

SCHOOL OF COMPUTER SCIENCES
UNIVERSITI SAINS MALAYSIA

CMT221/CMM222: Database Organization and Design

Semester 1, Academic Session: 2023/2024

System Design

Group Number 55

*Case Study Number 15: ResearchPortal Academic Social Networking
Database System*

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Date of Submission

3 December 2023

1.0 Business Rules

Module 1: USER

- BR1: Each user is affiliated to one and only one department. Each department affiliates one or many users.
- BR2: Each organisation can include one or many departments. Each department can be included in one and only one organisation.
- BR3: Each country can host one or many organisations. Each organisation can be hosted in one and only one country.

Module 2: ARTICLE

- BR4: Each user can author zero or many articles. Each article can be authored by one or many users.
- BR5: Each research can produce zero or many articles. Each article is produced from one and only one research.
- BR6: Each research can involve one or many users. Each user can be involved in one or many research.
- BR7: Each article can be cited in zero or more citing articles. Each citing article can cite zero or many cited articles.

Module 3: QUESTION

- BR8: Each user can ask zero or many questions. Each question can be asked by one and only one user.
- BR9: Each question can be answered by zero or many users. Each user can answer zero or many questions
- BR10: Each question can be assigned one or many keywords. Each keyword is assigned to one or many questions.
- BR11: Each user can follow zero or many keywords. Each keyword can be followed by zero or many users.

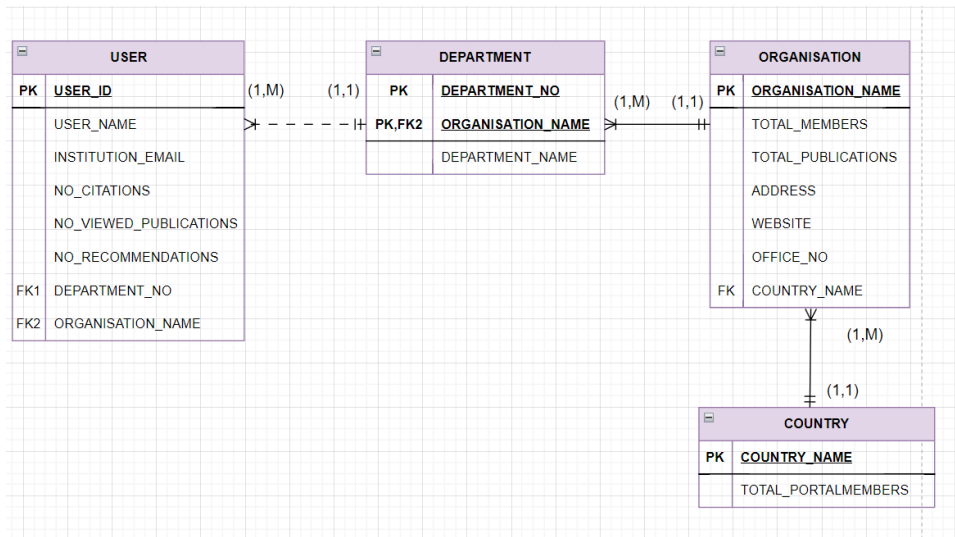
Module 4: CONVERSATION

- BR12: Each user can own zero or many conversations. Each conversation is owned by one and only one user.
- BR13: Each user is recipient in zero or many conversations. Each conversation is received by one and only one user.
- BR14: Each conversation can contain one or many messages. Each message is contained in one and only one conversation.
- BR15: Each user can send zero or many messages. Each message is sent by one and only one user.

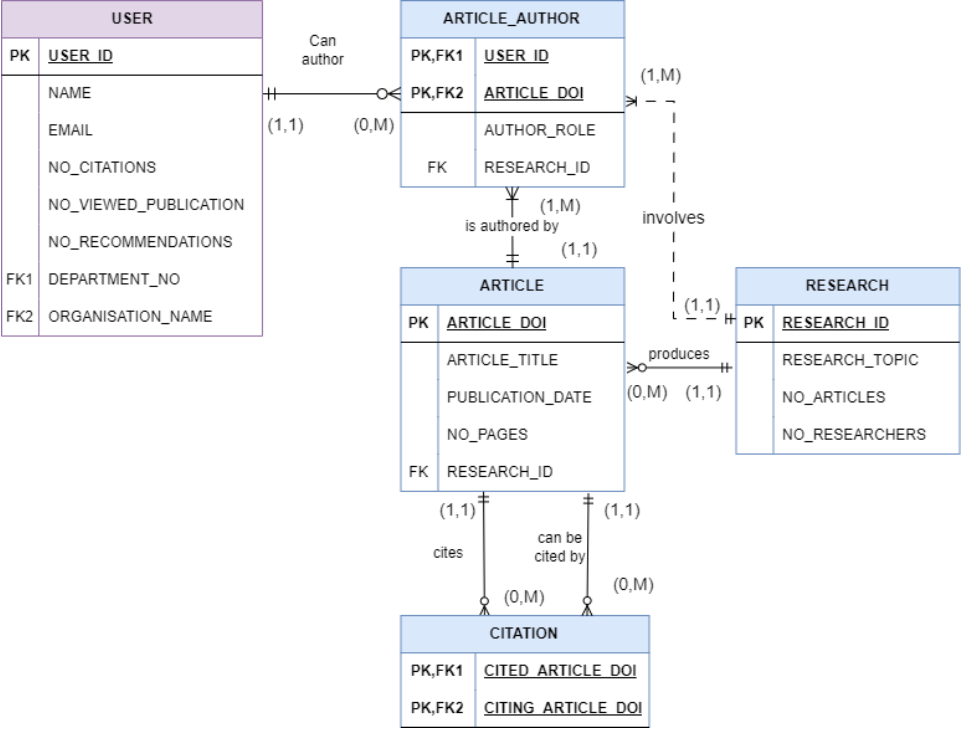
- BR16: Each user can receive zero or many messages. Each message is received by one and only one user
- BR17: Each message can attach zero or many attachments. Each attachment is attached to one or many messages.
- BR18: Each Attachment can include zero or one article. Each article can be included in zero or one attachment.

2.0 Partial ERD

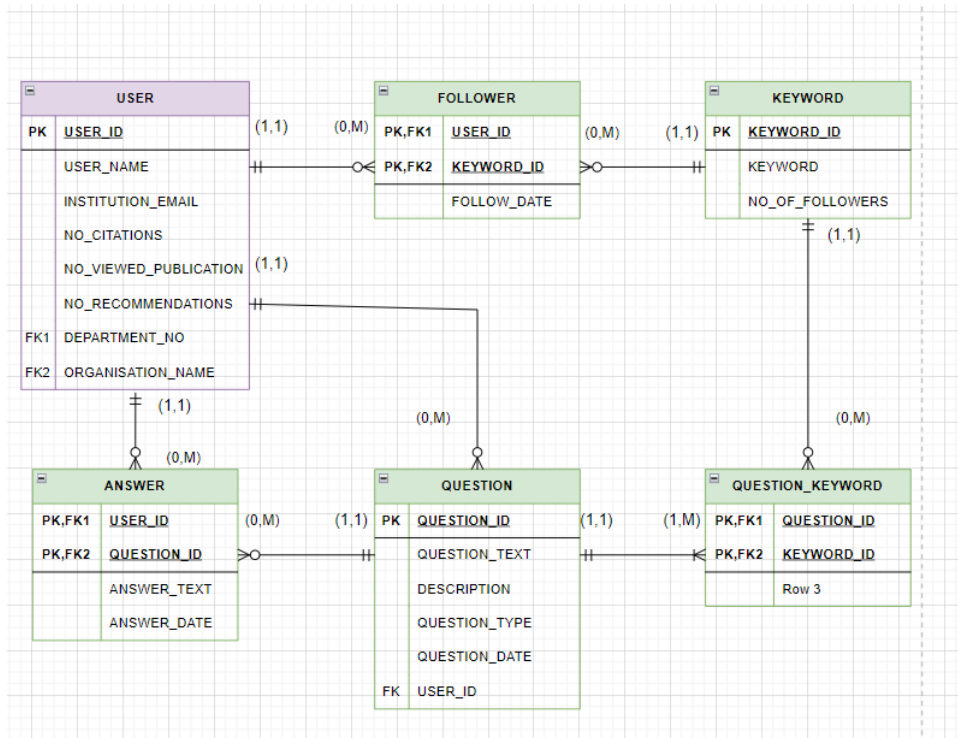
Module 1: User



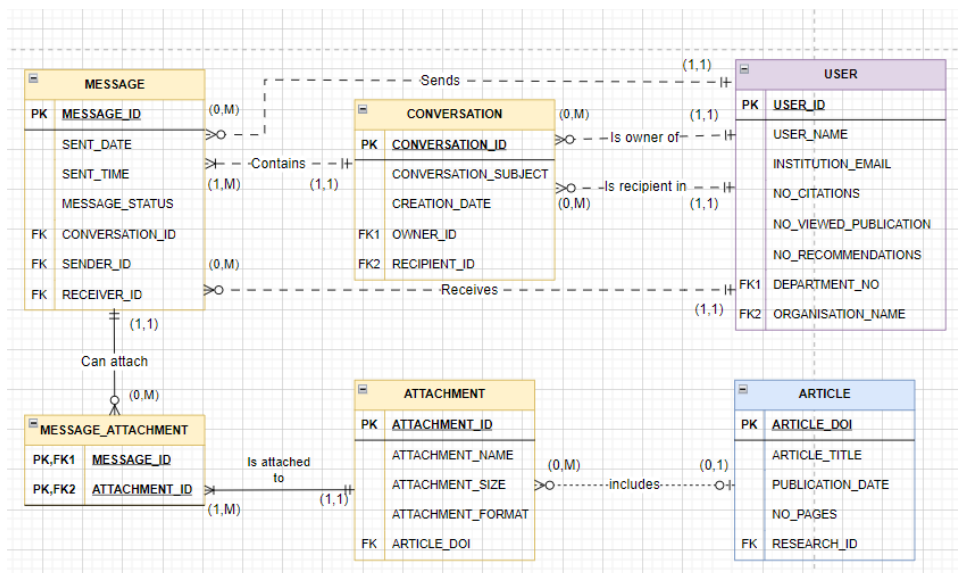
Module 2: Article



Module 3: Question



Module 4: Conversation



3.0 Overall ERD

