

Create a own Database

use at least four applications in implementing project work including a query language and a programming language

Expected results (**Success criteria**)

- ? Is able to create a database in 1,2,3 normal form
- ? Can create a database in the environment XAMPP
- ? Can create tables and table attributes in the environment XAMPP
- ? Can determine key and foreign keys for a table
- ? Can create links between tables
- ? Can fill records for the table in the environment XAMPP
- ? Can create queries for a database in the environment XAMPP



Development of a mini project

- ? Create a database in 1 normal form
- Create a database in 2 normal forms
- Create a database in 3 normal forms
- the 3 normal form of the database is implemented in the environment XAMPP
- ? Database creation
 - Creating a table and attributes for a table
 - Identifying primary and foreign keys
 - Create a link between tables
 - Fill in the records for the table
 - Create queries for a table

“Library Management System” - should provide the following functions:

- 1. Store book information such as Author, Title, Year, Press*
- 2. Store the location of the book, for example, which shelf*
- 3. Store detail of the people who borrowed than book: who did that, when for how long*
- 4. Fine people in case they don't return the book on time*

Normalization

1NF:

*Library(ID, Date_loan, ISBN, Title, Author, Year,
Num_of_books, Press, F_name, L_Name, Address, Phone,
Grade)*

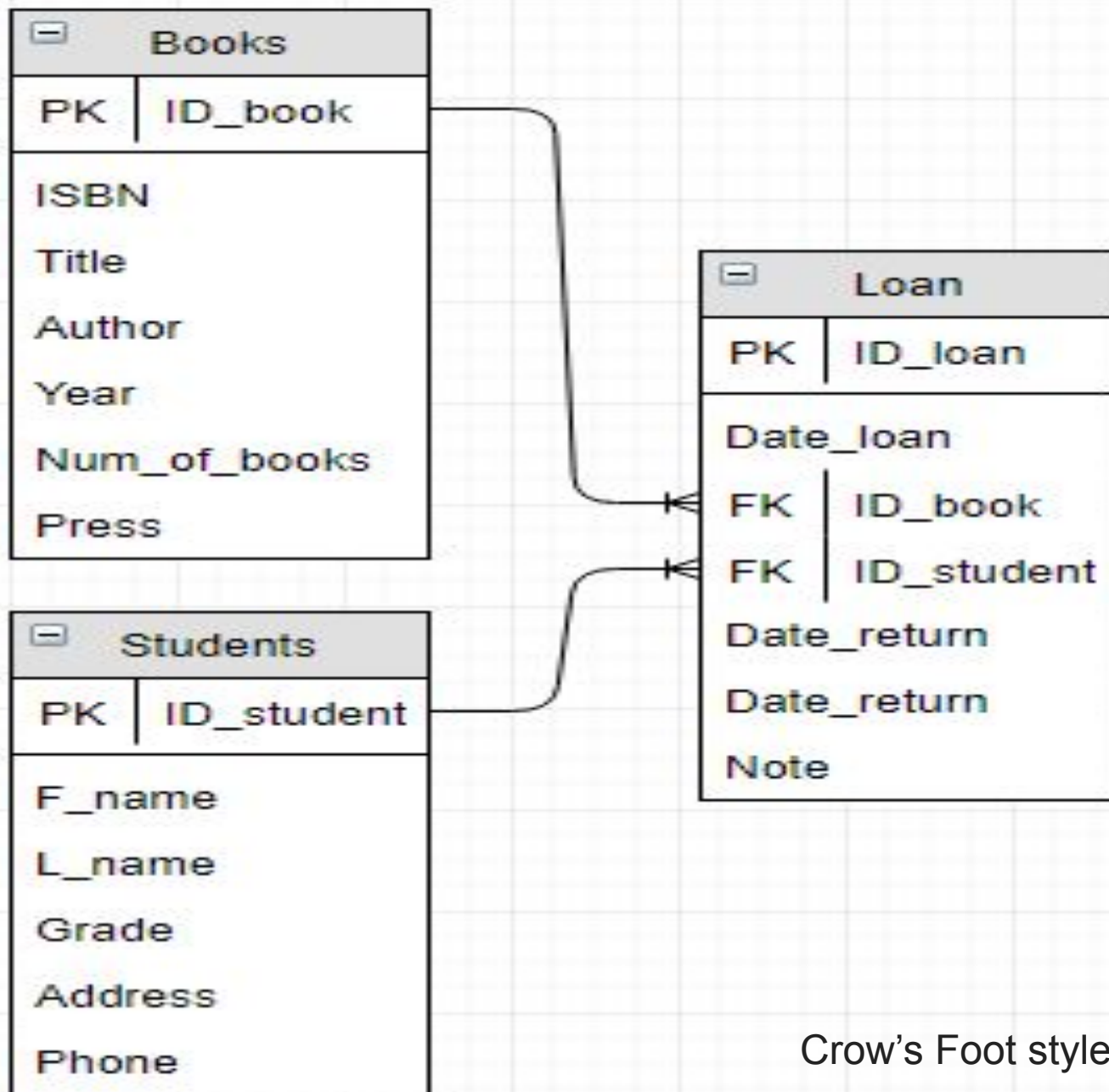
Normalization

2-3NF:

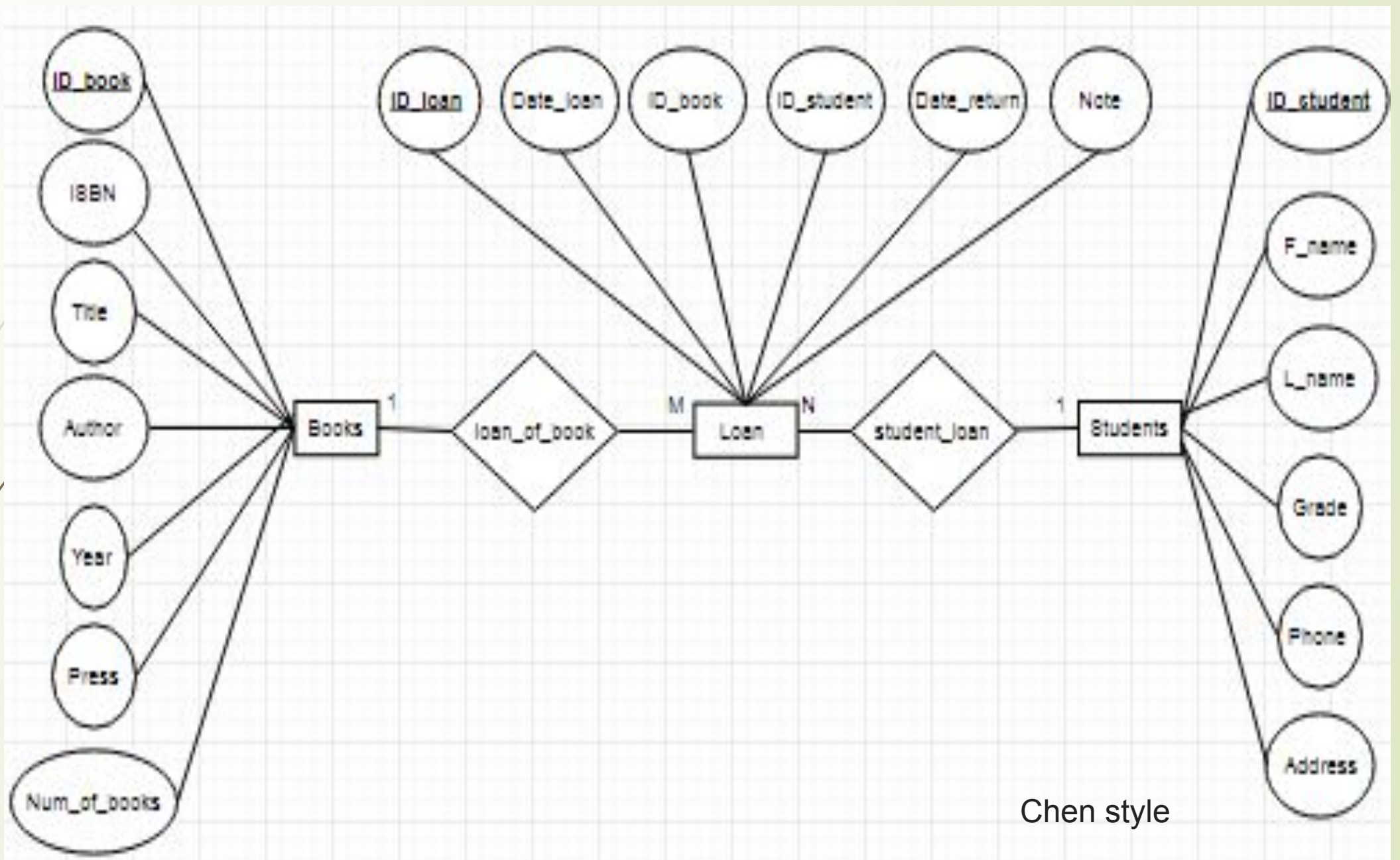
Books(ID_book, ISBN, Title, Authors, Year, Num_of_books, Press);

Students(ID_student, F_Name, L_Name, Address, Phone, Grade);

Loan(ID_loan, Date_loan, ID_book, ID_student, Date_return, Note)



Crow's Foot style



Chen style


```
CREATE TABLE IF NOT EXISTS `books` (  
  `ID_book` char(10) NOT NULL DEFAULT "",  
  `ISBN` char(12) NOT NULL,  
  `Title` varchar(25) NOT NULL,  
  `Author` varchar(20) NOT NULL,  
  `Year` int(4) NOT NULL,  
  `Num_of_books` int(2) NOT NULL,  
  `Press` varchar(10) NOT NULL,  
  PRIMARY KEY (`ID_book`)  
);
```

Table Books

#	Name	Type
1	<u>ID_book</u>	char(10)
2	ISBN	char(12)
3	Title	varchar(25)
4	Author	varchar(20)
5	Year	int(4)
6	Num_of_books	int(2)
7	Press	varchar(10)

```
CREATE TABLE IF NOT EXISTS `students` (  
  `ID_student` char(12) NOT NULL DEFAULT "",  
  `F_name` varchar(15) NOT NULL,  
  `L_name` varchar(15) NOT NULL,  
  `Grade` varchar(5) NOT NULL,  
  `Address` varchar(20) NOT NULL,  
  `Phone` char(12) NOT NULL,  
  PRIMARY KEY (`ID_student`)  
);
```

Table Students

#	Name	Type
1	<u>ID_student</u>	char(12)
2	F_name	varchar(15)
3	L_name	varchar(15)
4	Grade	varchar(5)
5	Address	varchar(20)
6	Phone	char(12)

```
CREATE TABLE IF NOT EXISTS `loan` (  
  `ID_loan` int(11) NOT NULL AUTO_INCREMENT,  
  `Date_loan` date NOT NULL,  
  `ID_book` char(10) NOT NULL,  
  `ID_student` char(12) NOT NULL,  
  `Date_return` date NOT NULL,  
  `Note` tinytext NOT NULL,  
  PRIMARY KEY (`ID_loan`),  
  KEY `ID_book` (`ID_book`, `ID_student`)  
);
```

Table Loan

#	Name	Type
1	<u>ID_loan</u>	int(11)
2	Date_loan	date
3	ID_book	char(10)
4	ID_student	char(12)
5	Date_return	date
6	Note	tinytext

Relationships

library.books	
* ID_book	: char(10)
* ISBN	: char(12)
* Title	: varchar(25)
* Author	: varchar(20)
* Year	: int(4)
* Num_of_books	: int(2)
* Press	: varchar(10)

library.students	
* ID_student	: char(12)
* F_name	: varchar(15)
* L_name	: varchar(15)
* Grade	: varchar(5)
* Address	: varchar(20)
* Phone	: char(12)

library.loan	
* ID_loan	: int(11)
* Date_loan	: date
* ID_book	: char(10)
* ID_student	: char(12)
* Date_return	: date
* Note	: tinytext



Queries

