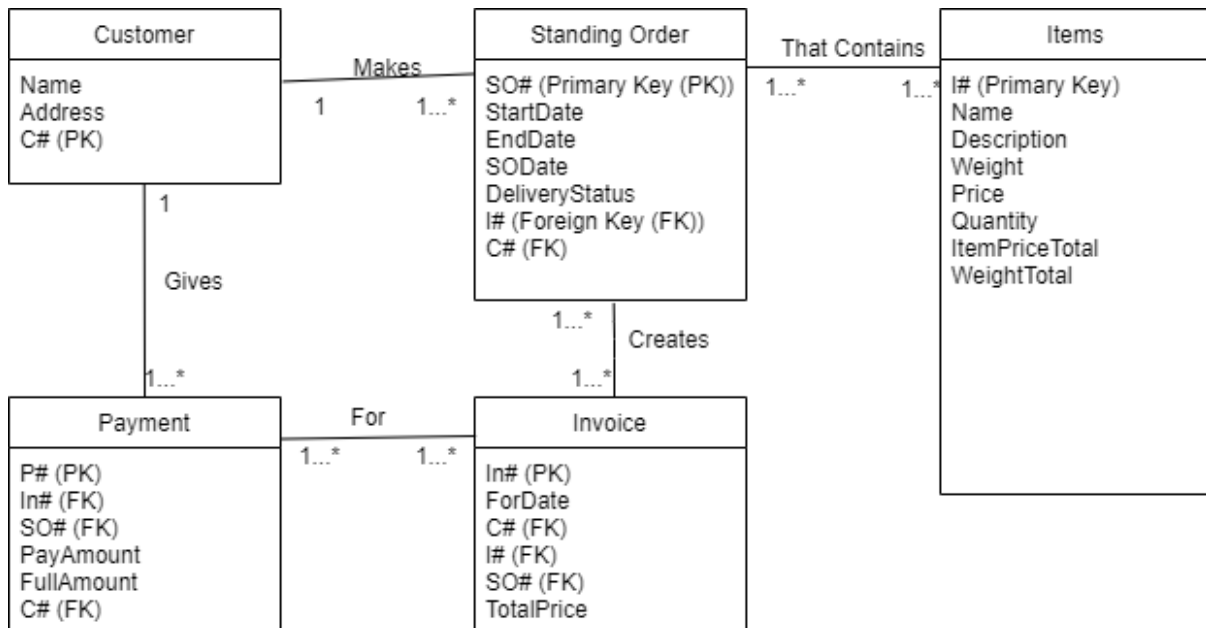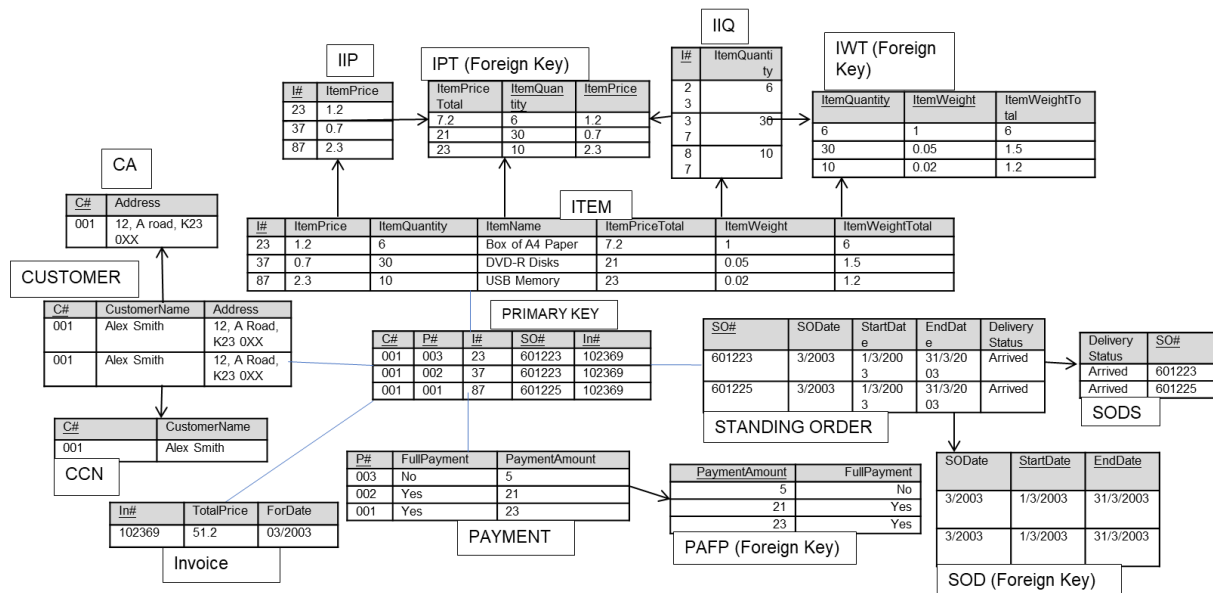1. UML TABLE

This assumes the following:

- The customer can only pay on one invoice at a time.
- Items can go on distinct standing orders
- The Client Company has infinite quantity of items
- Sometimes the standing order can have no items if the standing order is deleted (if the customer cancels the order)
- SODate is a mathematical function for the date of the current standing order, the SO# changes after another 7 days added to the current, which means a different SO# too.
- ItemPriceTotal has **no** discounted offers, like '3 for the Price of 2'.
- 'Customer Gives Payment' Association is manual, all others are automatic.
- There is no minimum or maximum limit for ItemWeightTotal for extra charges.
- There is no extra charge.
- DeliveryStatus is 'Arrived' for all items.
- TotalPrice is the sum of all the ItemPriceTotal from the Items table. It cannot exist without 'Items'.
- The customer is on a billing subscription per week, the invoice only gives the total amount of item.
- ForDate in Invoice is the same as SODate but for the invoice.

2. FORMED IN 3NF

IIP

I#	ItemPrice
23	1.2
37	0.7
87	2.3

IPT (Foreign Key)

ItemPriceTotal	ItemQuantity	ItemPrice
7.2	6	1.2
21	30	0.7
23	10	2.3

IIQ

I#	ItemQuantity
2	6
3	
3	36
7	
8	10
7	

IWT (Foreign Key)

ItemQuantity	ItemWeight	ItemWeightTotal
6	1	6
30	0.05	1.5
10	0.02	1.2

CA

C#	Address
001	12, A road, K23 0XX

CUSTOMER

C#	CustomerName	Address
001	Alex Smith	12, A Road, K23 0XX
001	Alex Smith	12, A Road, K23 0XX

ITEM

I#	ItemPrice	ItemQuantity	ItemName	ItemPriceTotal	ItemWeight	ItemWeightTotal
23	1.2	6	Box of A4 Paper	7.2	1	6
37	0.7	30	DVD-R Disks	21	0.05	1.5
87	2.3	10	USB Memory	23	0.02	1.2

PRIMARY KEY

C#	P#	I#	SO#	In#
001	003	23	601223	102369
001	002	37	601223	102369
001	001	87	601225	102369

STANDING ORDER

SO#	SODate	StartDate	EndDate	Delivery Status
601223	3/2003	1/3/2003	31/3/2003	Arrived
601225	3/2003	1/3/2003	31/3/2003	Arrived

SODS

Delivery Status	SO#
Arrived	601223
Arrived	601225

CCN

C#	CustomerName
001	Alex Smith

PAYMENT

P#	FullPayment	PaymentAmount
003	No	5
002	Yes	21
001	Yes	23

PAFP (Foreign Key)

PaymentAmount	FullPayment
5	No
21	Yes
23	Yes

SOD (Foreign Key)

SODate	StartDate	EndDate
3/2003	1/3/2003	31/3/2003
3/2003	1/3/2003	31/3/2003

Invoice

In#	TotalPrice	ForDate
102369	51.2	03/2003

This assumes the following:

- Because the Customer Can Move Address (CustomerName and Address are independent), they are split into different tables due to them being transitively dependent to C#.
- FullPayment Boolean relies if PaymentAmount is the same amount as all of one item in a chosen standing order.
- ItemPriceTotal is transitively dependent on both ItemQuantity and ItemPrice, which are dependent on I#.
- ItemQuantity is a manual input by the customer, A Standing Order row is deleted and would more into a different database of Paid Products (not shown here) once the Customer Pays that item in full.
- All items in one specific Standing Order are delivered simultaneously.
- By default, all Standing Orders are one-time purchases, hence the distinct SO#. However, the customer can buy something per week as a subscription, by adding the same item and quantity to a different SO#, although this would be manual.
- All underlined classes in tables named with (Foreign Key) are Foreign Key, otherwise they are primary keys, such as IWT.
- Blues lines are generalisation and black arrows are directional association.
- Like the UML Table, the payment can only go to one item in an invoice at a time.
- The Invoice would only receive the total number of items bought that month, if the customer bought an amount of an item, they can use the same SO# to buy the same item again but can decide how many more.