12/9/2022

**ESP 1**

Customer Details View

|  |  |
| --- | --- |
| **Customer Details** | **Customer Number: 137** |
|  |  |
| Name: | Fred Smith |
| Address: | 123 SomeWhere St. |
| City: | Edmonton |
| Province: | Alberta |
| Postal Code: | T5H 2J9 |
|  |  |
| Home Phone: | 436 - 7867 |

**1. Initial View**

CustomerNumber(PK), Name, Adress, City, Province, PostalCode, HomePhone

**2. 1 NF**

CustomerNumber(PK), FirstName, LastName, Adress, City, Province, PostalCode, HomePhone

// homephone is already atomic because it’s the same format, same as dates, and postal code //

**3. 2NF**

CustomerNumber(PK), FirstName, LastName, Adress, City, Province, PostalCode, HomePhone

**4. 3NF**

CustomerNumber(PK), FirstName, LastName, Adress, City, Province, PostalCode, HomePhone

// PostalCode uniquely identifies Province, but we are considering it exception to the rule since PostalCode is unique to each province???

Customers Orders View

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | |  |  |  |  | | --- | --- | --- | --- | | Customer Name: | Fred Smith | Customer Number: | 137 | | Address: | 123 SomeWhere St.  Edmonton, Ab  T5H 2J9 |  |  | | Phone: | 436 - 7867 | Date: | Jan 16, 2000 | | |
|  |
| Order Number: 219 |
|  |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | Item Number | Description | Quantity | Price | Amount | |  |  |  |  |  | | H23 | Heater Fan Belt – 23” | 1 | 11.99 | 11.99 | | H319 | Heater Fan Belt Support Brackets | 2 | 4.99 | 9.98 | | M24 | Bolts – 24 mm | 8 | 0.29 | 2.32 | |  |  |  |  |  | |  |  |  | Subtotal: | 24.29 | |  |  |  | GST: | 1.70 | |  |  |  |  |  | |  |  |  | Total: | 25.99 | |

Because prices change on a fairly regular basis ESP would like to keep the following information:

* The current price for each item in inventory
* The price each item sold for at the time the item was sold

**1. Initial View**

CustomerNumber, CustomerName, Address, Phone, Date, OrderNumber(PK), (ItemNumber, Description, Quantity, Price, HistoricalPrice, Amount) SubTotal, GST, Total

// check if a primary key candidate can uniquely identify at least one other attribute, then that attribute can be a primary key

// hint: columns are usually repeated groups.

**2. 1 NF**

CustomerNumber, FirstName, LastName, StreetAddress, City, Province, PostalCode, Phone, Date, OrderNumber(PK), SubTotal, GST, Total

ItemNumber(PK), Description, Quantity, Price, HistoricalPrice, Amount, OrderNumber(FK)(PK)

**3. 2 NF**

CustomerNumber, FirstName, LastName, StreetAddress, City, Province, PostalCode, Phone, Date, OrderNumber(PK), SubTotal, GST, Total

ItemNumber(PK)(FK), Quantity, , HistoricalPrice, Amount, OrderNumber(FK)(PK)

Description, Price, ItemNumber(PK)

**4. 3 NF**

CustomerNumber(FK), OrderNumber(PK), SubTotal, GST, Total, Date,

FirstName, LastName, StreetAddress, City, Province, PostalCode, Phone, CustomerNumber(PK)

ItemNumber(PK)(FK), Quantity, HistoricalPrice, Amount, OrderNumber(FK)(PK)

Description, Price, ItemNumber(PK)

Customer Payments Against Orders

# Payments Log Order Number: 123

Customer Name: **David Williams**  Order Date: **Jan 11/99**

Customer Number:**78**  Order Total: **$145.18**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Date | Payment  Amount | Payment  Number | Balance Owing | Payment Type | Deposit Batch # |
| Jan 11/99 | 100.00 | 1 | 45.18 | Cheque | 118 |
| Jan 18/99 | 45.18 | 2 | 0.00 | Cash | 119 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

1. Initial View

CustomerName, CustomerNumber(PK), (OrderNumber, OrderDate, OrderTotal, PaymentDate, PaymentAmount, PaymentNumber, BalanceOwing, PaymentType, DepositBatchNumber)

2. 1 NF

FirstName, LastName, CustomerNumber(PK)

OrderNumber(PK), OrderDate, OrderTotal, PaymentDate, PaymentAmount, PaymentNumber(PK), BalanceOwing, PaymentType, DepositBatchNumber, CustomerNumber(FK)

3. 2 NF

FirstName, LastName, CustomerNumber(PK),

OrderNumber(PK)(FK), PaymentDate, PaymentAmount, PaymentNumber(PK), BalanceOwing, PaymentType, DepositBatchNumber, CustomerNumber(FK)

OrderDate, OrderTotal, OrderNumber(PK)

4. 3 NF

CustomerNumber(PK), FirstName, LastName,

OrderNumber(PK), OrderDate, OrderTotal, CustomerNumber(FK)

OrderNumber(PK)(FK), PaymentDate, PaymentAmount, PaymentNumber(PK), BalanceOwing, PaymentType, DepositBatchNumber, CustomerNumber(FK)

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Inventory Control

***Inventory Control Sheet Item #***:**M24**

***Item Description***: **Bolts – 24 mm**

***Current Sale Price***: **$ 0.29**

##### Order History

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***Date*** | ***Supplier Number*** | ***PO Number*** | ***Quantity*** | ***Cost*** |
| July 1, 1998 | 7 | 125 | 1000 | 0.13 |
| August 2, 1998 | 10 | 131 | 2000 | 0.13 |
| September 5, 1998 | 7 | 149 | 2000 | 0.14 |
|  |  |  |  |  |
|  |  |  |  |  |

ESP would like to be able to keep track of how many of each item they have in stock on an on-going basis so that they can use JIT (Just In Time) ordering rather than ordering when they run out. They would like the new system to keep an in-stock count for each item as well as a re-order value

**1. Initial View**

ItemNumber(PK), ItemDescription, CurrentPrice, (OrderDate, SupplierNumber, PONumber, Quantity, SellCost) StockQuantity, ReOrderLevel

**2. 1 NF**

ItemNumber(PK), ItemDescription, CurrentPrice, StockQuantity, ReOrderLevel

OrderDate, SupplierNumber, PONumber(PK), Quantity, SellCost, ItemNumber(FK)(PK)

**3. 2 NF**

ItemNumber(PK), ItemDescription, CurrentPrice, StockQuantity, ReOrderLevel,

PONumber(PK)(FK), Quantity, SellCost, ItemNumber(FK)(PK)

OrderDate, PONumber(PK), SupplierNumber

**4. 3 NF**

ItemNumber(PK), ItemDescription, CurrentPrice, StockQuantity, ReOrderLevel

PONumber(PK)(FK), Quantity, SellCost, ItemNumber(FK)(PK)

OrderDate, PONumber(PK), SupplierNumber

Purchase Orders

Initial View



**Purchase Order #*125***

Supplier Name: **Nuts and Bolts** Supplier Number: **7**

Address: **11123 – 114 Avenue**

City: **Edmonton, AB, T6G 4X1**

Phone: **488-2312** Date: **July 1, 1998**

## Supplier’s

## Item# Item # Supplier’s Description Qty Cost Amount

H23 S103 Heater Fan Belt – 23” 1 11.99 11.99

### H319 B11a Heater Fan Support Brackets 2 4.99 9.98

### M24 ISO4 Bolts – 24 mm 1000 0.13 130.00

SubTotal: 151.97

GST: 10.64

TOTAL: 162.61

**Initial View**

PurchaseOrderNumber(PK), SupplierName, SupplierNumber, SupplierAddress, SupplierCity, SupplierPhone Date, (ItemNumber, SupplierItemNumber, SupplierDescription, Quantity, Cost, Amount) Subtotal, GST, Total,

**1 NF**

PurchaseOrderNumber(PK), Date, Subtotal, GST, Total, SupplierName, SupplierNumber, SupplierAddress, SupplierCity, SupplierProvince, SupplierPostalCode, SupplierPhone,

ItemNumber(PK), SupplierItemNumber, SupplierDescription, Quantity, Cost, Amount, PurchaseOrderNumber(FK)(PK),

**2 NF**

PurchaseOrderNumber(PK), Date, Subtotal, GST, Total, SupplierName, SupplierNumber, SupplierAddress, SupplierCity, SupplierProvince, SupplierPostalCode, SupplierPhone,

ItemNumber(PK), SupplierItemNumber, SupplierDescription, Quantity, Cost, Amount, PurchaseOrderNumber(FK)(PK),

**3 NF**

PurchaseOrderNumber(PK), Date, Subtotal, GST, Total, SupplierNumber(FK)

SupplierName, SupplierAddress, SupplierCity, SupplierProvince, SupplierPostalCode, SupplierPhone, SupplierNumber(PK)

ItemNumber(PK), SupplierItemNumber, SupplierDescription, Quantity, Cost, Amount, PurchaseOrderNumber(FK)(PK),

\*assuming different suppliers can have the same supllieritemnumber

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Payments to Suppliers for Purchase Orders

Cheque Register

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Date | Cheque # | Cheque Amount | Supplier  # | Supplier Name | Purchase  Order # (s) | P.O. Date(s) |
| Jan 11/99 | 245 | $823.18 | 7 | Nuts & Bolts | 79 | Dec 23/98 |
|  |  |  |  |  | 81 | Dec 29/98 |
| Jan 18/99 | 246 | $427.39 | 15 | Home Hardware | 82 | Dec 31/98 |

**Initial View**

ChequeNumber(PK), ChequeRegisterDate, ChequeAmount, SupplierNumber, SupplierName, (PurchaseOrderNumber, PurchaseOrderDate)

**1 NF**

ChequeNumber(PK), ChequeRegisterDate, ChequeAmount, SupplierNumber, SupplierName,

PurchaseOrderNumber(PK), PurchaseOrderDate, ChequeNumber(FK)

**2 NF**

ChequeNumber(PK), ChequeRegisterDate, ChequeAmount, SupplierNumber, SupplierName,

PurchaseOrderNumber(PK), PurchaseOrderDate, ChequeNumber(FK)

**3 NF**

ChequeNumber(PK), ChequeRegisterDate, ChequeAmount, SupplierNumber(FK)

SupplierNumber(PK), SupplierName,

PurchaseOrderNumber(PK), PurchaseOrderDate, ChequeNumber(FK)