

# Information System - Lab work 8

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## 1 Requirement

You need a database to manage information about the magazines that you buy habitually.

For each magazine, its title, the ISSN (code that identifies the publication), number and year are stored. You need also data about the articles, including its title, page of beginning and page of ending. It is assumed that there are no two articles with the same title.

Every article can be written by several authors, whose name, e-mail address and ascription are stored. Besides, a number that indicates the order of has to be stored.

## 2 Design Database

### 2.1 Determine concepts that needs to be stored

- Magazine
- Article
- Author



Figure 1: Concepts

### 2.2 Determine attributes of each concept

- Magazine (title, ISSN, number, year, order\_no)
- Article (title, begin\_page, end\_page)
- Author (name, email, ascription)

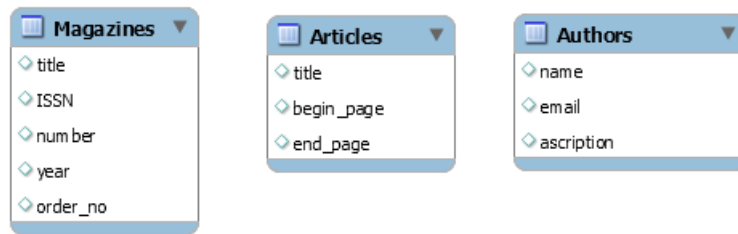


Figure 2: Attributes

### 2.3 Determine links (relationships) between them

- Article and Magazine ("has")
- Article and Author ("has")

### 2.4 Determine types of each concept attribute

- Magazine
  - title VARCHAR(100)
  - ISSN VARCHAR(20)
  - number INT
  - year INT
  - order\_no INT
- Article
  - title VARCHAR(100)
  - begin\_page INT
  - end\_page INT
- Author
  - name VARCHAR(50)
  - email VARCHAR (50)
  - ascription VARCHAR (200)

### 2.5 Solve foreign key links

- Magazines
  - magazine\_id INT
  - title VARCHAR(100)

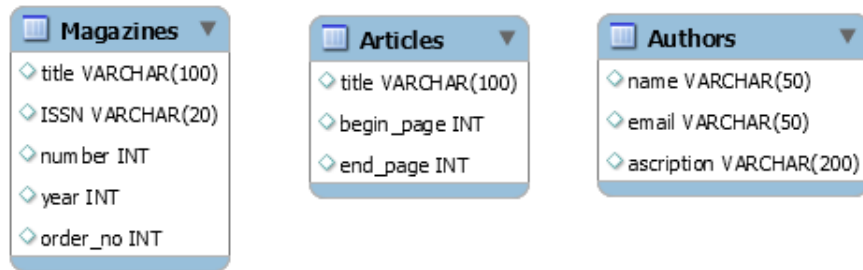


Figure 3: Type of attributes

- ISSN VARCHAR(20)
- number INT
- year INT
- order\_no INT
- Articles
  - article\_id INT
  - title VARCHAR(100)
  - begin\_page INT
  - end\_page INT
  - magazin\_id INT
- Authors
  - author\_id INT
  - name VARCHAR(50)
  - email VARCHAR (50)
  - ascription VARCHAR (200)
- Article\_Author
  - article\_id INT
  - author\_id INT

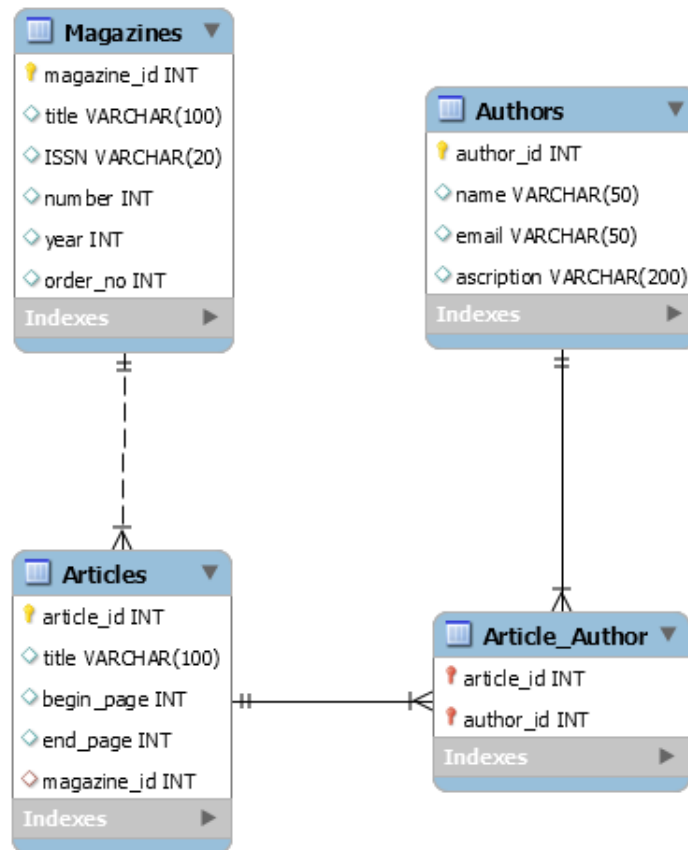


Figure 4: Solve foreign key links

## 2.6 Implementation

```

CREATE DATABASE Magazines;
USE Magazines;

CREATE TABLE Magazines (
    magazine_id INT NOT NULL,
    title VARCHAR(100),
    ISSN VARCHAR(20),
    number INT,
    year INT,
    order_no INT,
    PRIMARY KEY (magazine_id)
);
  
```

```

CREATE TABLE Articles (
    article_id INT NOT NULL,
    title VARCHAR(100),
    begin_page INT,
    end_page INT,
    magazine_id INT,
    PRIMARY KEY (article_id),
    FOREIGN KEY (magazine_id)
    REFERENCES Magazines(magazine_id)
);

CREATE TABLE Authors (
    author_id INT NOT NULL,
    name VARCHAR(50),
    email VARCHAR(50),
    ascription VARCHAR(200),
    PRIMARY KEY (author_id)
);

CREATE TABLE Article_Author (
    article_id INT NOT NULL,
    author_id INT NOT NULL,
    PRIMARY KEY (article_id , author_id),
    FOREIGN KEY (article_id) REFERENCES Articles(article_id),
    FOREIGN KEY (author_id) REFERENCES Authors(author_id)
)

```

```
mysql> describe Magazines;
```

Field	Type	Null	Key	Default	Extra
magazine_id	int(11)	NO	PRI	NULL	
title	varchar(100)	YES		NULL	
ISSN	varchar(20)	YES		NULL	
number	int(11)	YES		NULL	
year	int(11)	YES		NULL	
order_no	int(11)	YES		NULL	

```
6 rows in set (0.00 sec)
```

```
mysql> describe Articles;
```

Field	Type	Null	Key	Default	Extra
article_id	int(11)	NO	PRI	NULL	
title	varchar(100)	YES		NULL	
begin_page	int(11)	YES		NULL	
end_page	int(11)	YES		NULL	
magazine_id	int(11)	YES	MUL	NULL	

```
5 rows in set (0.00 sec)
```

```
mysql> describe Authors;
```

Field	Type	Null	Key	Default	Extra
author_id	int(11)	NO	PRI	NULL	
name	varchar(50)	YES		NULL	
email	varchar(50)	YES		NULL	
ascription	varchar(200)	YES		NULL	

```
4 rows in set (0.00 sec)
```

```
mysql> describe Article_Author;
```

Field	Type	Null	Key	Default	Extra
article_id	int(11)	NO	PRI	NULL	
author_id	int(11)	NO	PRI	NULL	

```
2 rows in set (0.00 sec)
```

Figure 5: Output