

Course Name: CS306 – Database Management

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DESCRIPTION OF THE DATABASE

We are making library database where we need to store informations about books, authors of the books, papers of authors, periodical, users which are taking books and periodicals and publishers of each book and periodical.

Authors have authorid, which we may assume is unique, name and surname. Paper has paper name and paperid which is unique. One author may have zero or many papers and many papers may have one author.

Books are identified by unique bookid. They also have title of the book, year of publishing, number of pages and edition of the book. One author may have minimum zero and maximum many written books and many or different books may have one author. For example, author 'Roberto Zicari' can write two different books, 'XML Data Managemnt' and 'MySql' and these book can have only one author which is Roberto Zicari.

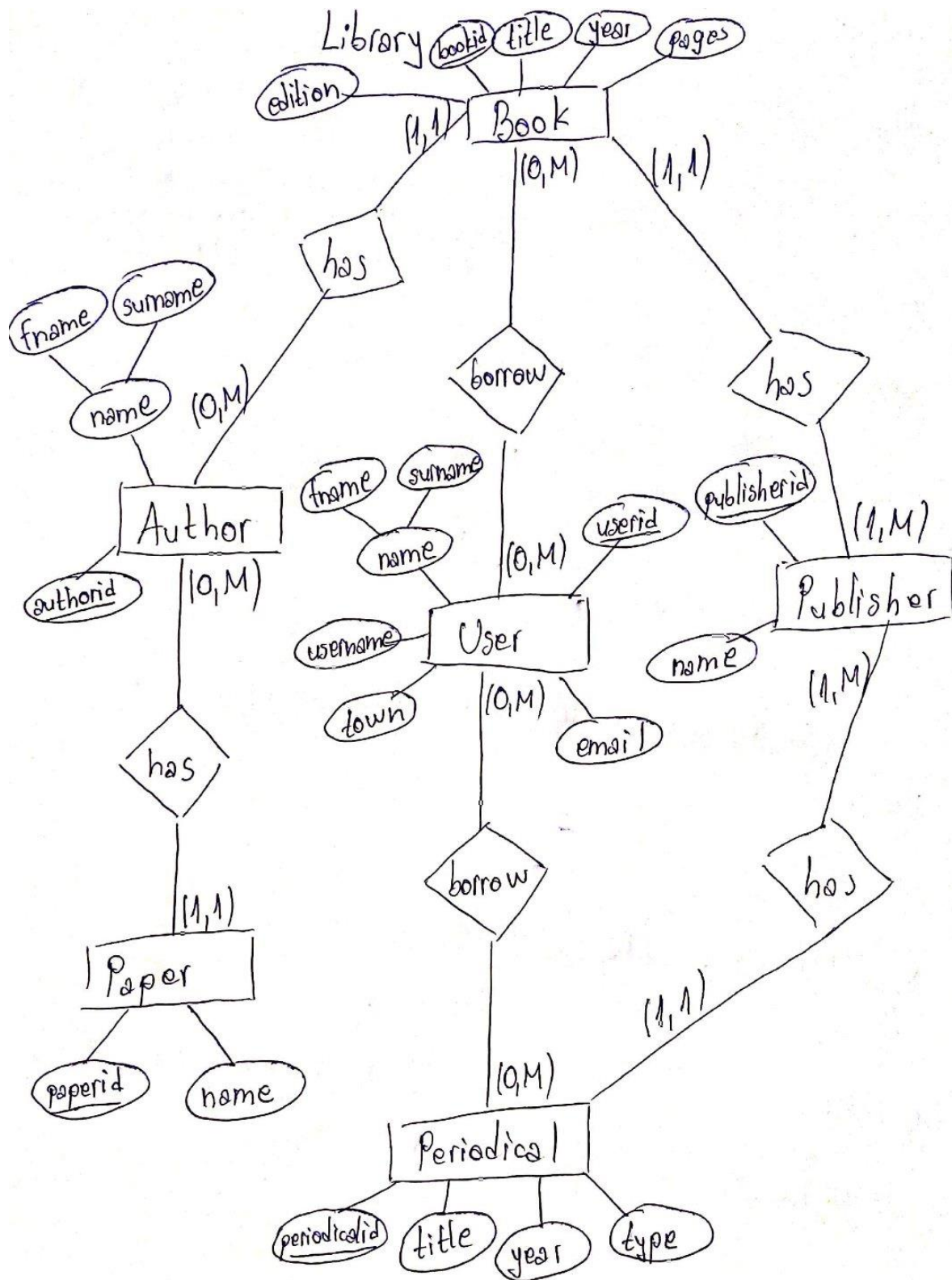
User, or customer in SQL part of this project, because SQL does not allow name of the table to be user, have userid or customerid which is uniquely identified. Customer also has name, surname, username, town from which he or she comes and email adress. Each customer may borrow zero or more books.

Periodicals have periodicalid which is unique and also have title of the periodical, year of publishing and type of the periodical. The relationship between periodical and customer is same as the relationship between customer and book. Each customer may borrow zero or more periodicals at the same time.

Publisher is identifed by unique publisherid and name of publisher. Different books may have the same publisher and one publisher can publish one or many different books. For example, books 'Thomas Calculus' and 'MySql' have the same publisher which is 'Addison Wesley'.

The same thing is between periodical and publisher. Different periodicals may have one publisher and one publisher can publish one or many different books.

ER DIAGRAM



ER DIAGRAM

In the mapping part, in the table author will be authorid which is primary key of the table, name and surname. In the table book will be bookid which is primary key of the table, title, year, pages, edition, authorid which is first foreign key because book:author is M:1 and takes primary key of author table as foreign key. The same situation is with publisherid because book:publisher is M:1 and it takes primary key of publisher which is publisherid as foreign key in the table book.

Table paper has paperid as primary key, name and authorid as foreign key. Paper:author is M:1 and that is the reason why paper takes authorid as foreign key.

Customer table has userid which is primary key, name,surname, username, email and town.

Because book:customer is M:M we need to make new table in which will be primary keys of these two tables. Primary key of this table will be combination of these two primary keys and they will also be foreign keys.

Periodical table has periodicalid as primary key, title, year, type and publisherid as foreign key from publisher table.

Also, we need to make new table named periodical_customer because periodical:customer is M:M. In this table will be primary keys of tables periodical and customer and combination of these two primary keys will be primary key of this new table.

And in the end we have table publisher where we have publisherid which is primary key and name.

TABLES:

Author

| <u>authorid</u> | name | surname |
|-----------------|------|---------|
|-----------------|------|---------|

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Paper

| <u>paperid</u> | name | <u>authorid</u> |
|----------------|------|-----------------|
|----------------|------|-----------------|

PK FK

Book

| <u>bookid</u> | title | year | pages | edition | <u>authorid</u> | <u>publisherid</u> |
|---------------|-------|------|-------|---------|-----------------|--------------------|
|---------------|-------|------|-------|---------|-----------------|--------------------|

PK FK FK

Customer / User

| <u>customerid</u> | name | surname | username | town | email |
|-------------------|------|---------|----------|------|-------|
|-------------------|------|---------|----------|------|-------|

PK

Periodical

| <u>periodicalid</u> | title | year | type | <u>publisherid</u> |
|---------------------|-------|------|------|--------------------|
|---------------------|-------|------|------|--------------------|

PK FK

Publisher

| <u>publisherid</u> | name |
|--------------------|------|
|--------------------|------|

PK

Periodical - User(customer)

| <u>periodicalid</u> | <u>customerid</u> |
|---------------------|-------------------|
|---------------------|-------------------|

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Book & Customer (User)

| <u>bookid</u> | <u>customerid</u> |
|---------------|-------------------|
|---------------|-------------------|

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