

Relational model:

Entities:

User(email, first_name, last_name, birthday, password, gender, city, country) (city ref Location, country ref Location)

Since there is a key and participation constraint from organization to the “located at” relationship, we have included the organization’s location (city and country) as attributes of the table instead of adding a new table for the relationship.

Conversation(convo_id, name)

There is a participation constraint that cannot be modelled such that each conversation must have at least one user.

Message(msg_id, email, convo_id, time, content) (email foreign key ref User, convo_id foreign key ref Conversation)

This is a combination of the Message entity set and the Messages relation set, as there is a key and participation constraint from Message to Messages. The participation constraint requires that each message belongs to at most one (exactly one) User.

Comment(cid, pid, email, text, time) (pid foreign key ref Post, email foreign key ref User).

This is a combination of the Comment entity set and the Comments relation, as there is a key and participation of Comment to the Comments relation.

Post(pid, wall_i, email, date, text, url) (wall_id foreign key ref Wall, email foreign key ref User).

This is a combination of the Post entity set and the Posts relation set, as there is a key and participation constraint from Post to Posts.

Wall(wall_id, descr, permission, email) (email Ref User)

Since there is a participation key constraint from wall to HasA, we have included the relation as an attribute of Wall instead of creating a table for the relation. Note that there is a participation constraint from user in the HasA relationship that cannot be modelled in the relational model.

Location(city, country)

Organization(org_id, name, description, phone_number, address, email, city, country) (city ref Location, country ref Location)

Since there is a key and participation constraint from organization to the “located at” relationship, we have included the organization’s location (city and country) as attributes of the table instead of adding a new table for the relationship.

School(org_id) (org_id foreign key ref Organization)

Workplace(org_id) (org_id foreign key ref Organization)

Weak entities:

WorkPeriod(email, org_id, from, to, job_title) (email foreign key ref User, org_id foreign key ref Workplace)

This is a combination of the Work At weak relation and the Work Period weak entity.

StudyPeriod(email, org_id, from, to, edu_level) (email foreign key ref User, org_id foreign key ref Organization)

This is a combination of the Study At weak relation and the Study Period weak entity.

Relationships:

CommentReaction(cid, email, type) (cid foreign key ref Comment, email foreign key ref User)

PostReaction(pid, email, type) (pid foreign key ref Post, email foreign key ref User)

Follows(follower, followedBy, since) (follower foreign key ref User, followedBy foreign key ref User)

PartOf(email, convo_id) (email foreign key ref User, convo_id foreign key ref Conversation).

There is a participation constraint from Conversation to PartOf in the ER model that cannot be modelled in the relational model.