2023-11-13\_正規化

**[第6章：正規化]**

1. 假設你有一個名為Transaction 的關聯綱目如下，用來記載讀者買書的交易：

Transaction (isbn, title, publisherId, publisherName, readerId, name, dateTime,

unitPrice, number)



|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **isbn** | title | publisherId | publisherName | **readerId** | name | **dateTime** | unitPrice | number |



函數相依如下：

isbn → {title, publisherId}

publisherId → {publisherName}

readerId → name

{isbn, readerId, dateTime} → {unitPrice, number}

A.請問主鍵為何？*isbn, readerId, dateTime*

B. 請分解成滿足2NF 的關聯綱目 (但不是3NF)。

Book { isbn, title, publisherId, publisherName }

isbn → {title, publisherId}

publisherId → {publisherName}

Transaction { isbn, readerId, name, dateTime, unitPrice, number }

{isbn, readerId, dateTime} → {unitPrice, number}

readerId → name

C. 請分解成滿足3NF 的關聯綱目。

Book { isbn, title, publisherId }

Publisher { publisherId, publisherName }

Reader { readerId, name }

Transaction { isbn, readerId, dateTime, unitPrice, number }

1. 考慮以下汽車販賣的關聯綱目：

CarSale (state, plateNo, customer, salesperson, taxRate, model, dateSold, discount)  
此外，有以下的函數相依：

{salesperson, model, dateSold} → {discount}

state → taxRate

{state, plateNo} → {customer, salesperson, model, dateSold}

1. 哪些屬性合成關聯鍵(主鍵)？*state, placeNo*
2. 請將CarSale 分解成滿足2NF 的關聯綱目 (但不是3NF)。

Tax(state, taxRate)

state → taxRate

CarSale(state, plateNo, customer, salesperson, model, dateSold, discount)

{state, plateNo} → {customer, salesperson, model, dateSold}

{salesperson, model, dateSold} → {discount}

1. 請將CarSale 分解成滿足3NF 的關聯綱目。

Discount (salesperson, model, dateSold, discount)

Tax (state, taxRate)

CarSale (state, plateNo, customer, salesperson, model, dateSold )

1. 考慮以下的綱目：

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **qid** | **sid** | **no** | **title** | **designerId** | **designerName** | **desc** | **cNo** | **content** | **{date}** |

其中 {date} 為多值屬性，此外，函數相依如下：

qid → {title, designerId, designerName}

{qid, sid} → {desc, cNo}

{qid, sid, no} → content

designerId → designerName

1. 請分解成滿足1NF 的關聯綱目 (但不是2NF)。

Schema(qid, sid, no, title, designerId, designerName, desc, cNo, content, date)

1. 請分解成滿足2NF 的關聯綱目 (但不是3NF)。

Schema(qid, title, designerId, designerName)

qid → {title, designerId, designerName}

designerId → designerName

Schema1(qid, sid, desc, cNo)

{qid, sid} → {desc, cNo}

Schema2(qid, sid, no, content)

{qid, sid, no} → content

1. 請分解成滿足3NF 的關聯綱目。

Schema(qid, title, designerId)

Schema1(qid, sid, desc, cNo)

Schema2(qid, sid, no, content)

Schema3(designerId, designerName)