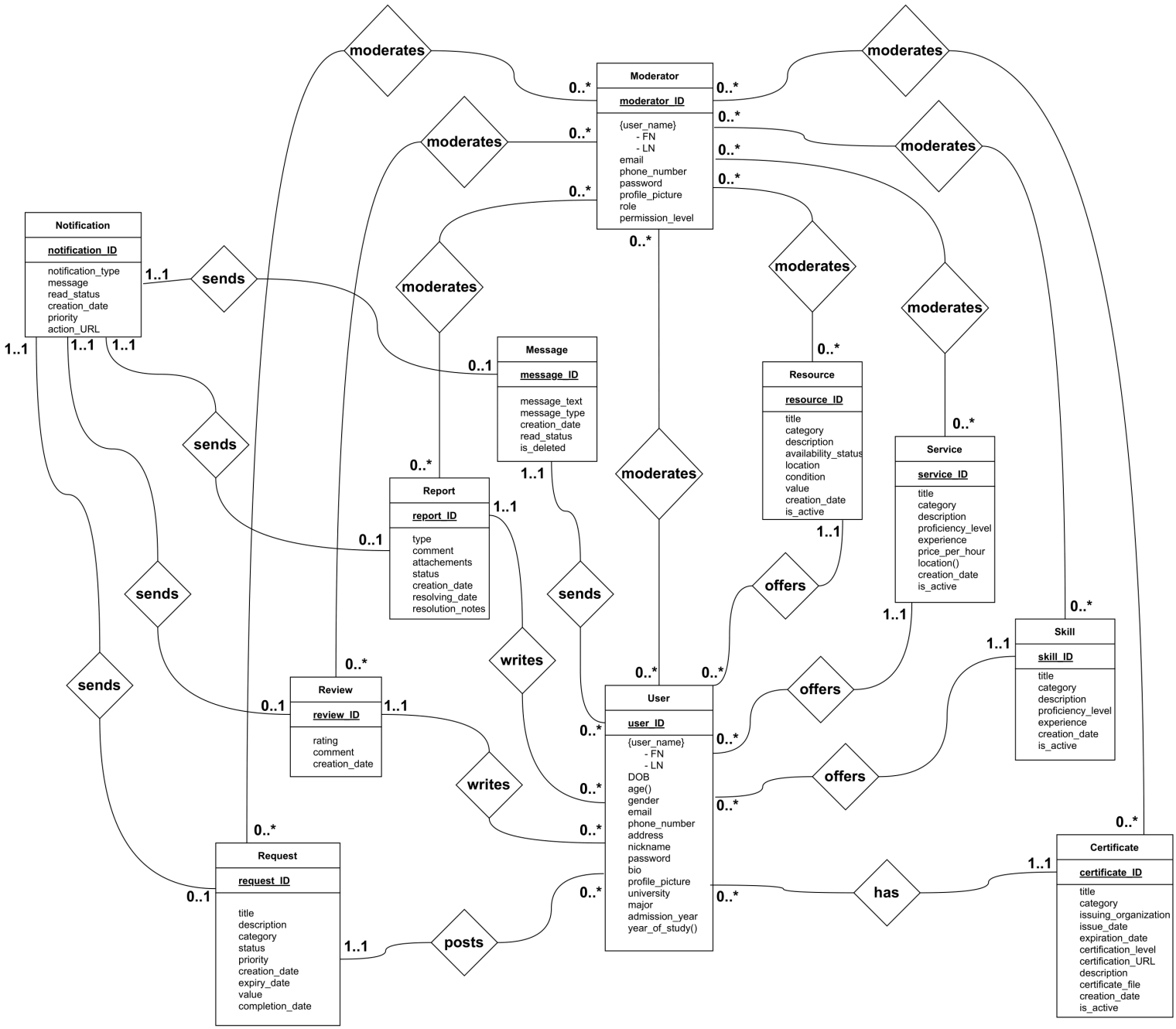
SwapSavvy

Database Design

ERD



RS

User (user_ID (PK), FirstName (NN), LastName (NN), DOB, age(), gender,
email (NN, U), phone_number, address, nickname, password (NN), bio, profile_picture,

university, major, admission_year, year_of_study())

Moderator(moderator_ID (PK), FirstName (NN), LastName (NN), email (NN, U), phone_number, password (NN), profile_picture, role, permission_level)

Request(request_ID (PK), user_ID (FK, NN), title, description, category, status, priority, creation_date, expiry_date, value, completion_date)

Review(review_ID (PK), user_ID (FK, NN), rating, comment, creation_date)

Report(report_ID (PK), user_ID (FK, NN), type, comment, attachments, status, creation_date, resolving_date, resolution_notes)

Message(message_ID (PK), user_ID(FK, NN), content, message_type, creation_date, read_status, is_deleted)

Resource(resource_ID (PK), user_ID (FK, NN), title, category, description, availability_status, location, condition, value, creation_date, is_active)

Skill(skill_ID (PK), user_ID (FK, NN), title, category, description, proficiency_level, experience, creation_date, is_active)

Service(service_ID (PK), user_ID (FK, NN), title, category, description, proficiency_level, experience, price_per_hour, location(), creation_date, is_active)

Certificate(certificate_ID (PK), user_ID (FK, NN), title, category, issuing_organization, issue_date, expiration_date, certification_level, certification_URL, description, certificate_file, creation_date, is_active)

Notification(notification_ID (PK), senderID *(FK, NN),* sender_type(NN), message, read_status, creation_date, priority, action_URL)

CertificateModeration(certificate_ID (FK, NN), moderator_ID (FK, NN))

SkillModeration(skill_ID (FK, NN), moderator_ID (FK, NN))

ServiceModeration(service_ID (FK, NN), moderator_ID (FK, NN))

ResourceModeration(resource_ID (FK, NN), moderator_ID (FK, NN))

ReportModeration(report_ID (FK, NN), moderator_ID (FK, NN))

ReviewModeration(review_ID (FK, NN), moderator_ID (FK, NN))

RequestModeration(request_ID (FK, NN), moderator_ID (FK, NN))

UserModeration(user_ID (FK, NN), moderator_ID (FK, NN))

Normalization

1. User

User (....)

- user_ID→all attributes (since user_ID is the primary key).
- email→user_ID (since email is unique)

user_ID is the primary key, uniquely determining all attributes.

There are no transitive dependencies because email is either directly determined by the primary key.

Already in BCNF

2. Moderator

Moderator (....)

- moderator_ID→all attributes (since moderator_ID is the primary key).
- email→moderator_ID(email is unique).

moderator_ID is the superkey.

No partial or transitive dependencies.

Already in BCNF

3. Request

Request (....)

- request_ID→all attributes (since request is the primary key).

request_ID uniquely identifies all attributes.

No partial or transitive dependencies.

Already in BCNF

4. Review

Review (....)

- review_ID→all attributes (sice review_ID is the primary key).

review_ID uniquely identifies all attributes.

No partial or transitive dependencies.

Already in BCNF

5. Report

Report (....)

- report_ID→all attributes (since report_ID is the primary key).

report_ID uniquely identifies all attributes.

No partial or transitive dependencies.

Already in BCNF

6. Message

Message (....)

- message_ID→all attributes (since message_ID is the primary key).

message_ID uniquely identifies all attributes.

No partial or transitive dependencies.

Already in BCNF

7. Resource, Skill, Service, Certificate Tables

- For each table, the primary key uniquely determines all other attributes.

These tables are already in BCNF

8. Notification

Notification (....)

- notification_ID→all attributes (since notification_ID is the primary key).

- (senderID,sender_type)→notification_ID

notification_ID→all holds BCNF, as notification_ID is a superkey.

(senderID,sender_type)→notification_ID does not violate BCNF, as (senderID,sender_type) is a composite superkey.

Already in BCNF

9. Moderation Tables

For all moderation tables:

Composite Primary Key uniquely identifies each row.

No partial or transitive dependencies.

Already in BCNF