



Course basic information

Code	Course Name	Credit Hours		
		Lecture	Practice	Total
<u>IS212</u>	Data Base	2	2	3

Research Title

(Library Management System)

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Level: The-Second

Department : General

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➤ System Description:

The main objective of the Library Management System is to manage the details of the book. it manages all information about books, booking. the purpose of the project is to build an application program to Organizing and borrowing books and knowing the sold books

➤ Data Dictionaries :

✚ Section

Field Name	Data Type	Description	Example
Number	Int		
Name	Varchar		

✚ Books

Field Name	Data Type	Description	Example
ISBN	Int	Book edition number	
Price	Int	The cost of ordering	
Specialization	Varchar	Book specialization	Historical book
Available	Boolean		True
Author	Varchar		
Section_Number	Int		
Publisher_Name	Varchar		

✚ Author

Field Name	Data Type	Description	Example
Id	Int		
Name	Varchar		
E-Mail	Varchar		

Publisher

Field Name	Data Type	Description	Example
Id	Int		
Name	Varchar	Publisher name	
Address	Varchar	Address of publisher	
E-Mail	Varchar		

Publisher_Phone

Field Name	Data Type	Description	Example
Publisher_Id	Int		
Phone	Int		

Member

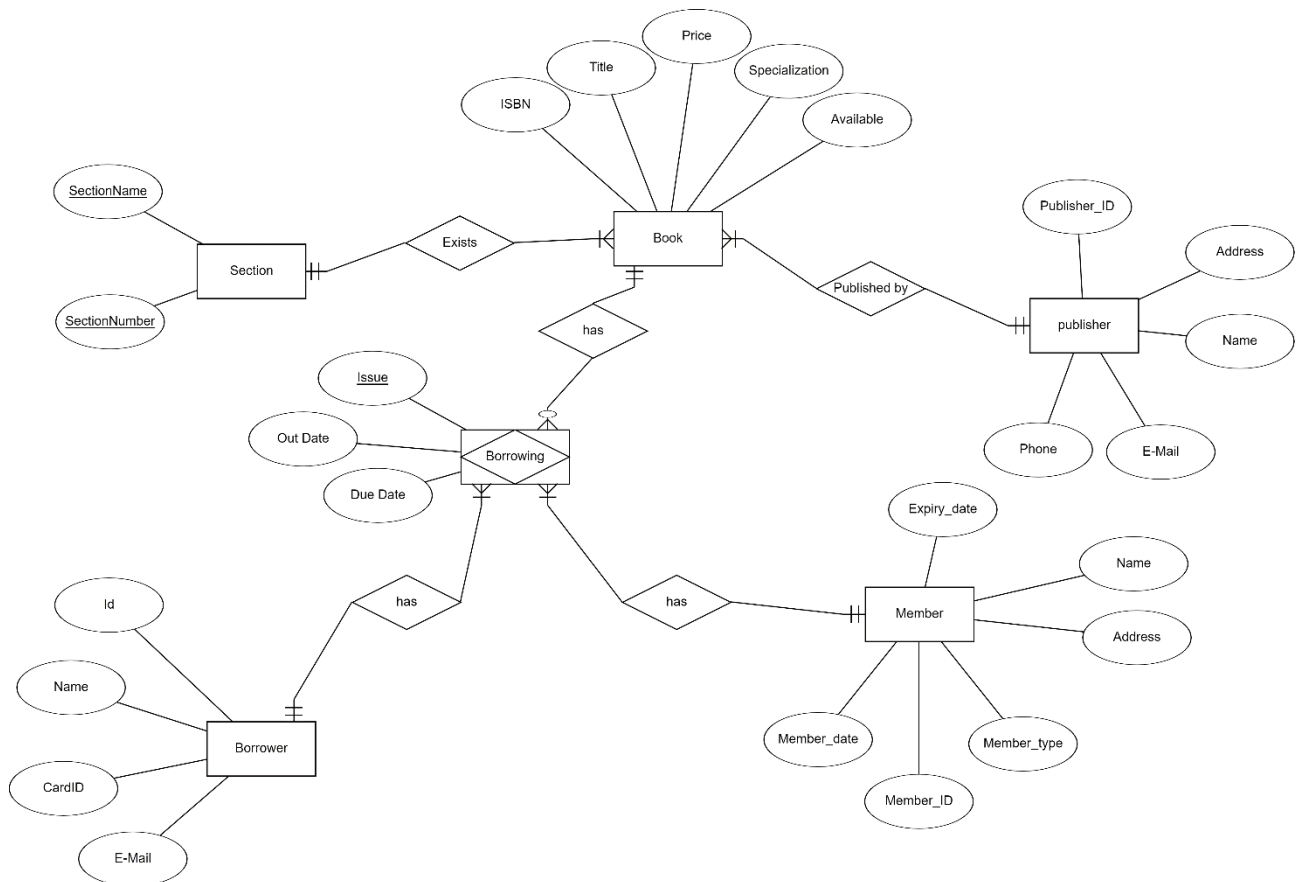
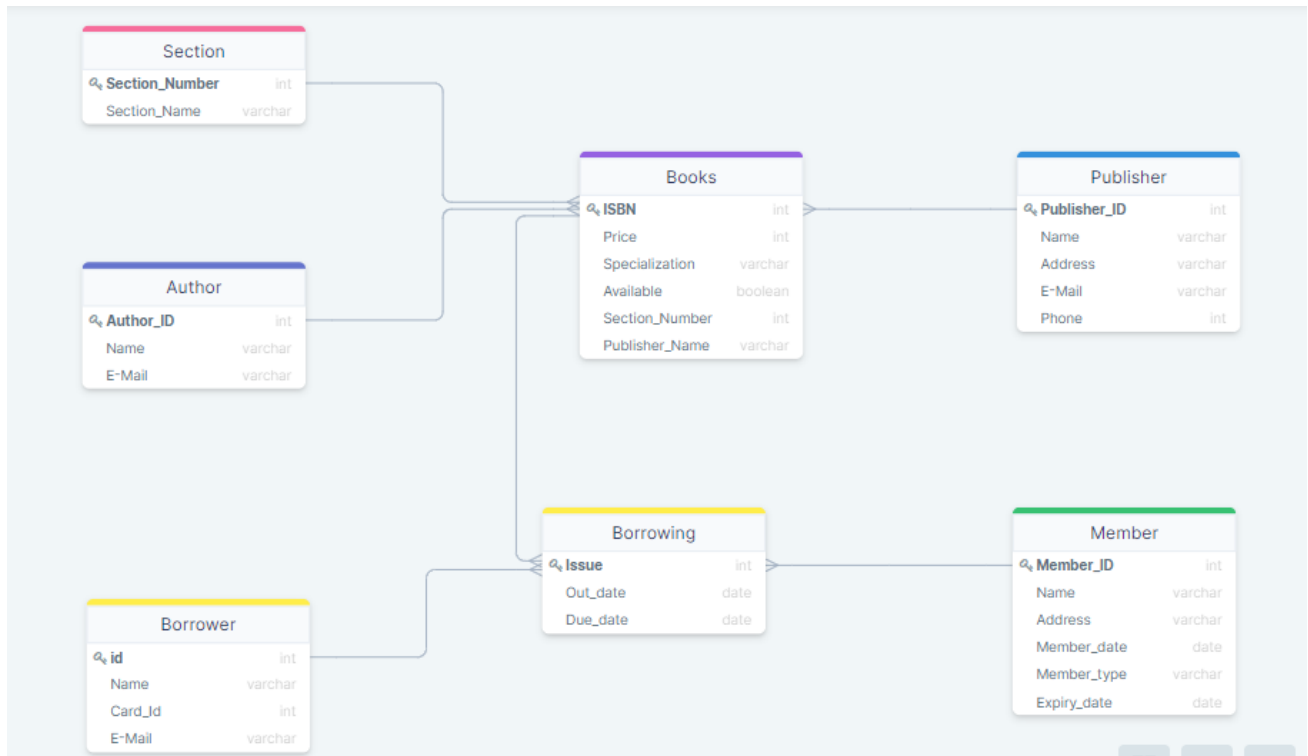
Field Name	Data Type	Description	Example
Id	Int		

Name	Varchar		
Address	Varchar		
Member_date	Date	Member start date	
Member_type	Varchar		VIP
Expiry_date	Date	Membership expiry date	

Borrowed_By

Field Name	Data Type	Description	Example
Issue	Int		
Out_date	Date	The date the book was released	
Due_date	Date	The date the book was returned	

Entity Relationship Diagram



➤ Select Statements using Different Functions

Count() is a function that takes the name of a column as an argument and counts the number of rows where Column is not null.

```
Select count(specialization)
```

```
From book ;
```

Max() is a function that takes the name of a column as an argument and returns the largest value in that column.

```
Select max(price)
```

```
From book;
```

Min() is a function that takes the name of a column as an argument and returns the smallest value in that column

```
Select min(price)
```

```
From book;
```

AVG is an aggregate function that returns the average value for a numeric column

```
Select AVG(section_number)
```

```
From section;
```

Example :

1. Display records of publisher table

```
Select *
```

```
From publisher ;
```

2. Display records of book table

```
Select *
```

```
From book ;
```

3. Display records of borrowed_by table

Select *

From borrowed_by;

4. Find Address of all publishers

Select Address

From publisher ;

5. List Name of borrower in descending order

Select Name

from Borrower

order by desc ;

6. List Book Price which has id B20

Select book_price

From Books

Where id='B20'

7. List Name of borrower who borrowing a book

Select Name

From borrower W, borrowing B

Where W.book_id= B.book_id ;

8. List Name , Address of borrower who borrowing a book in 2020-07-10 to 2020-06- 13

Select Name , Address

From borrower W, borrowing B

Where W.book_id= B.book_id ;and outdate =' 2020-06-13 '

and duedate=' 2020-07-10 '

➤ Select Statements using Sub Query

1. List books specialization is the most cost

Select book_ specialization

From Book

Where price = (select MAX(price) from book) ;

2.List books which are borrowed for maximum time

Select *

From book

Where book_id = (select book_id from borrowing where Price ((duedate-outdate)/200)= (select Max(Price (duedate-outdate)/200) from borrowing)) ;

➤ Select Statements using Count and Group Functions

1. Find count of books for each ISBN which has at least

seven books

Select count(book_id)

from book

Group by ISBN

Having count(book_id) >= 7 ;

2. Find count of all member



Select count (*)

From member

Group by member_id ;

➤ Select Statements using Different Joins

1. Inner Join

An inner join will combine rows from different tables if the join condition is true.

Select publisher_name(s)

From publisher

Join book

On publisher.publisher_name=

book. publisher_name;

2. Outer Join

An outer join will combine rows from different tables even if the join condition is not met, every row in the left table is returned in the result set, and if the join condition is not met, then Null values are used to fill in the columns from the right table.

Select ISBN(s)

From book

Left join author on book.ISBN = author.ISBN;

➤ Insert Statement

1) Insert into member values('said mohamed', 'Egypt ' , ' VIP');

2) Insert into book values ('9876541234078', '80 pound ' , 'historical' , 'available') ;

3) Insert into borrowing values ('20 ' , ' 2020-06-01' , '2019-07-01 ') ;

4) Insert into borrower values('mohamed gomaa' , 'mohamed_gomaa @yahoo.com' , ' Egypt');

5) insert into publisher values ('ahmed tawfik' , 'Egypt ' , ' ahmed_tawfik@gmail.com' ,
'01115455787') ;

➤ Update Statement

1) Update member

```
set name = ' mohamed '  
where m_id='156' ;
```

2) Update publisher

```
set name='Egypt'  
where p_id='p130' ;
```

3) Update borrowing

```
set out_date='2019-06-07'  
where m_id='103';
```

4) Update borrower

```
set name = ' ahmed '  
where m_id='98' ;
```

5) Update book

```
set ISBN='9876541234078'  
where a_id='126' ;
```

➤ Delete Statement

1) Delete from member

where name=' samir ' ;

2) Delete from book

Where ISBN='9876541234159';

3)Delete from borrowing

where m_id ='120 ' ;

4) Delete from publisher

where p_id='56' ;

5) Delete from borrower

where b_id='135 ' ;

➤ References

much of the content of this book including the figures is derived from the references listed below for research purposes.

- Data Base Book, Dr/ Reda M. Hussien
- <https://www.w3resource.com>
- <https://www.mysql.com>
- <https://www.w3school.com>



➤ Git-Hub Repository Link

https://github.com/Ahmedsaid666/college-data_base-research.git