ER-TO-RELATIONAL MAPPING

FOR ENTITIES AND RELATIONSHIPS

AMR ELHELW

TECH VAULT

Example: Social Media App

Requirements

- Each user will have a unique user id
- Users can follow other users
- Users can write posts
  - A post is usually text, but may include one image (max)
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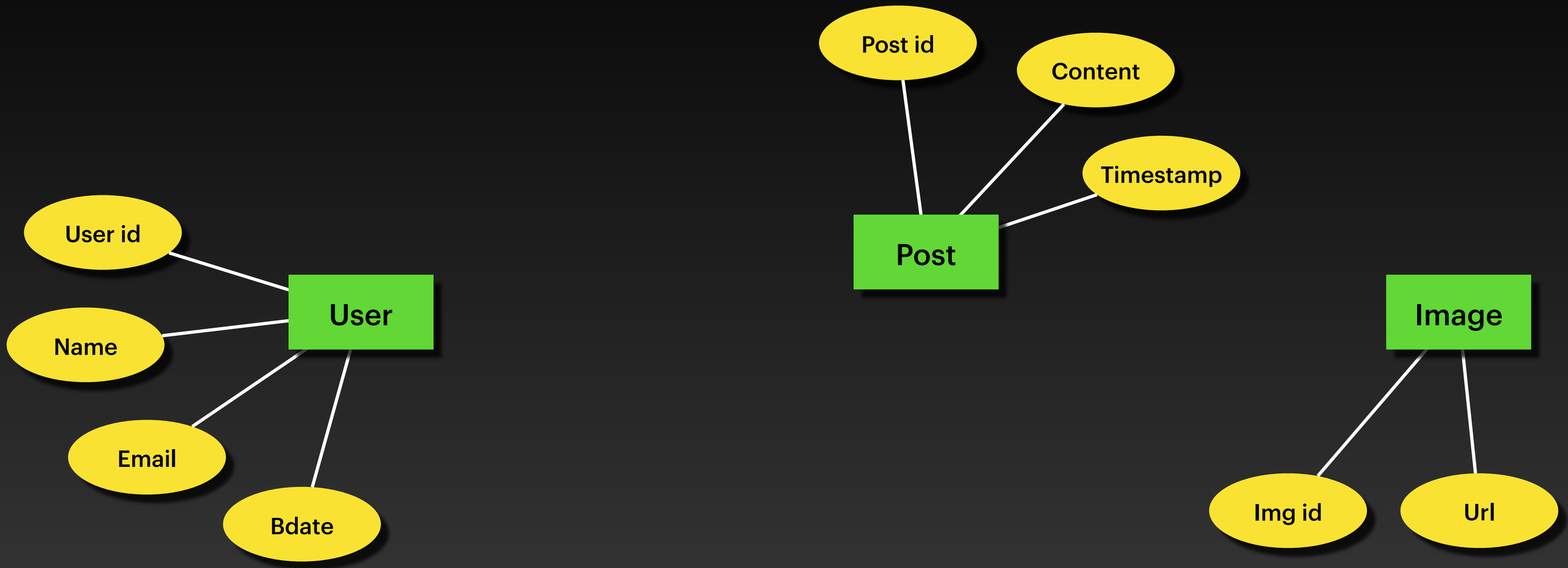

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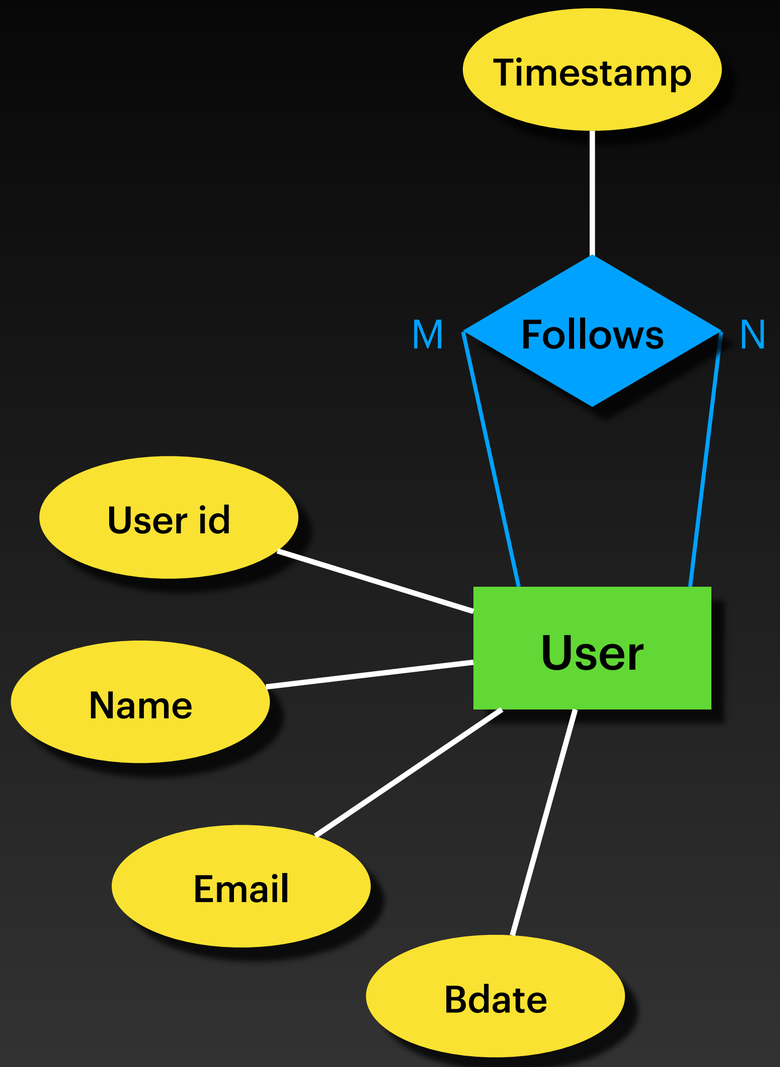

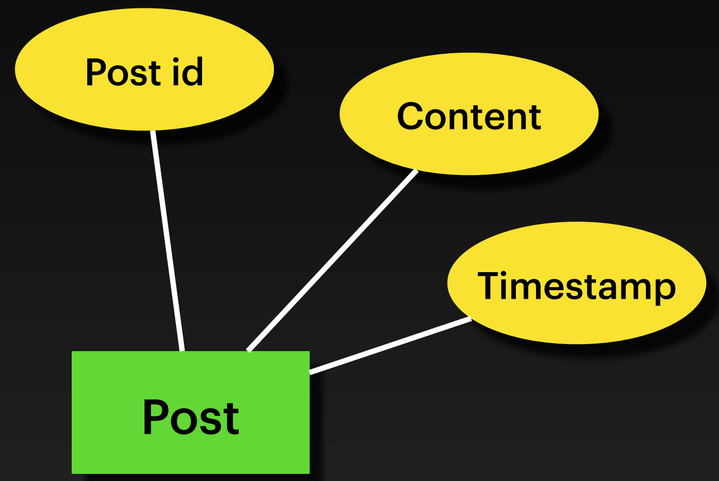

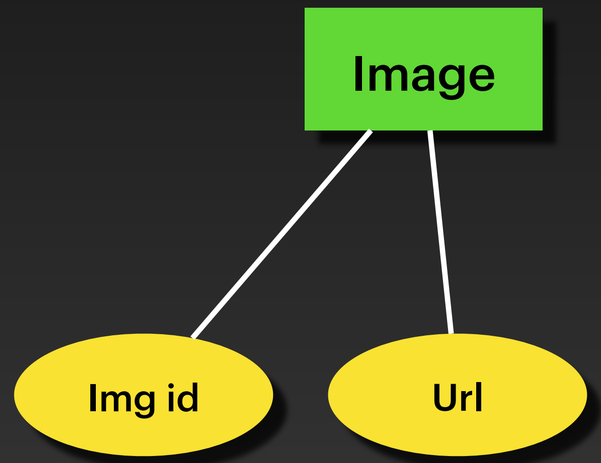

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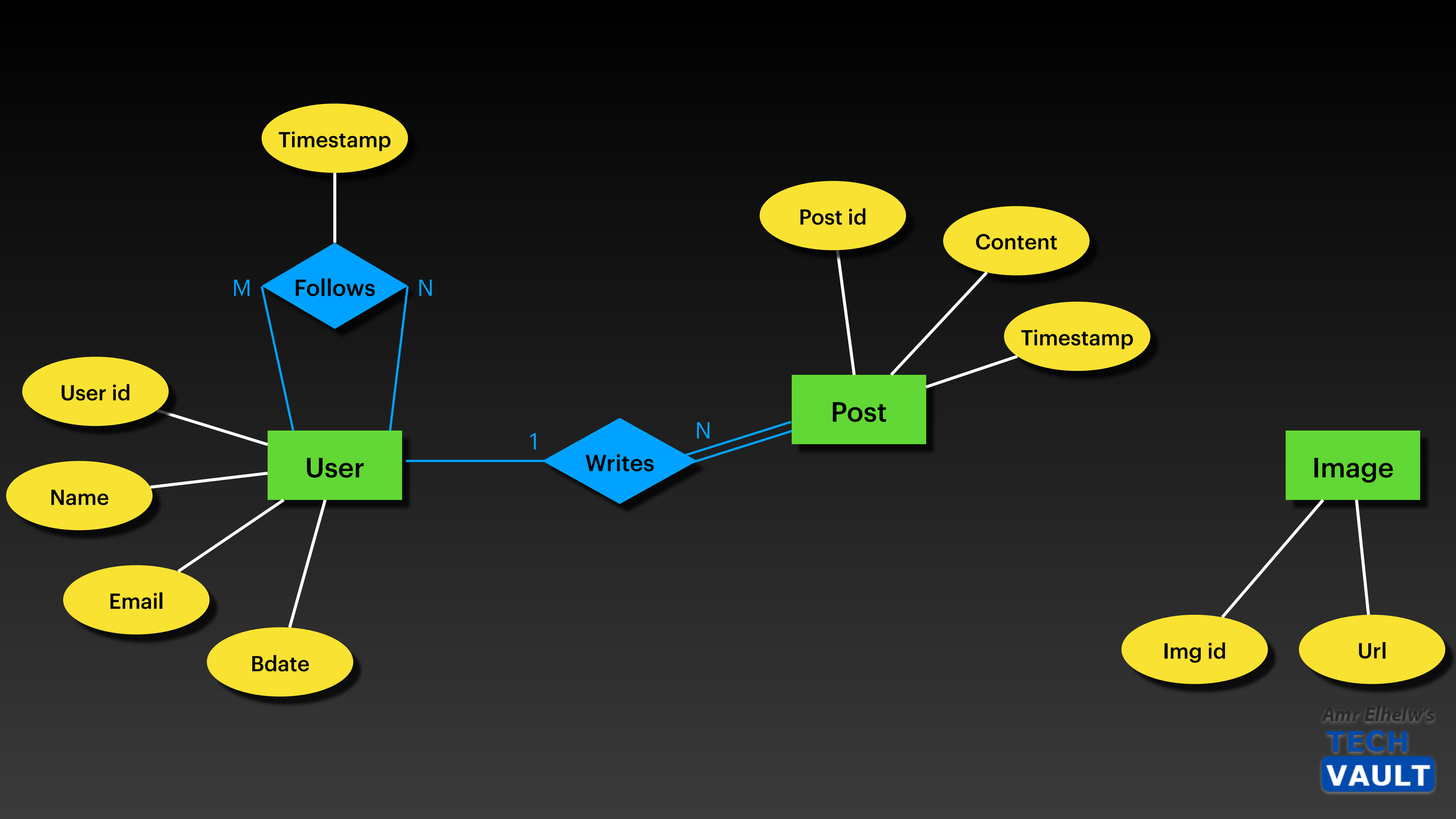
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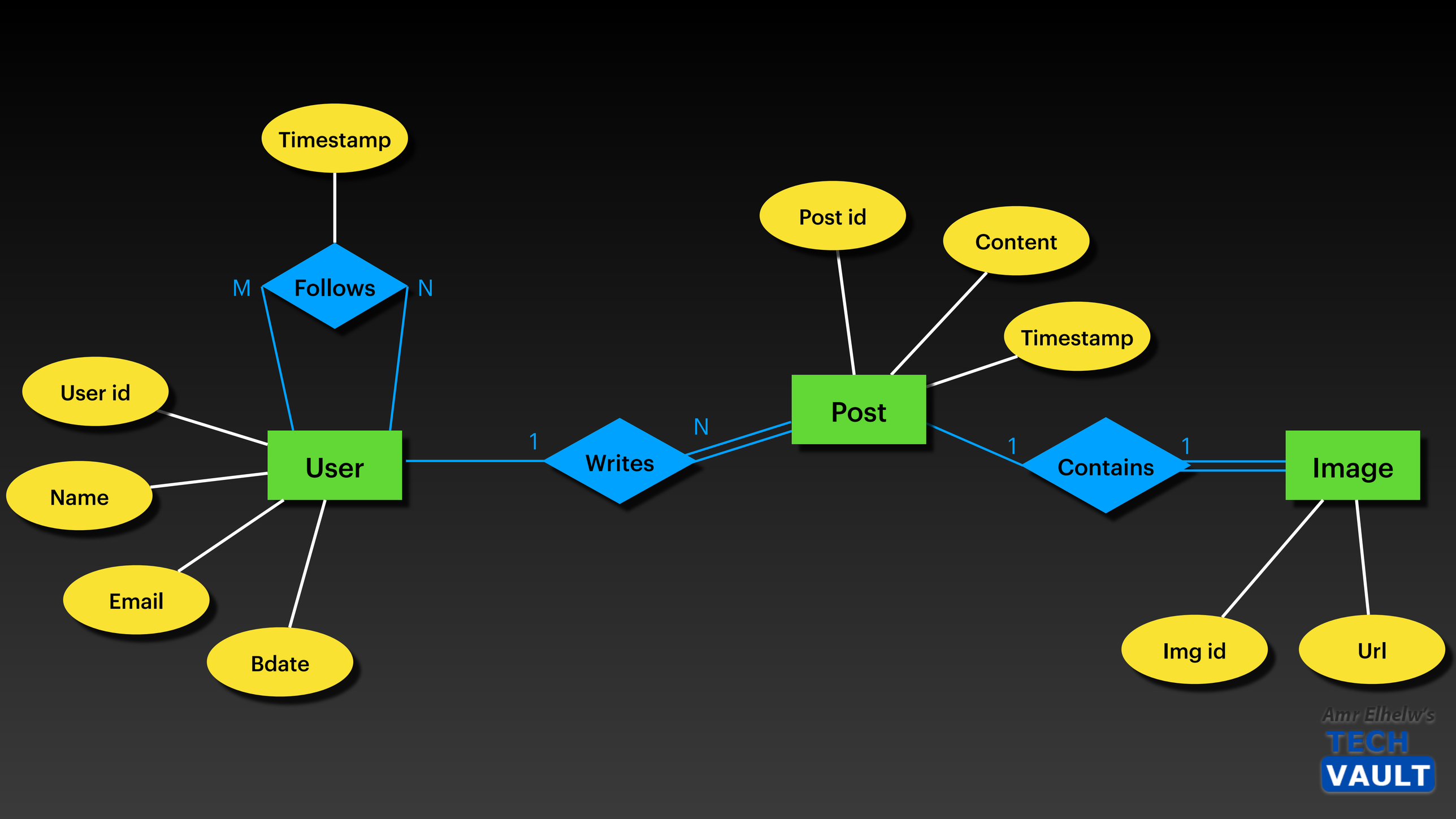
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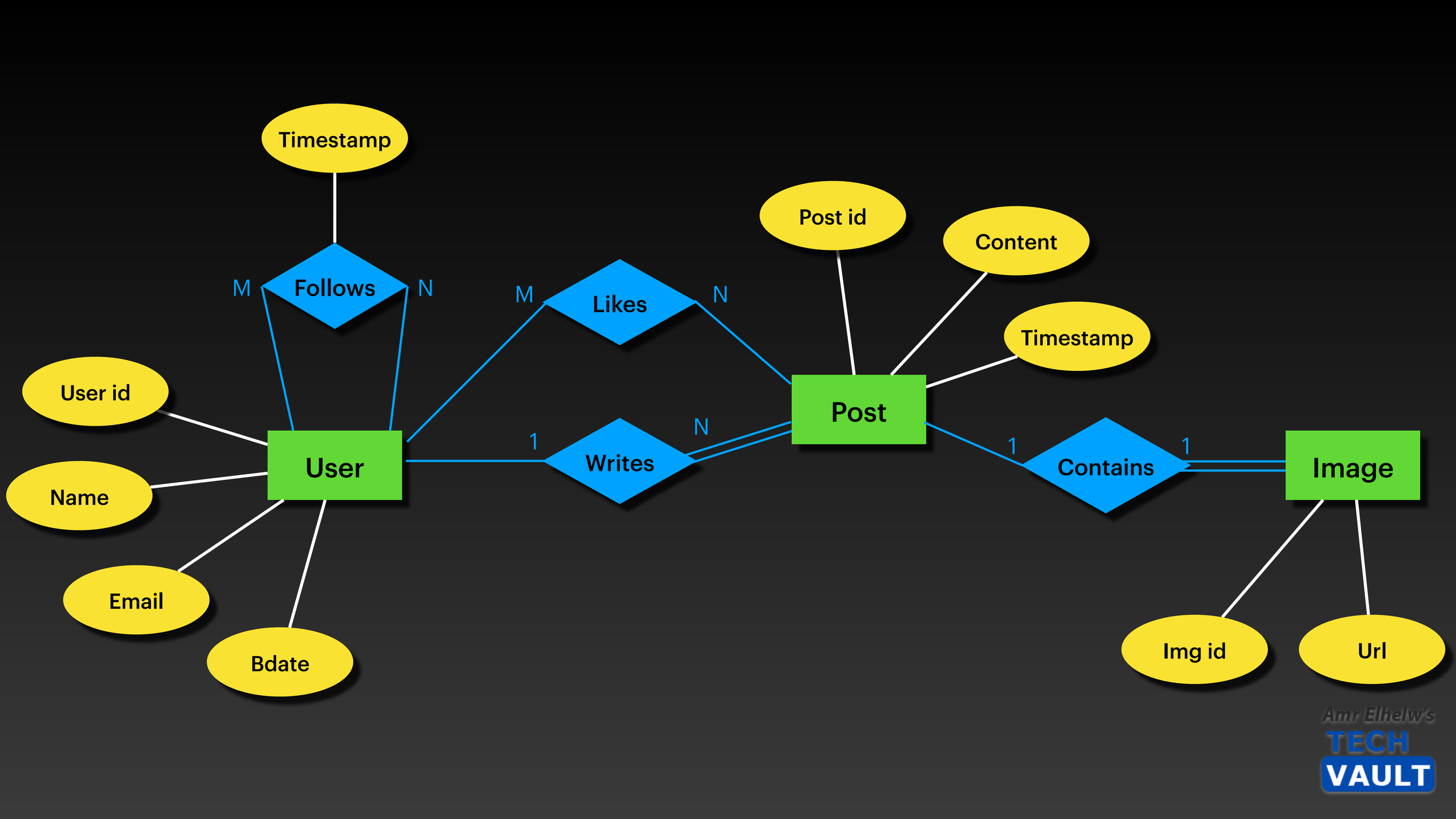
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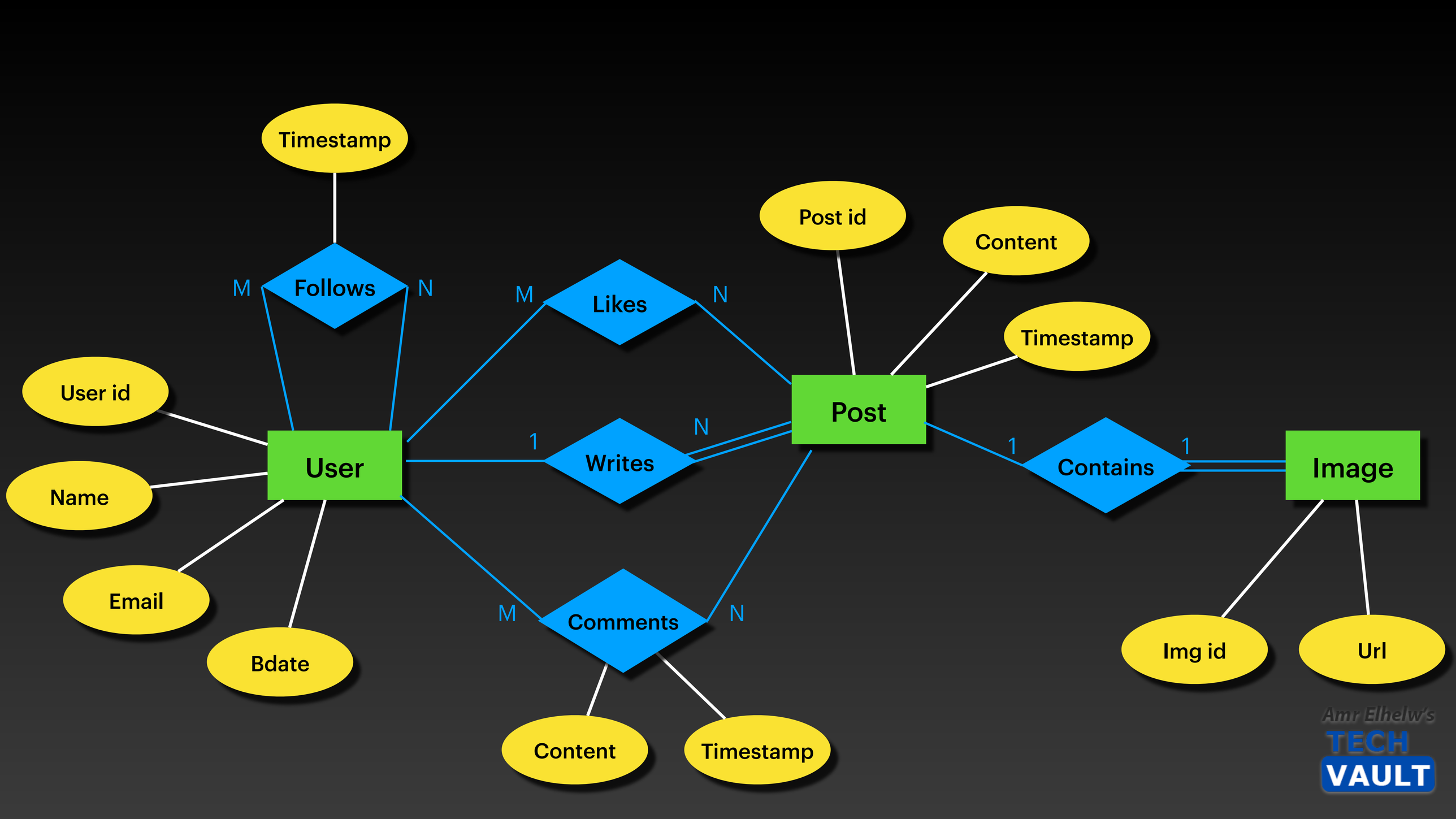
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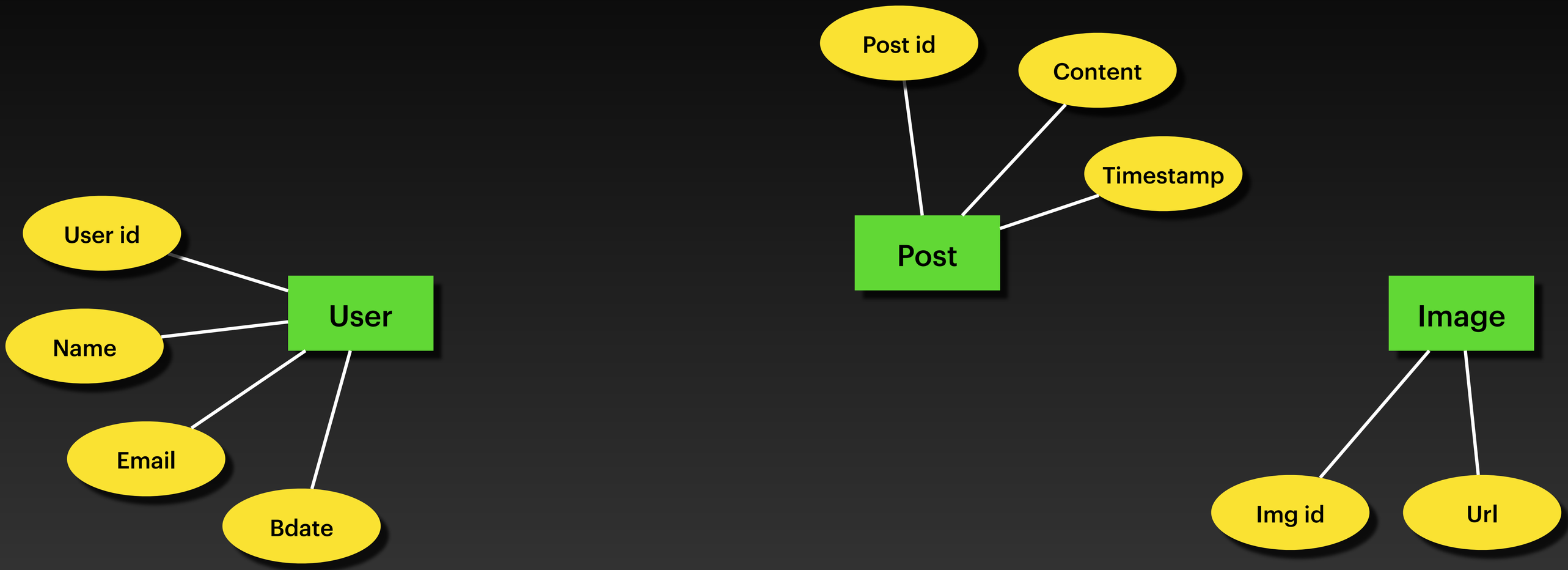
ER-to-relational Mapping

Step 1 - Entities

- Each entity type becomes a table
- Attributes become columns in the table
- Choose primary key
  - Simple or Composite
  - Not null
  - Unique
  - Minimal



User

user_id	name	email	bdate

Post

post_id	content	timestamp

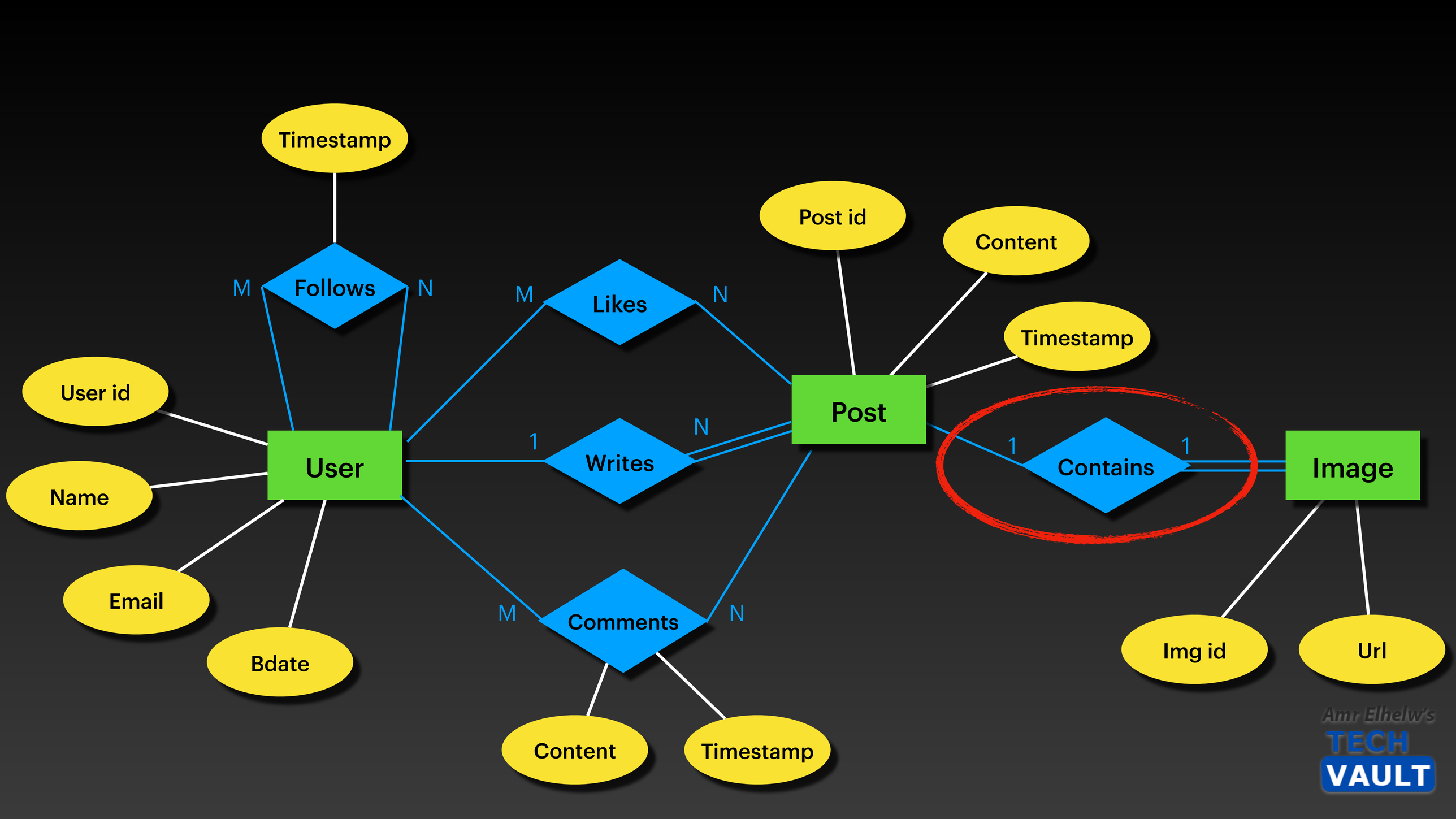
PostImage

img_id	url

Step 2 - Relationships (1:1)

Entities S, T

Participation	What to do?	Relationship Attributes
S: Total T: Total	- Merge both tables into one	Add attributes to merged table
S: Partial T: Total	- Add foreign key to T that refers to primary key of S - It can also become the PK of T	Add attributes to T
S: Partial T: Partial	- Add foreign key to either one that refers to primary key of the other	Add attributes to the table with the foreign key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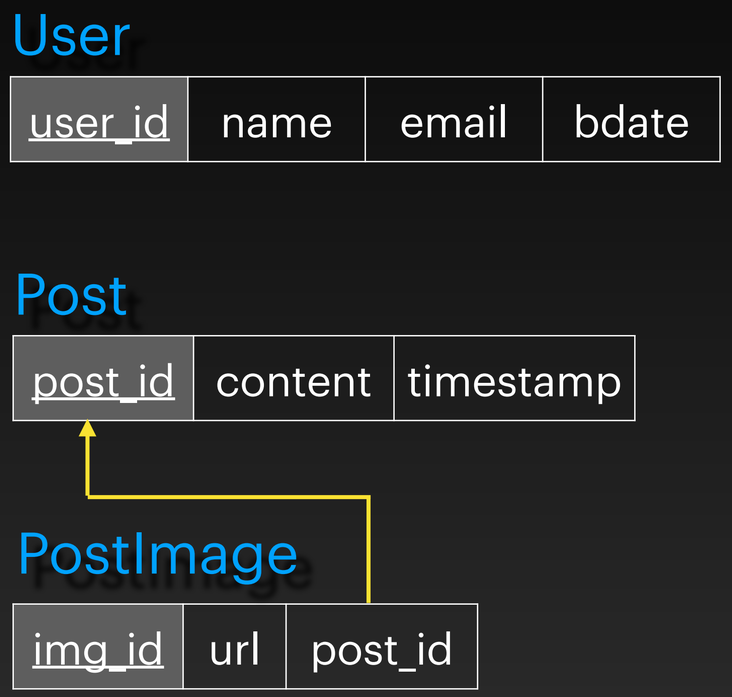
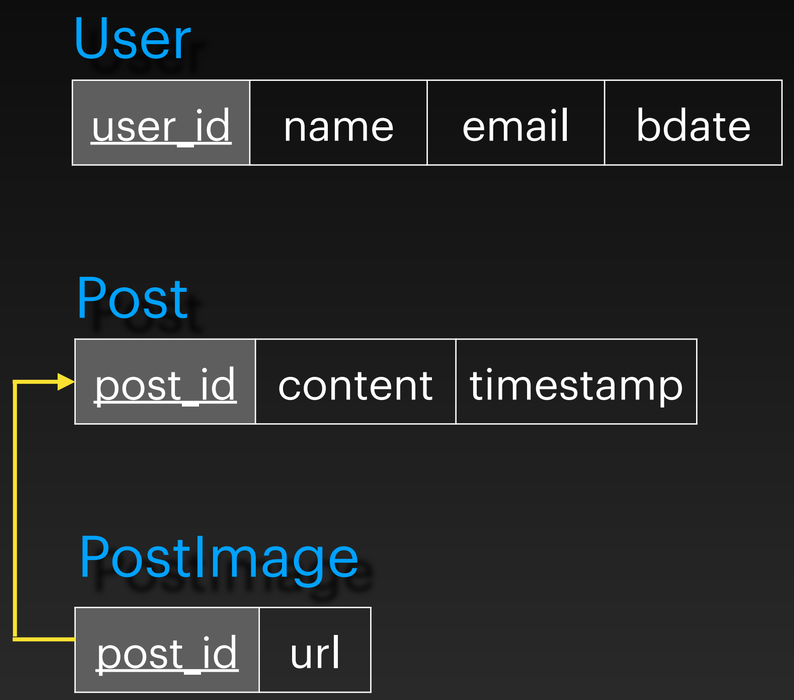
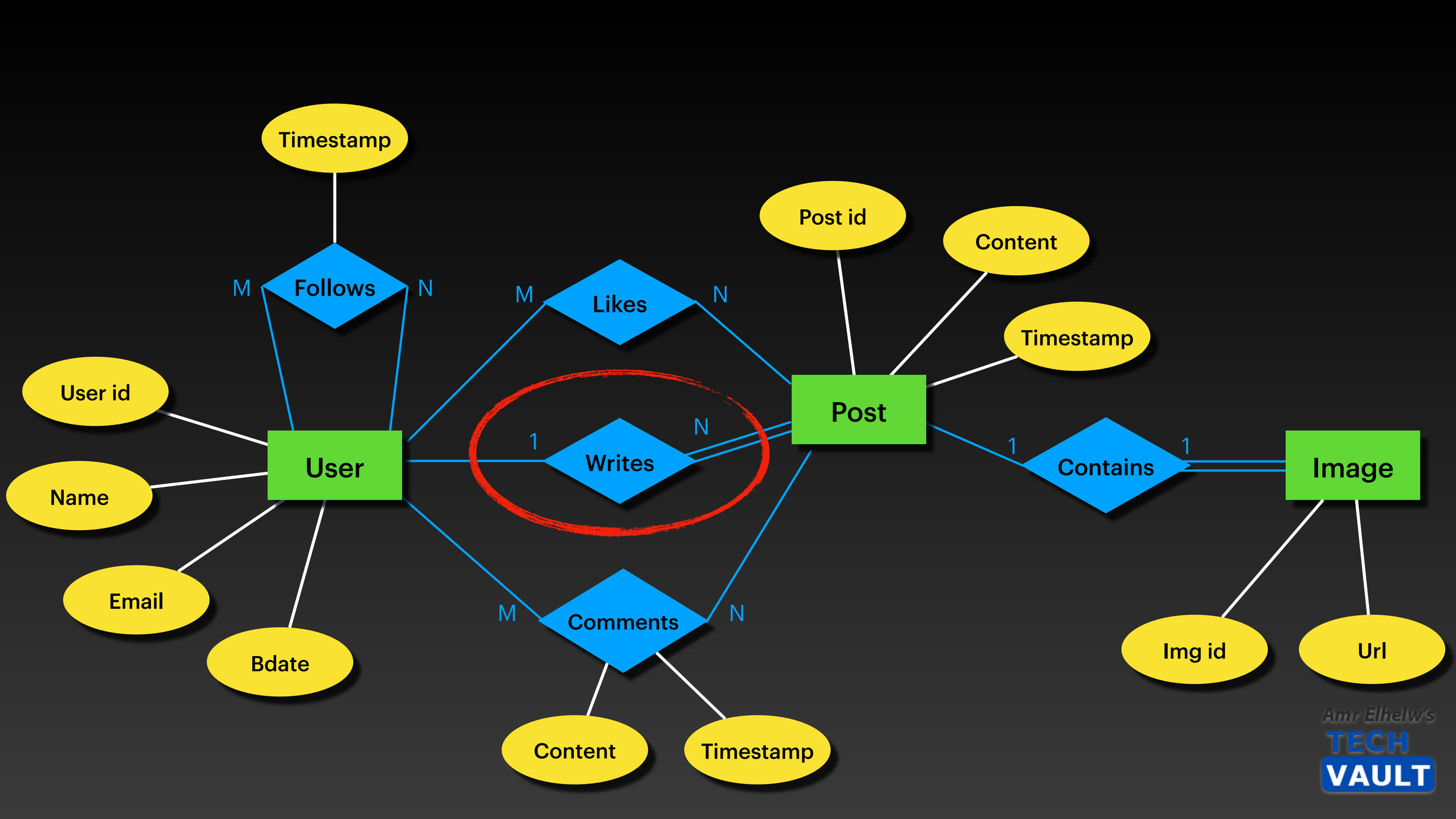




Step 3 - Relationships (1:N)

- S - “N” side, T - “1” side
- Add FK in S that refers to PK of T
- Relationship attributes should be added to S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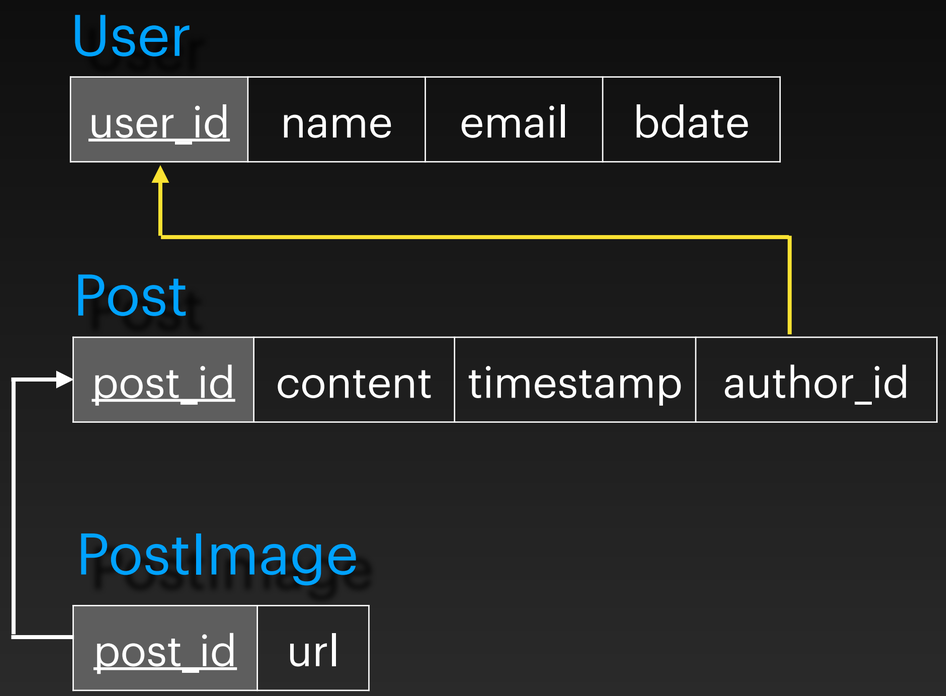
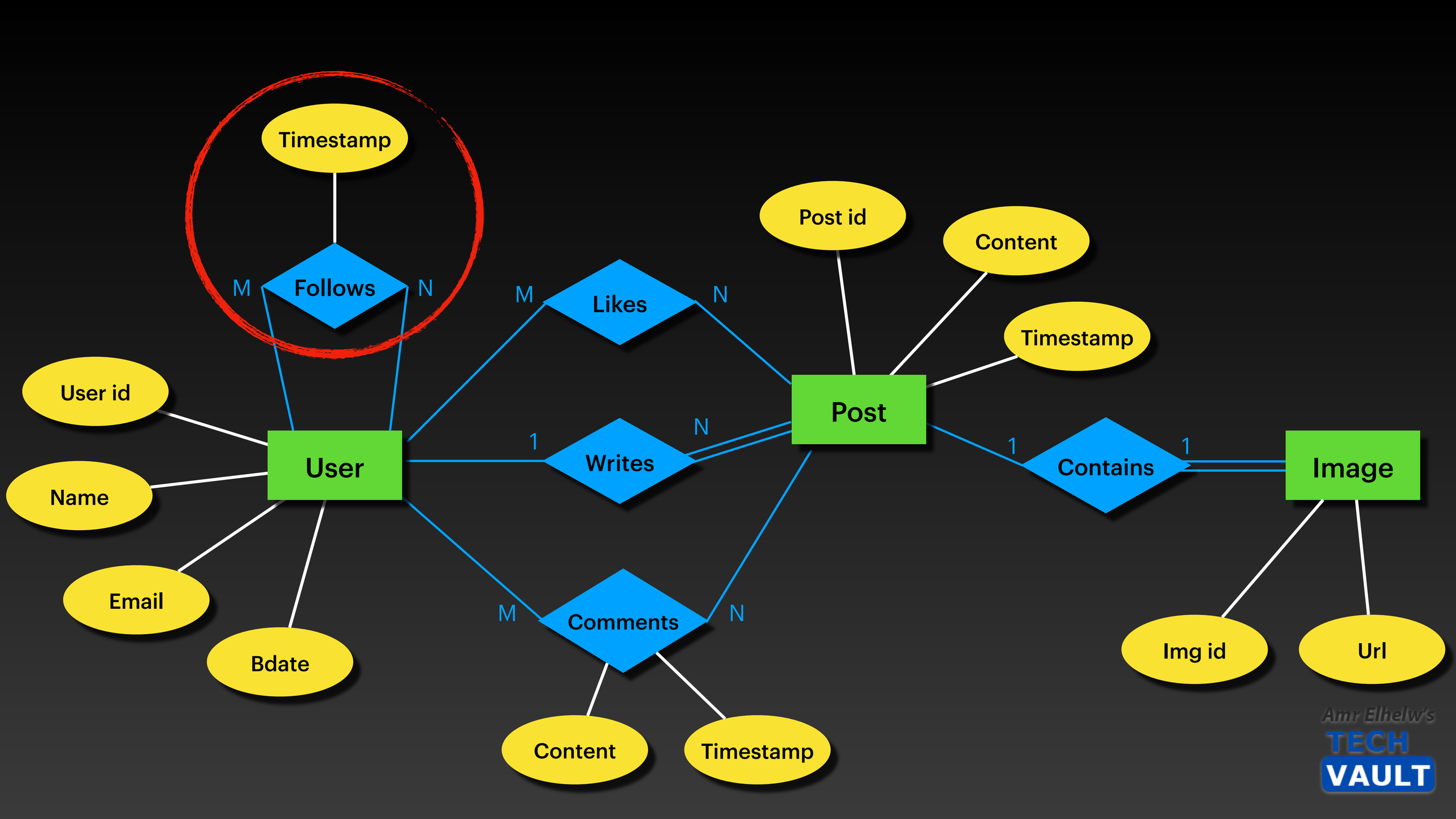


Step 4 - Relationships (M:N)

- Participating tables: S, T
- Create a new table R to represent the relationship.
- Add all relationship attributes (if any) to R
- Add Foreign keys in R that refer to both S and T
- PK of R is a combination of all the FKs (+additional columns if needed)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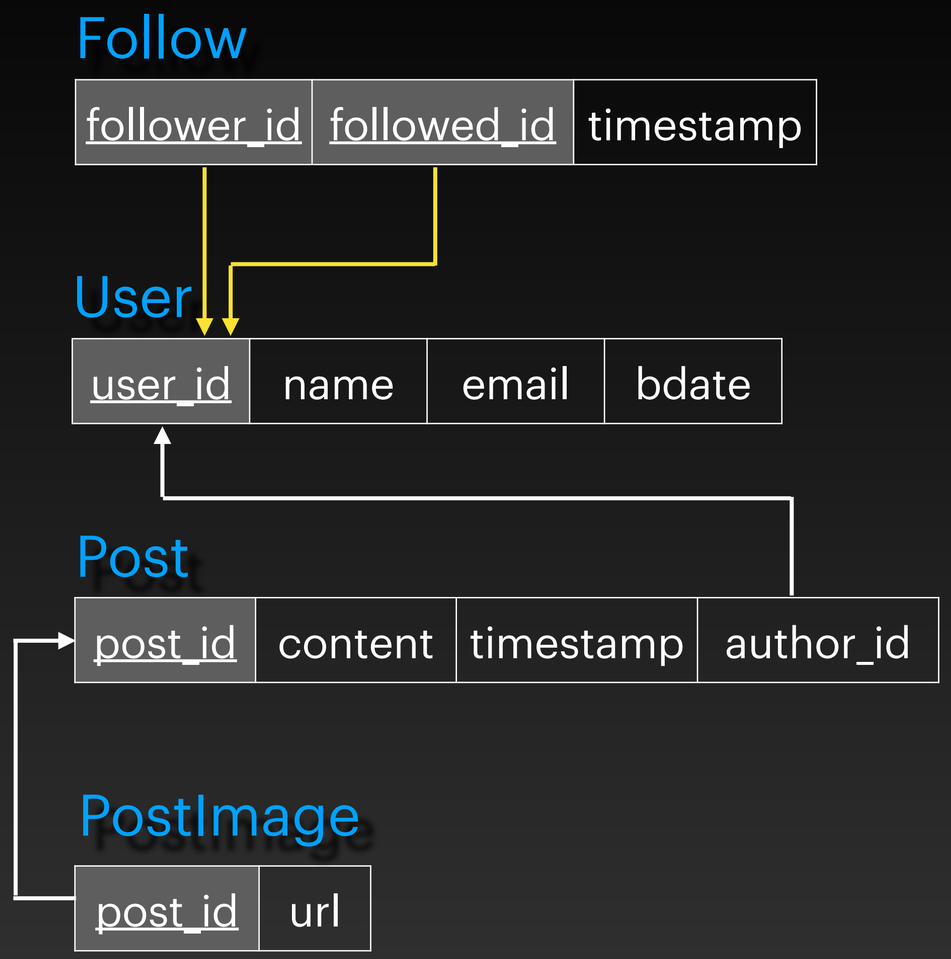

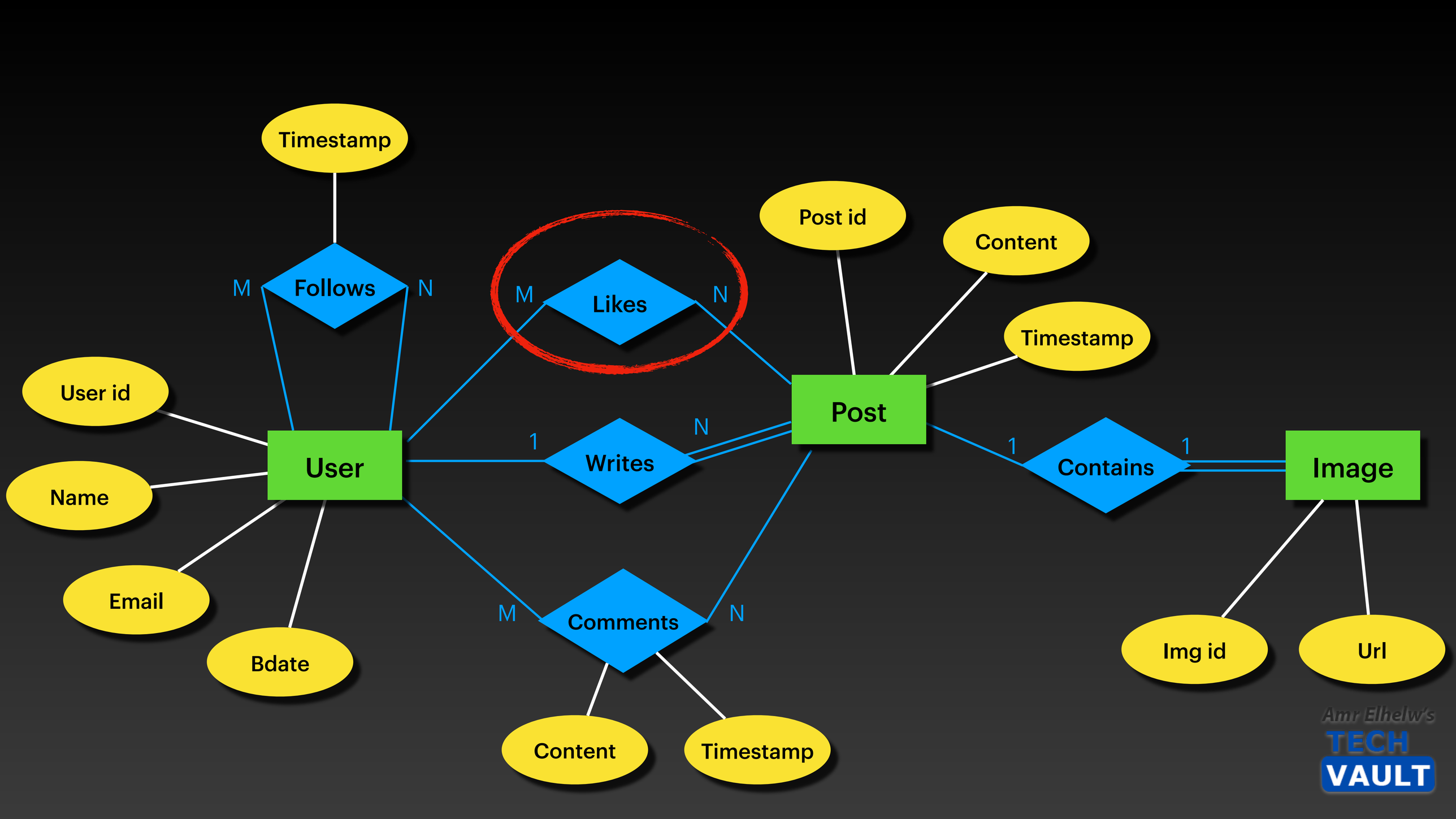
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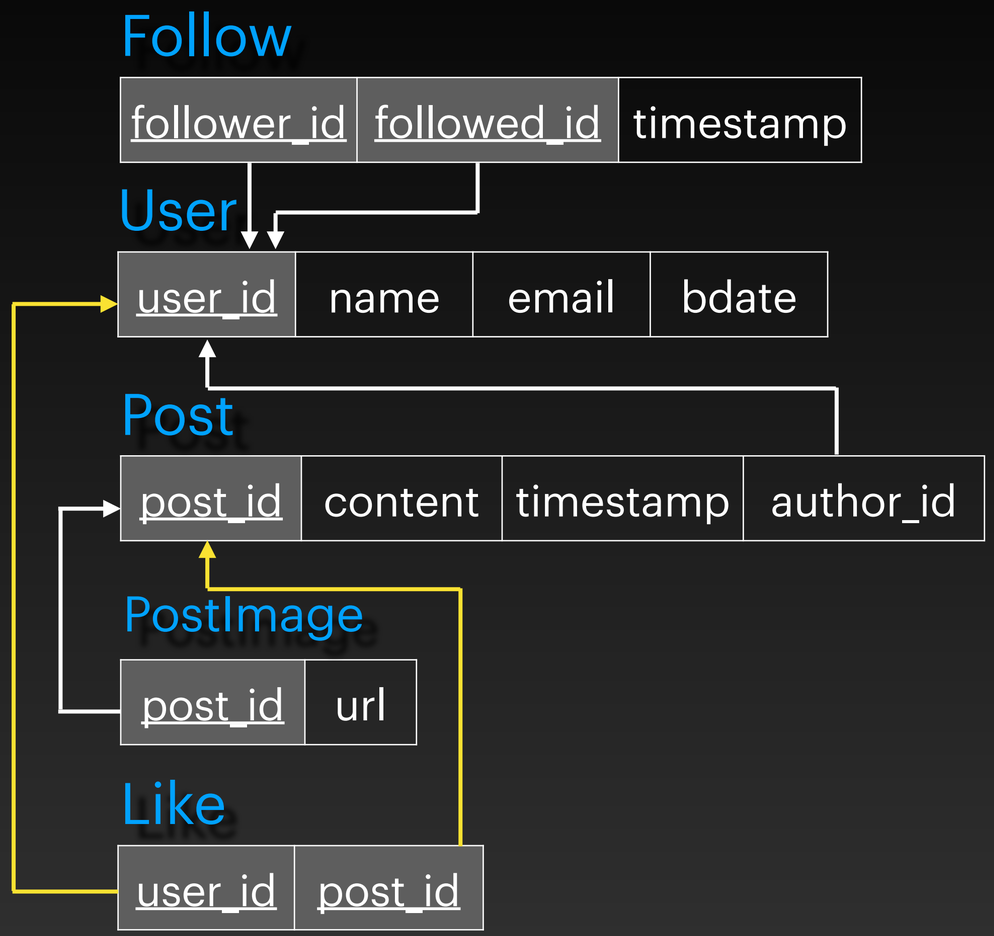

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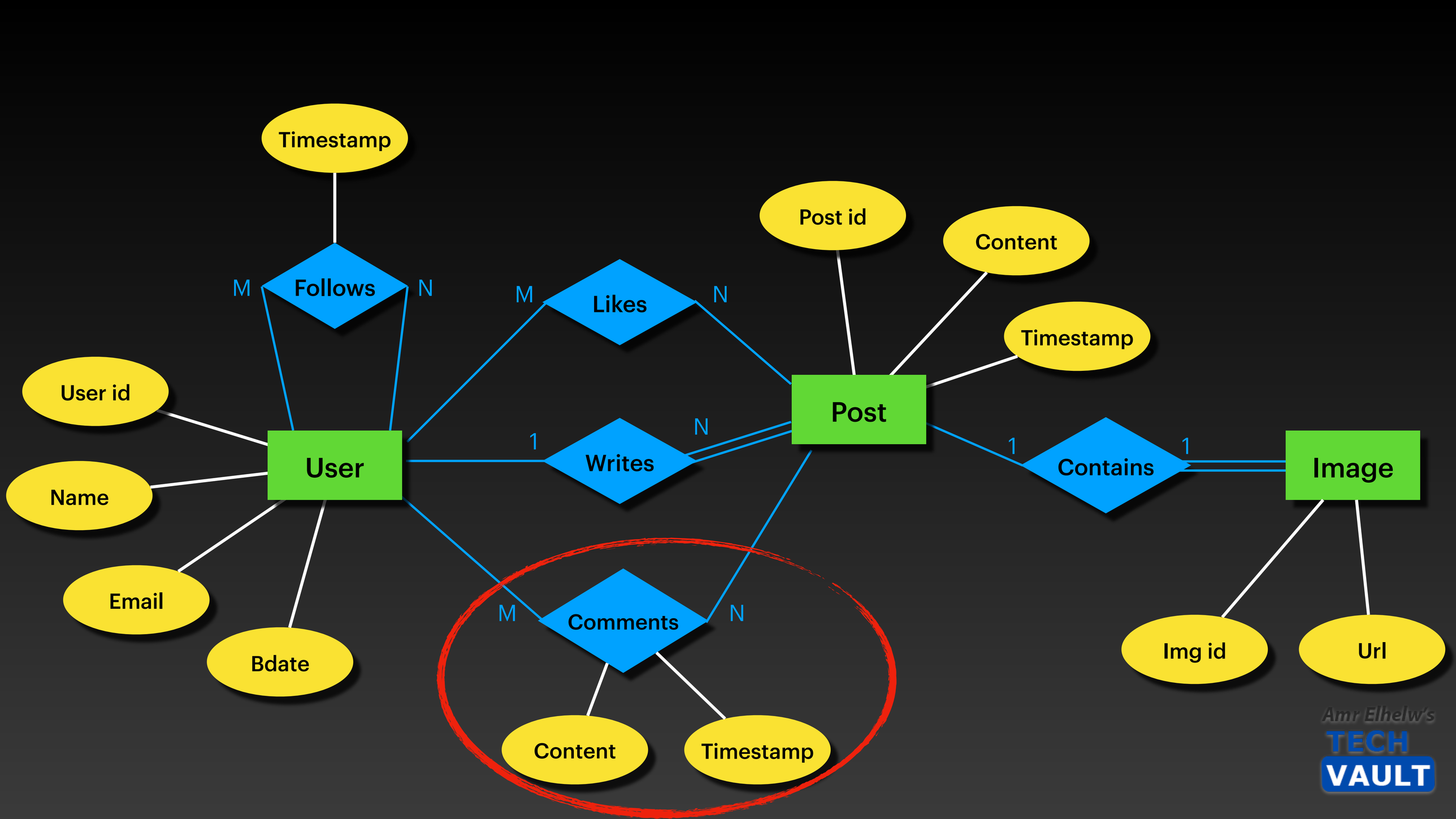
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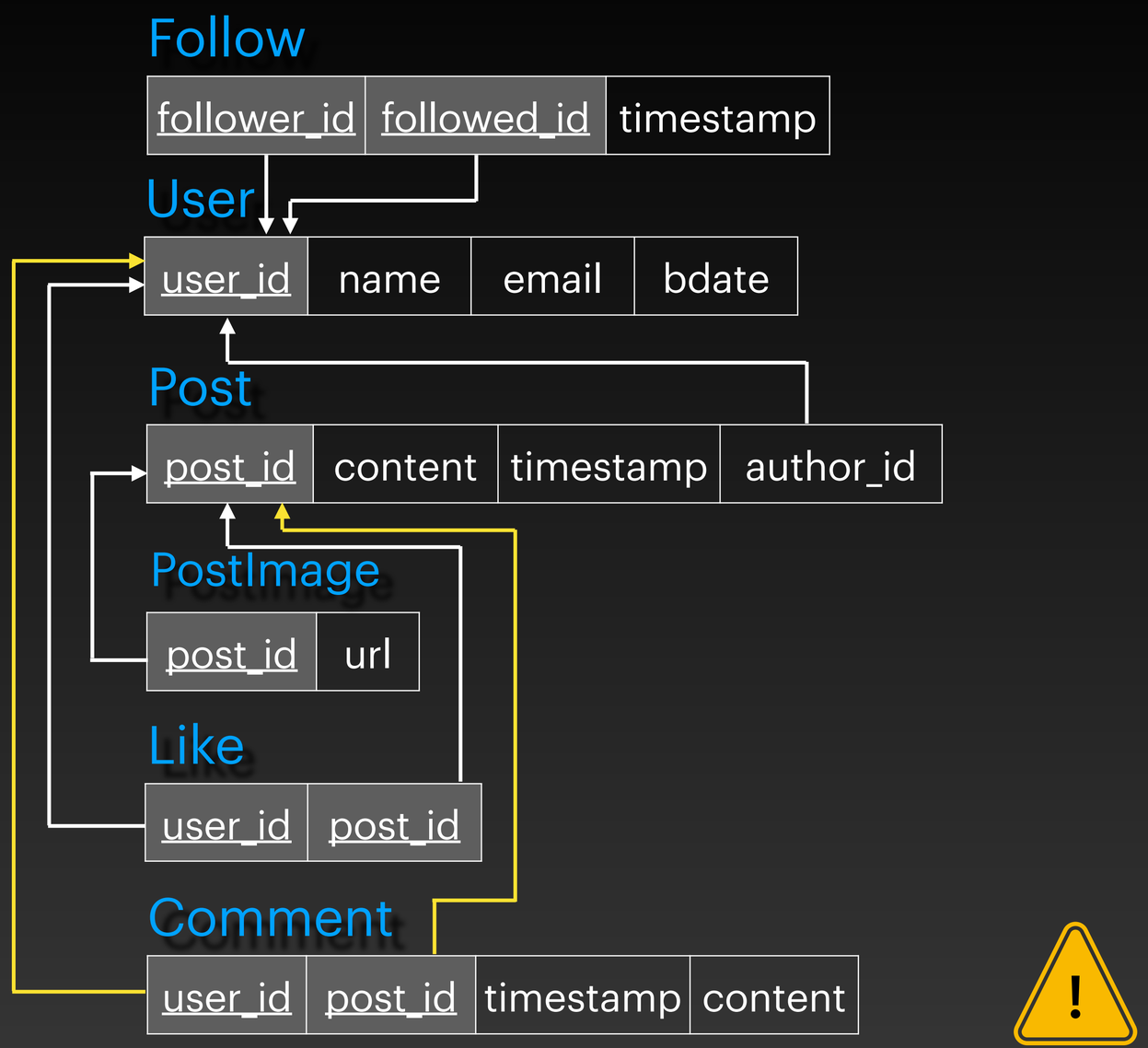

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