阅微草堂

1. 系統功能介紹

讓店家可以對店內的書，庫存，銷售量等一目了然。

1. E-R Diagram
2. 系統中的表格定義與正規
   1. Book表格

CREATE TABLE ‘book’(

‘ISBN’ bigint(15) NOT NULL,

‘Book\_name’ varchar(255) NOT NULL

‘category’ varchar(255) NOT NULL

‘Author\_name’ varchar(255) NOT NULL

‘Translator\_name’ varchar(255) NULL

‘publisher\_name’ varchar(255) NOT NULL

‘published\_year’ year NOT NULL

‘price’ int(5) NOT NULL,

PRIMARY KEY (‘ISBN’)

FOREIGN KEY (`publisher\_name `) REFERENCES ` publisher’ (`publisher\_name `) ON UPDATE CASCADE

) ENGINE = InnoDB DEFAULT CHARSET = utf8;

F={

ISBN-> Book\_name

ISBN-> category

ISBN-> Author\_name

ISBN-> Translator\_name

ISBN-> publisher\_name

ISBN-> published\_year

ISBN-> price}

因為ISBN代表一本書，可決定唯一的Book\_name、category、Author\_name、Translator\_name、publisher\_name、published\_year、price，又ISBN是一個candidate key，所以此表格符合3NF和BCNF。

* 1. Stock表格

CREATE TABLE ‘stock’(

‘ISBN’ bigint(15) NOT NULL,

‘inventory\_level’ int(10) NOT NULL,

‘location’ varchar(255) NOT NULL

PRIMARY KEY (‘ISBN’)

FOREIGN KEY (`ISBN `) REFERENCES ` book’ (`ISBN `) ON DELETE CASCADE ON UPDATE CASCADE

) ENGINE = InnoDB DEFAULT CHARSET = utf8;

F={

ISBN-> inventory\_level

ISBN-> location}

因為ISBN代表一本書，可決定唯一的inventory\_level、location，又ISBN是一個candidate key，所以此表格符合3NF和BCNF。

* 1. Sales表格

CREATE TABLE ‘sales’(

‘ID’ int(5) NOT NULL,

‘ISBN’ bigint(15) NOT NULL,

‘imported\_price’ **int(10)** NOT NULL,

‘imported\_number’ int(**10**) NOT NULL

‘price’ **int(5)** NOT NULL,

‘sales\_number’ int(**10**) NOT NULL

PRIMARY KEY (‘**ID**’)

FOREIGN KEY (`ISBN `) REFERENCES ` book’ (`ISBN `) ON DELETE CASCADE ON UPDATE CASCADE

FOREIGN KEY (`price `) REFERENCES ` book’ (`pirce `) ON DELETE CASCADE ON UPDATE CASCADE

) ENGINE = InnoDB DEFAULT CHARSET = utf8;

F={

ID-> ISBN

ID-> imported\_price

ID-> imported\_number

ID-> price

ID-> sales\_number}

因為ID代表一本書，可決定唯一的ISBN、imported\_price、imported\_number、price、sales\_number、，又ID是一個candidate key，所以此表格符合3NF和BCNF。

* 1. Publisher表格

CREATE TABLE ‘publisher’(

‘publisher\_name’ varchar(255) NOT NULL,

‘publisher\_address’ varchar(255) NOT NULL

‘publisher\_ phone’ varchar(255) NOT NULL

PRIMARY KEY (‘publisher\_name’)

) ENGINE = InnoDB DEFAULT CHARSET = utf8;

F={

publisher\_name -> publisher\_address

publisher\_name -> publisher\_ phone

ID-> imported\_number

ID-> price

ID-> sales\_number}

因為publisher\_name代表一本書，可決定唯一的publisher\_address、publisher\_ phone，又publisher\_name是一個candidate key，所以此表格符合3NF和BCNF。

book表格、publisher表格、stock表格不動

sales表格更對如下,標記為與原表格不同處:

CREATE TABLE ‘sales’(

‘ID’ int(5) NOT NULL,

‘ISBN’ bigint(15) NOT NULL,

‘buyORsale’ tinyint(1) NOT NULL,

‘price’ int(5) NOT NULL,

‘number’ int(10) NOT NULL

‘total’ int(10) NOT NULL

PRIMARY KEY (‘ID’)

FOREIGN KEY (`ISBN `) REFERENCES ` book’ (`ISBN `) ON DELETE CASCADE ON UPDATE CASCADE

FOREIGN KEY (`price `) REFERENCES ` book’ (`pirce `) ON DELETE CASCADE ON UPDATE CASCADE

) ENGINE = InnoDB DEFAULT CHARSET = utf8;