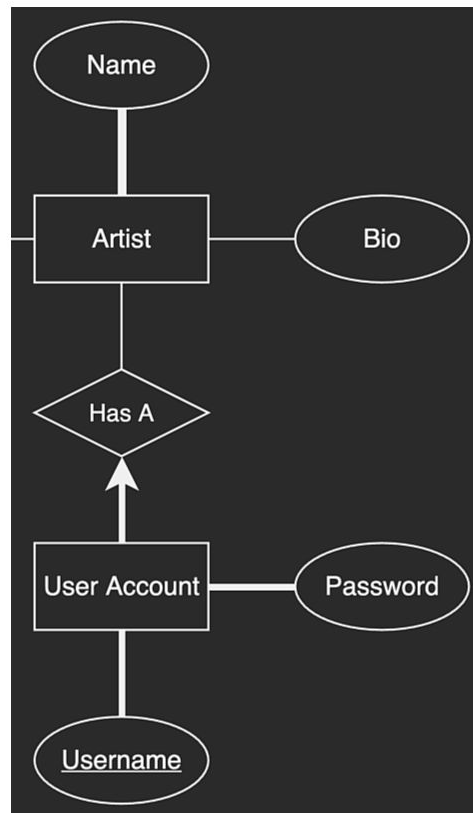
How to specify that an entity participates once and only once?

Notation:

Bold arrow from entity to relationship

New Requirements:

1. An Artist has a user Account which has a username and password
2. A User Account must belong to 1 and only 1 Artist



Requirements met:

An Artist writes 0 or more songs

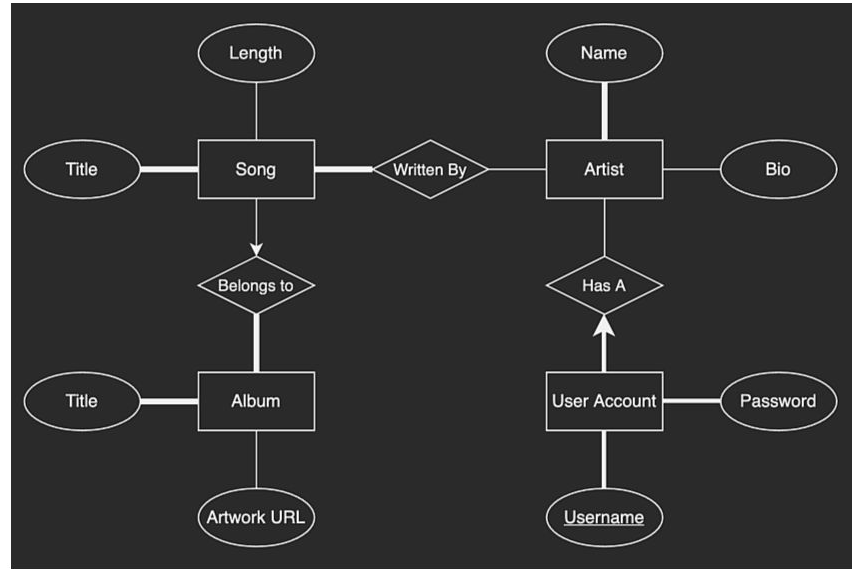
A song is written by 1 or more Artists

A Song belongs to at most 1 Album

An Album has at least 1 Song

An Artist optionally has a User Account

A User Account is for 1 and only 1 Artist





# ER diagram review

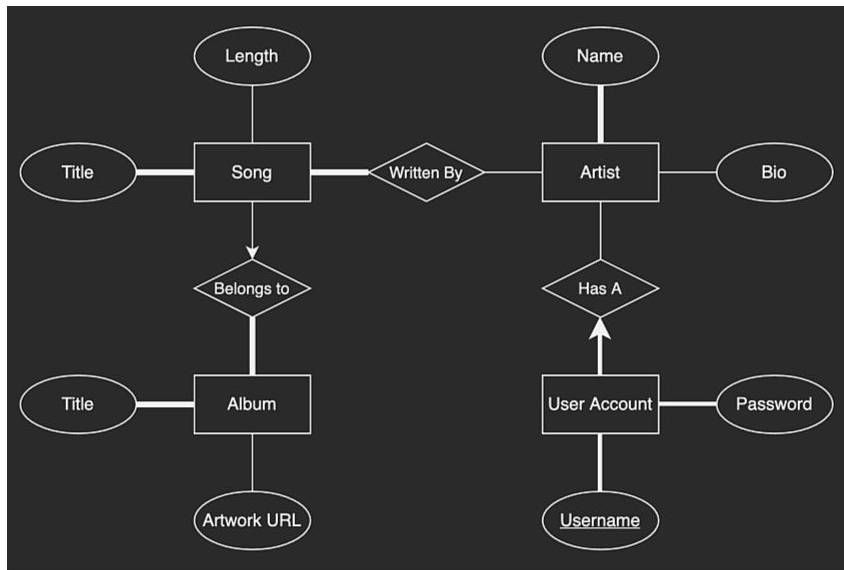
Note: ***ER Diagrams are Subjective!***

We could have done things differently

We could have defined attribute data types and used different color codes for attribute lines

Instead of "Written by," we could have used "Performed by"

"Belongs To" and "Has" relationships are interchangeable



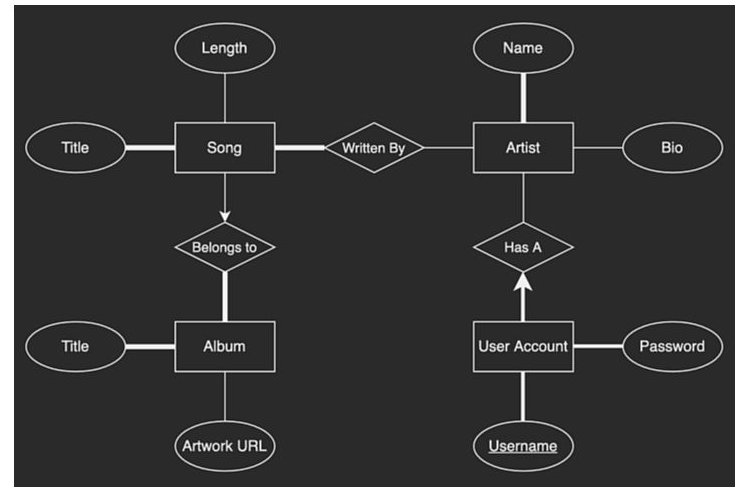
Implement the following requirements:

1. An Album must belong to 1 or more Artists
2. An Artist has 0 or more Albums
3. An Artist must have 1 and only 1 User Account  
(Artist to User Account should be a one-to-one relationship)

## PAUSE

and create an ER diagram that meets these requirements, using draw.io, pencil/pen and paper, or another method

Concept	Notation
Attribute	Oval
Entity	Rectangle
Relationship	Diamond
Is-A Relationship	Triangle
Unique	Underlined Text
Participates 0 or more times	Line
Participates 1 or more times	Bold line
Participates at most once	Arrow
Participates once and only once	Bold Arrow



Implement the following requirements:

1. An Album must belong to 1 or more Artists
2. An Artist has 0 or more Albums
3. An Artist must have 1 and only 1 User Account  
(Artist to User Account should be a one-to-one relationship)

Concept	Notation
Attribute	Oval
Entity	Rectangle
Relationship	Diamond
Is-A Relationship	Triangle
Unique	Underlined Text
Participates 0 or more times	Line
Participates 1 or more times	Bold line
Participates at most once	Arrow
Participates once and only once	Bold Arrow

