Suggestions on ERD & Schema Diagram

Common mistakes and some conventions

Common Mistakes
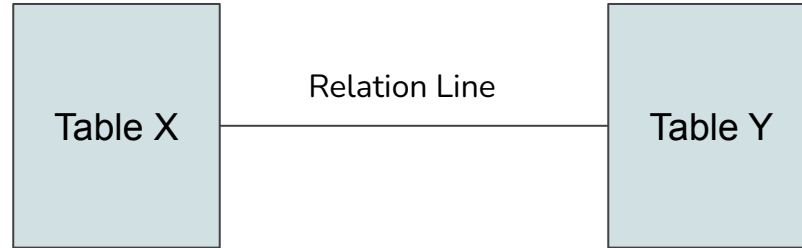
Table X — Relation Line — Table Y
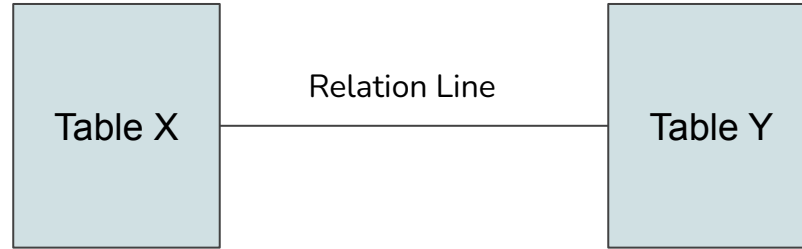
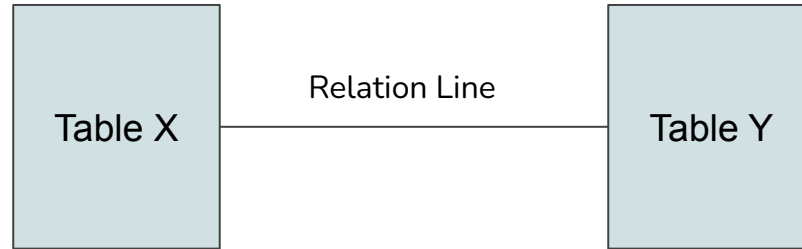| Table X	Relation Line	Table Y

Foreign Keys are needed for relation and vice-versa. They are not separate things. One is for implementation and the other is for designing.

Table X —— Relation Line —— Table Y

- Relation Lines mean there is a relation between tables
- You draw it in ERD/Schema to show they have relation
- You do not draw lines when you code
- When you code, you use FKs to show the relation

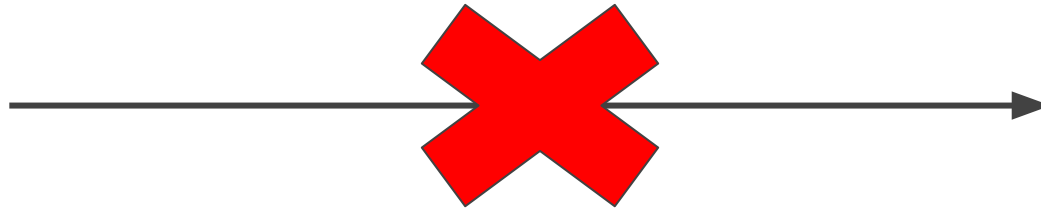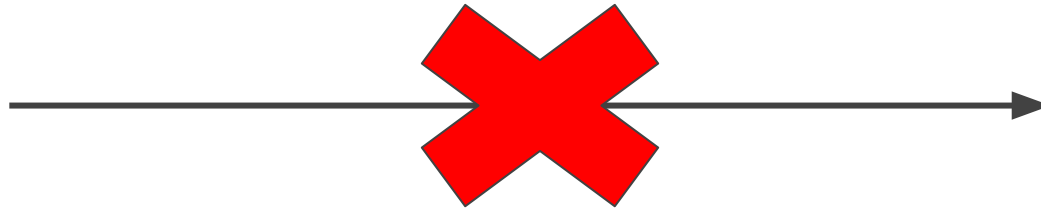| Case 1 | Case 2 | Case 3 | Case 4 |

Case 1	Case 2	Case 3	Case 4

There are certain denotations for showing connections / relations but you should show cardinality constraints. Do not use symbols like arrows which are not part of how ERD/schema should be designed.

Case 1	Case 2	Case 3	Case 4
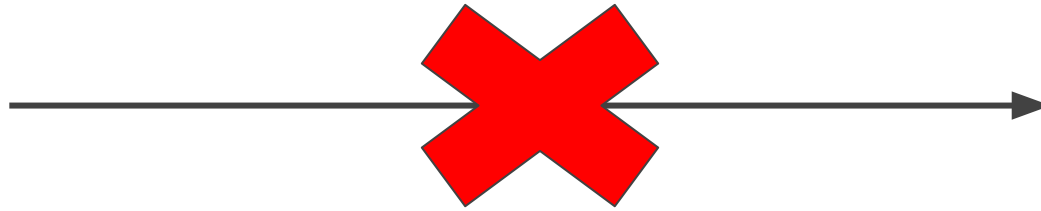
- Cardinality constraints are important to understand the system
- Helps understand how data will be stored and accessed.
- Helps verify if the design is correct

| Case 1 | Case 2 | Case 3 | Case 4 |

Table X

Table Y

Case 1	Case 2	Case 3	Case 4

Table X

Table Y

Keeping tables that have no connection or relation to any system does not give any extra advantage. There is no necessity for such tables.

Case 1	Case 2	Case 3	Case 4

Table X

Table Y

- You can use things like "Files" to do the jobs
- DB helps doing queries, there is not much significance to a table that has no connection to other parts of DB
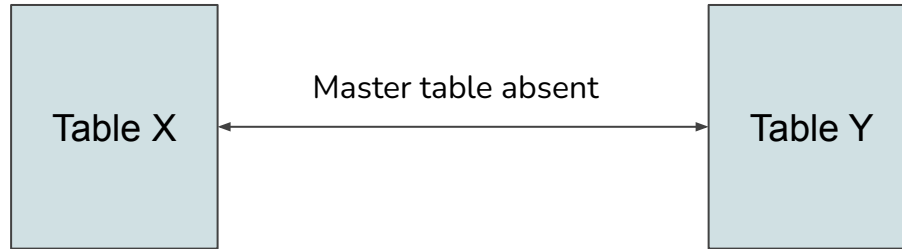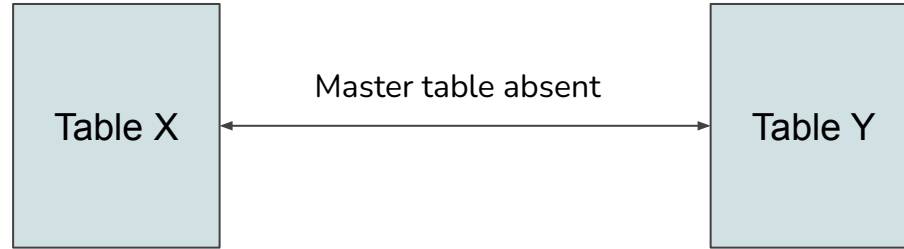- There should be some connection of the table to the database

Table X ←→ Table Y

Master table absent

Table X ←—— Master table absent ——→ Table Y

All tables can not be dependent on another table. Means, not all tables will have foreign key.

Case 1	Case 2	Case 3	Case 4

Table X ←——— Master table absent ———→ Table Y
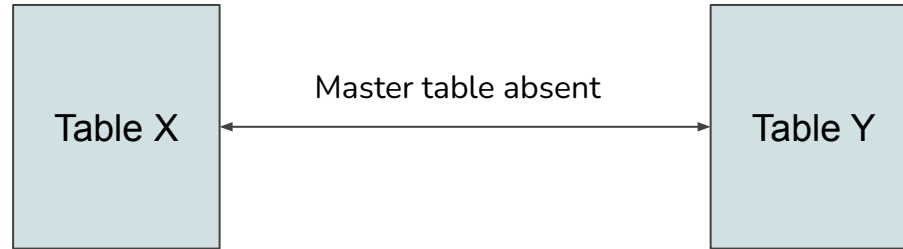
- In order for a FK to be used in a table, that Key must be generated before
- If all tables have FKs, no table can generate the first key
- At least one table must have no FKs
- Usually tables having no FKs are like pure information tables. Usually known as different like "Master Table"

Some Suggestions

Case 1	Case 2	Case 3	Case 4

Foreign Key	Foreign Key

Combined to make unique primary key
(Composite Key)

User_ID	Friend_ID

User_ID	Friend_ID
Hero Alam	Zayed Khan

16 Dec, 2021 ✅

Case 1	Case 2	Case 3	Case 4

User_ID	Friend_ID

16 Dec, 2021 ✅

25 Dec, 2021 ❌

User_ID	Friend_ID
Hero Alam	Zayed Khan

16 Dec, 2021 ✅

25 Dec, 2021 ❌

31 Dec, 2021 ✅

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Hero Alam and Zayed Khan Friends at
            28 Dec, 2021
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| Case 1 | Case 2 | Case 3 | Case 4 |

User_ID	Friend_ID	Action

Case 1	Case 2	Case 3	Case 4

16 Dec, 2021 ✅

User_ID	Friend_ID	Action
Hero Alam	Zayed Khan	16 Dec, 2021 ✅

16 Dec, 2021 ✅

25 Dec, 2021 ❌

User_ID	Friend_ID	Action
Hero Alam	Zayed Khan	16 Dec, 2021 ✅
Hero Alam	Zayed Khan	25 Dec, 2021 ❌

		User_ID	Friend_ID	Action
16 Dec, 2021	✅	Hero Alam	Zayed Khan	16 Dec, 2021 ✅
25 Dec, 2021	❌	Hero Alam	Zayed Khan	25 Dec, 2021 ❌
31 Dec, 2021	✅	Hero Alam	Zayed Khan	31 Dec, 2021 ✅

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Hero Alam and Zayed Khan Friends at
           28 Dec, 2021
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Case 1	Case 2	Case 3	Case 4

FKs should not be PKs. If they are, either you are doing a mistake or it can be only one table. FKs are not mandatorily unique by definition.

Case 1	Case 2	Case 3	Case 4

Avoid Overlapping of connectors when designing ERD/Schema. Hard to understand when looking. Make clearer design for easy viewing.

Case 1	Case 2	Case 3	Case 4

Improve name of relations as much as possible for better performance.

Thank You

Welcoming Queries