UNF, 1NF, 2NF, 3NF for each view

# 1. BOOKS BY ISBN

## UNF 1NF 2NF:

BOOK [ ISBN#, BookTitle, BookCost, BookPrice, Categ#, Categ, Format#, Format, Pages, Mins ]

## 3NF:

BOOK [ ISBN#, BookTitle, BookCost, BookPrice, Categ#(FK), Format#(FK), Pages, Mins ]

CATEG [ Categ#, Categ]

FORMAT[ Format#, Format]

# 2. BOOK INFORMATION

## UNF:

CUSTOMER [ Cust#, CustName, CustAdd, CustCity, CustProv, CustPstCd, (Inv#, InvDate, (ISBN#, Publisher#, Publisher, Pub\_Owner#, Pub\_Owner, BookQTY, Inv \_BookPrice))]

## 1NF:

CUSTOMER [ Cust#, Inv#, ISBN#, CustName, CustAdd, CustCity, CustProv, CustPstCd, InvDate, Publisher#, Publisher, Pub\_Owner#, Pub\_Owner, BookQTY, Inv\_BookPrice]

## 2NF

CUSTOMER [ Cust#, CustName, CustAdd, CustCity, CustProv, CustPstCd ]

INVOICE [ Inv#, InvDate, Cust#(FK)]

INV\_BOOK [Inv#, ISBN#, BookQTY, Inv\_BookPrice]

BOOK [ISBN#, Publisher#, Publisher, Pub\_Owner#, Pub\_Owner ]

## 3NF

CUSTOMER [ Cust#, CustName, CustAdd, CustCity, CustProv, CustPstCd ]

INVOICE [ Inv#, InvDate, Cust#(FK)]

INV\_BOOK [Inv#(FK1), ISBN#(FK2), BookQTY, Inv\_BookPrice]

BOOK [ISBN#, Publisher#(FK1), Pub\_Owner#(FK2) ]

PUBLISHER [Publisher#, Publisher]

PUB\_OWNER [Pub\_Owner#, Pub\_Owner]

# 3. BOOK PRIZES

## UNF:

PRIZE [ Prize#, Prize, ISBN#, BookTitle, PrizeAmount, (Author#, AuthorName) ]

## 1NF:

PRIZE [ Prize#, Prize, PrizeAmount, ISBN#, BookTitle ]

PRI\_AUTH\_BOOK [Prize#, Author#, Prize, AuthorName ]

## 2NF

PRIZE [ Prize#, Prize, PrizeAmount, ISBN#, BookTitle ]

AUTHOR [ Author#, AuthorName]

Pri\_Auth [ Prize#, Author# ]

## 3NF

PRIZE [ Prize#, Prize, PrizeAmount, ISBN#(FK) ]

AUTHOR [ Author#, AuthorName]

Pri\_Auth [ Prize#, Author# ]

# 4. AUTHORS, BOOKS AND ACCOMPLISHMENTS

## UNF:

AUTHOR [ Author#, AuthorName, DOB, MSold, (Book#, BookTitle, Categ#, Categ, (Lang#, Language, Yr\_frBook)) ]

## 1NF:

AUTHOR [Author#, AuthorName, DOB, MSold ]

AUTH\_BOOK\_LANG [ Author#, Book#, Lang#, BookTitle, Categ#, Categ, Language, Yr\_frBook ]

## 2NF:

AUTHOR [Author#, AuthorName, DOB, MSold ]

BOOK [ Book#, BookTitle, Categ#, Categ ]

AUTH\_BOOK\_LANG [Author#, Book#, Lang#, Language, Yr\_frBook ]

## 3NF:

AUTHOR [Author#, AuthorName, DOB, MSold ]

BOOK [ Book#, BookTitle, Categ#(FK) ]

CATEG [Categ#, Categ]

AUTH\_BOOK\_LANG [Author#(FK), Book#(FK), Lang#, Language, Yr\_frBook ]

# 5. INVOICE

## UNF

INVOICE [ Inv#, InvDate, Cust#, CustTitle, CustFirName, CustLasName, CustAdd, CustCity, CustProv, CustPstlCd, (ISBN#, BookTitle, Warehouse, ShippingOpt#, ShippingDesp, ShippingCost, ShippingGurantee, Inv \_BookPrice, BookQTY )]

## 1NF

INVOICE [ Inv#, InvDate, Cust#, CustTitle, CustFirName, CustLasName, CustAdd, CustCity, CustProv, CustPstlCd ]

INV\_BOOK [ Inv#, ISBN#, BookTitle, Warehouse, ShippingOpt#, ShippingDesp, ShippingCost, ShippingGurantee, Inv \_BookPrice, BookQTY ]

## 2NF

INVOICE [ Inv#, InvDate, Cust#, CustTitle, CustFirName, CustLasName, CustAdd, CustCity, CustProv, CustPstlCd ]

BOOK [ISBN#, BookTitle]

INV\_BOOK [ Inv#, ISBN#, Warehouse, ShippingOpt#, ShippingDesp, ShippingCost, ShippingGurantee, Inv \_BookPrice, BookQTY ]

## 3NF

INVOICE [Inv#, InvDate, Cust#(FK)]

CUSTOMER [Cust#, CustTitle, CustFirName, CustLasName, CustAdd, CustCity, CustProv, CustPstlCd]

BOOK [ISBN#, BookTitle]

INV\_BOOK [Inv#(FK), ISBN#(FK), Warehouse, Inv \_BookPrice, BookQTY, ShippingOpt#(FK) ]

SHIPPING [ShippingOpt#, ShippingDesp, ShippingCost, ShippingGurantee]

# 6. INVOICE HISTORY BY CUSTOMER

## UNF

CUST\_HISTORY [Cust#, CustFirName, CustLasName, CustEmail, CustAdd, CustCity, CustProv, CustPstlCd, (Inv#, InvDate, (ISBN#, BookTitle, ShippingCost, Inv \_BookPrice, BookQTY))]

## 1NF

CUSTOMER [Cust#, CustFirName, CustLasName, CustEmail, CustAdd, CustCity, CustProv, CustPstlCd ]

CUST\_HISTORY [Cust#, Inv#, ISBN#, InvDate, BookTitle, ShippingCost, Inv \_BookPrice, BookQTY]

## 2NF 3NF:

CUSTOMER [Cust#, CustFirName, CustLasName, CustEmail, CustAdd, CustCity, CustProv, CustPstlCd ]

INVOICE [ Inv#, InvDate, Cust#(FK) ]

BOOK [ISBN#, BookTitle ]

INV\_BOOK [Inv#, ISBN#, ShippingCost, Inv \_BookPrice, BookQTY]

Merged Relations

# Merged:

* AUTHOR [ Author#, AuthorName, DOB, MSold ]
* AUTHOR\_BOOK [AUTHOR#(FK), ISBN#(FK)]
* BOOK [ ISBN#, BookTitle, BookCost, BookPr`ice, Pages, Mins, Categ#(FK1),
* BOOK\_LANG [ISBN #(FK), Lang#, Language, Yr\_frBook ]
* CATEG [ Categ#, Categ]
* CUSTOMER [ Cust#, CustTitle, CustFirName, CustLasName, CustEmail, CustAdd, CustCity, CustProv, CustPstlCd]
* FORMAT[ Format#, Format ]
* INV\_BOOK [Inv#(FK1), ISBN#(FK2), Warehouse#(FK3), Inv \_BookPrice, BookQTY, ShippingOpt#(FK4), SHIP\_EACHBOOK]
* INVOICE [ Inv#, InvDate, Cust#(FK)]
* LANGUAGE [LANG#, LANGUAGE]
* Pri\_Auth [ Prize#(FK), Author#(FK) ]
* PRIZE [ Prize#, Prize, PrizeAmount, ISBN#(FK) ]
* PUB\_OWNER [Pub\_Owner#, Pub\_Owner]
* PUBLISHER [Publisher#, Publisher]
* SHIPPING [ShippingOpt#, ShippingDesp, ShippingCost, ShippingGurantee]
* WAREHOUSE[WAREHOUSE#, WHNAME]