

Michael Forbes
PFC
Edinburgh

Dear Mr Forbes

I am please to supply our prototype for PFCs order-processing and Management information systems software. Pages 2-16 of this report show the technical details of the database: how the tables are related and details of the tables' fields, i.e. the data they contain and manipulate.

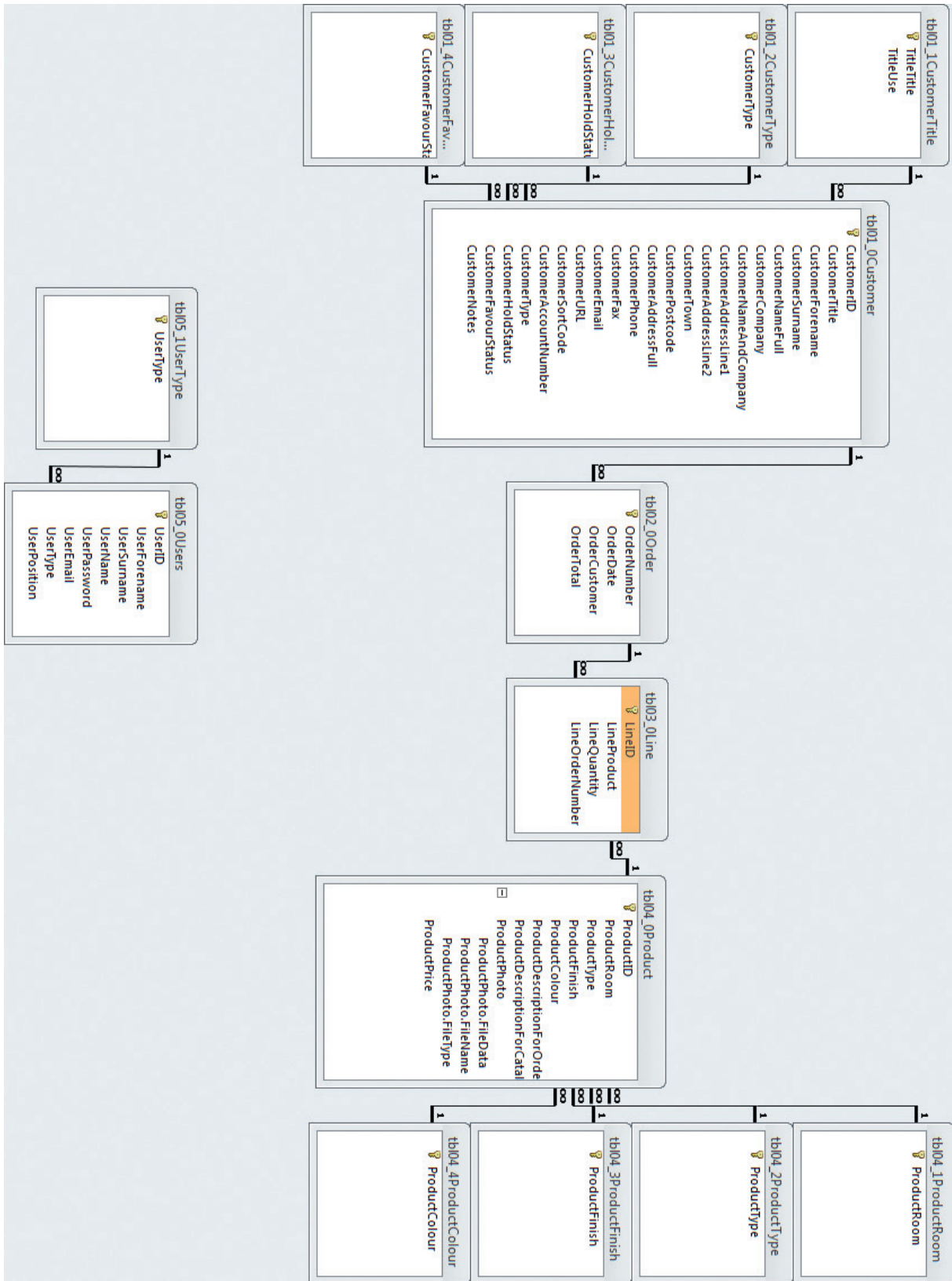
On page 17, I outline the further work we believe necessary to finish this database. I would be very grateful to discuss this with you at your earliest convenience, so that we produce finished software that meets your requirements. However, in keeping with the 'agile' software development philosophy we discussed earlier, we believe this software can be used now to start tracking your orders and extracting management information. Once the software has been finished, we would need to populate it with at least this financial year's data to provide you with accurate information.

However, first we look forward to making sure we have provided exactly what you require.

Bill Smith
Software Unlimited

1 Task 1: about the database

1.1 Entity-relationship diagram



1.2 List of tables, fields, field sizes and keys

Primary keys are underlined. Foreign keys are italicised

1.2.1 tbl01_0Customer

1.2.1.1 Properties

AlternateBackShade:	95
AlternateBackThemeColorIndex	1
AlternateBackTint:	100
BackShade:	100
BackTint:	100
DatasheetForeThemeColorInde	0
DatasheetGridlinesThemeColorI	3
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DefaultView:	2
DisplayViewsOnSharePointSite:	1
FCMinDesignVer:	14.0.0000.0000
FCMinReadVer:	14.0.0000.0000
FCMinWriteVer:	14.0.0000.0000
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HideNewField:	False
LastUpdated:	03/01/2013 12:11:44
NameMap:	Long binary data
OrderByOn:	False
OrderByOnLoad:	True
Orientation:	Left-to-Right
PublishToWeb:	1
ReadOnlyWhenDisconnected:	False
RecordCount:	3
ThemeFontIndex:	1
TotalsRow:	False
Updatable:	True

1.2.1.2 Columns

Name	Type	Size
<u>CustomerID</u>	Long Integer	4
<i>CustomerTitle</i>	Text	40
CustomerForename	Text	50
CustomerSurname	Text	50
CustomerNameFull	Text (Calculated)	243
CustomerCompany	Text	50
CustomerNameAndCompany	Text (Calculated)	243
CustomerAddressLine1	Text	50
CustomerAddressLine2	Text	50
CustomerTown	Text	50
CustomerPostcode	Text	8
CustomerAddressFull	Text (Calculated)	243
CustomerPhone	Text	255
CustomerFax	Long Integer	4
CustomerEmail	Anchor	-
CustomerURL	Anchor	-
CustomerSortCode	Text	10
CustomerAccountNumber	Text	8
CustomerType	Text	10
<i>CustomerHoldStatus</i>	Text	8
<i>CustomerFavourStatus</i>	Text	12
CustomerNotes	Memo	-

1.2.2 tbl01_1CustomerTitle

1.2.2.1 Properties

AlternateBackShade:	95
AlternateBackThemeColorIndex	1
AlternateBackTint:	100
BackShade:	100
BackTint:	100
DatasheetForeThemeColorInde	0
DatasheetGridlinesThemeColorI	3
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DefaultView:	2
DisplayViewsOnSharePointSite:	1
FilterOnLoad:	False
GUID:	{guid {0566E1CC-900C-4CB7-866F-39D924501D24}}
HideNewField:	False
LastUpdated:	04/01/2013 12:42:18
NameMap:	Long binary data
OrderByOn:	False
OrderByOnLoad:	True
Orientation:	Left-to-Right
PublishToWeb:	1
ReadOnlyWhenDisconnected:	False
RecordCount:	10
ThemeFontIndex:	1
TotalsRow:	False
Updatable:	True

1.2.2.2 Columns

Name	Type	Size
TitleTitle	Text	40
TitleUse	Text	100

1.2.3 tbl01_2CustomerType

1.2.3.1 Properties

AlternateBackShade:	95
AlternateBackThemeColorIndex	1
AlternateBackTint:	100
BackShade:	100
BackTint:	100
DatasheetForeThemeColorInde	0
DatasheetGridlinesThemeColorI	3
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DefaultView:	2
DisplayViewsOnSharePointSite:	1
FilterOnLoad:	False
GUID:	{guid {471854D3-DF78-456E-9E4E-D99B947B3C66}}
HideNewField:	False
LastUpdated:	29/12/2012 19:30:36
NameMap:	Long binary data
OrderByOn:	False
OrderByOnLoad:	True
Orientation:	Left-to-Right
PublishToWeb:	1
ReadOnlyWhenDisconnected:	False
RecordCount:	4
ThemeFontIndex:	1
TotalsRow:	False
Updatable:	True

1.2.3.2 Columns

Name	Type	Size
CustomerType	Text	10

1.2.4 tbl01_3CustomerHoldStatus

1.2.4.1 Properties

AlternateBackShade:	95
AlternateBackThemeColorIndex	1
AlternateBackTint:	100
BackShade:	100
BackTint:	100
DatasheetForeThemeColorInde	0
DatasheetGridlinesThemeColorI	3
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DefaultView:	2
DisplayViewsOnSharePointSite:	1
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NameMap:	Long binary data
OrderByOn:	False
OrderByOnLoad:	True
Orientation:	Left-to-Right
PublishToWeb:	1
ReadOnlyWhenDisconnected:	False
RecordCount:	2
ThemeFontIndex:	1
TotalsRow:	False
Updatable:	True

1.2.4.2 Columns

Name	Type	Size
CustomerHoldStatus	Text	8

1.2.5 tbl01_4CustomerFavourStatus

1.2.5.1 Properties

AlternateBackShade:	95
AlternateBackThemeColorIndex	1
AlternateBackTint:	100
BackShade:	100
BackTint:	100
DatasheetForeThemeColorInde	0
DatasheetGridlinesThemeColorI	3
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DisplayViewsOnSharePointSite:	1
FilterOnLoad:	False
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HideNewField:	False
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OrderByOn:	False
OrderByOnLoad:	True
Orientation:	Left-to-Right
PublishToWeb:	1
ReadOnlyWhenDisconnected:	False
RecordCount:	2
ThemeFontIndex:	1
TotalsRow:	False
Updatable:	True

1.2.5.2 Columns

Name	Type	Size
CustomerFavourStatus	Text	12

1.2.6 tbl2_0Order

1.2.6.1 Properties

AlternateBackShade:	95
AlternateBackThemeColorIndex	1
AlternateBackTint:	100
BackShade:	100
BackTint:	100
DatasheetForeThemeColorInde	0
DatasheetGridlinesThemeColorI	3
DateCreated:	01/11/2012 07:52:15
DefaultView:	2
DisplayViewsOnSharePointSite:	1
FilterOnLoad:	False
GUID:	{guid {D5C6C217-E1D8-4A18-8B3D-B51CA70891B2}}
HideNewField:	False
LastUpdated:	09/01/2013 14:31:51
NameMap:	Long binary data
OrderByOn:	False
OrderByOnLoad:	True
Orientation:	Left-to-Right
PublishToWeb:	1
ReadOnlyWhenDisconnected:	False
RecordCount:	11
ThemeFontIndex:	1
TotalsRow:	False
Updatable:	True

1.2.6.2 Columns

Name	Type	Size
<u>OrderNumber</u>	<u>Long Integer</u>	<u>4</u>
OrderDate	Date/Time	8
<i>OrderCustomer</i>	<i>Long Integer</i>	<i>4</i>
OrderTotal	Currency	8

1.2.7 tbl3_0Line

1.2.7.1 Properties

AlternateBackShade:	95
AlternateBackThemeColorIndex	1
AlternateBackTint:	100
BackShade:	100
BackTint:	100
DatasheetForeThemeColorInde	0
DatasheetGridlinesThemeColorI	3
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DefaultView:	2
DisplayViewsOnSharePointSite:	1
FilterOnLoad:	False
GUID:	{guid {FC820534-9AE8-4918-8AA8-C5AC20C10828}}
HideNewField:	False
LastUpdated:	09/01/2013 16:23:20
NameMap:	Long binary data
OrderByOn:	False
OrderByOnLoad:	True
Orientation:	Left-to-Right
PublishToWeb:	1
ReadOnlyWhenDisconnected:	False
RecordCount:	18
ThemeFontIndex:	1
TotalsRow:	False
Updatable:	True

1.2.7.2 Columns

Name	Type	Size
<u>LineID</u>	<u>Long Integer</u>	<u>4</u>
<i>LineProduct</i>	<i>Long Integer</i>	<i>4</i>
LineQuantity	Integer	2
<i>LineOrderNumber</i>	<i>Long Integer</i>	<i>4</i>

1.2.8 tbl4_0Product

1.2.8.1 Properties

AlternateBackShade:	95
AlternateBackThemeColorIndex	1
AlternateBackTint:	100
BackShade:	100
BackTint:	100
DatasheetForeThemeColorInde	0
DatasheetGridlinesThemeColorI	3
DateCreated:	01/11/2012 07:48:37
DefaultView:	2
DisplayViewsOnSharePointSite:	1
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FilterOnLoad:	False
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HideNewField:	False
LastUpdated:	31/12/2012 12:25:54
NameMap:	Long binary data
OrderByOn:	False
OrderByOnLoad:	True
Orientation:	Left-to-Right
PublishToWeb:	1
ReadOnlyWhenDisconnected:	False
RecordCount:	16
ThemeFontIndex:	1
TotalsRow:	False
Updatable:	True

1.2.8.2 Columns

Name	Type	Size
<u>ProductID</u>	<u>Long Integer</u>	<u>4</u>
<i>ProductRoom</i>	<i>Text</i>	<i>40</i>
<i>ProductType</i>	<i>Text</i>	<i>40</i>
<i>ProductFinish</i>	<i>Text</i>	<i>40</i>
<i>ProductColour</i>	<i>Text</i>	<i>40</i>
ProductDescriptionForOrderForm	Text (Calculated)	243
ProductDescriptionForCatalogue	Memo	-
ProductPhoto	Attachment Data	4
ProductPrice	Currency	8

1.2.9 tbl4_1ProductRoom

1.2.9.1 Properties

AlternateBackShade:	95
AlternateBackThemeColorIndex	1
AlternateBackTint:	100
BackShade:	100
BackTint:	100
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DatasheetGridlinesThemeColorI	3
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HideNewField:	False
LastUpdated:	30/12/2012 12:36:33
NameMap:	Long binary data
OrderByOn:	False
OrderByOnLoad:	True
Orientation:	Left-to-Right
PublishToWeb:	1
ReadOnlyWhenDisconnected:	False
RecordCount:	8
ThemeFontIndex:	1
TotalsRow:	False
Updatable:	True

1.2.9.2 Columns

Name	Type	Size
ProductRoom	Text	40

1.2.10 tbl4_2ProductType

1.2.10.1 Properties

AlternateBackShade:	95
AlternateBackThemeColorIndex	1
AlternateBackTint:	100
BackShade:	100
BackTint:	100
DatasheetForeThemeColorInde	0
DatasheetGridlinesThemeColorI	3
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DefaultView:	2
DisplayViewsOnSharePointSite:	1
FilterOnLoad:	False
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HideNewField:	False
LastUpdated:	30/12/2012 12:37:19
NameMap:	Long binary data
OrderByOn:	False
OrderByOnLoad:	True
Orientation:	Left-to-Right
PublishToWeb:	1
ReadOnlyWhenDisconnected:	False
RecordCount:	7
ThemeFontIndex:	1
TotalsRow:	False
Updatable:	True

1.2.10.2 Columns

Name	Type	Size
ProductType	Text	40

1.2.11 tbl4_3ProductFinish

1.2.11.1 Properties

AlternateBackShade:	95
AlternateBackThemeColorIndex	1
AlternateBackTint:	100
BackShade:	100
BackTint:	100
DatasheetForeThemeColorInde	0
DatasheetGridlinesThemeColorI	3
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DefaultView:	2
DisplayViewsOnSharePointSite:	1
FilterOnLoad:	False
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HideNewField:	False
LastUpdated:	30/12/2012 12:38:11
NameMap:	Long binary data
OrderByOn:	False
OrderByOnLoad:	True
Orientation:	Left-to-Right
PublishToWeb:	1
ReadOnlyWhenDisconnected:	False
RecordCount:	6
ThemeFontIndex:	1
TotalsRow:	False
Updatable:	True

1.2.11.2 Columns

Name	Type	Size
ProductFinish	Text	40

1.2.12 tbl4_4ProductColour

1.2.12.1 Properties

AlternateBackShade:	95
AlternateBackThemeColorIndex	1
AlternateBackTint:	100
BackShade:	100
BackTint:	100
DatasheetForeThemeColorInde	0
DatasheetGridlinesThemeColorI	3
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DisplayViewsOnSharePointSite:	1
FilterOnLoad:	False
GUID:	{guid {2263852B-5350-4C80-8F29-A73FF24769AE}}
HideNewField:	False
LastUpdated:	30/12/2012 12:38:32
NameMap:	Long binary data
OrderByOn:	False
OrderByOnLoad:	True
Orientation:	Left-to-Right
PublishToWeb:	1
ReadOnlyWhenDisconnected:	False
RecordCount:	8
ThemeFontIndex:	1
TotalsRow:	False
Updatable:	True

1.2.12.2 Columns

Name	Type	Size
ProductColour	Text	40

1.2.13 tbl5_0Users

1.2.13.1 Properties

AlternateBackShade:	95
AlternateBackThemeColorIndex	1
AlternateBackTint:	100
BackShade:	100
BackTint:	100
DatasheetForeThemeColorInde	0
DatasheetGridlinesThemeColorI	3
DateCreated:	03/01/2013 16:21:39
DefaultView:	2
DisplayViewsOnSharePointSite:	1
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FCMinReadVer:	14.0.0000.0000
FCMinWriteVer:	14.0.0000.0000
FilterOnLoad:	False
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HideNewField:	False
LastUpdated:	05/01/2013 14:43:19
NameMap:	Long binary data
OrderByOn:	False
OrderByOnLoad:	True
Orientation:	Left-to-Right
PublishToWeb:	1
ReadOnlyWhenDisconnected:	False
RecordCount:	5
ThemeFontIndex:	1
TotalsRow:	False
Updatable:	True

1.2.13.2 Columns

Name	Type	Size
UserID	Long Integer	4
UserForename	Text	50
UserSurname	Text	50
UserName	Text (Calculated)	243
UserPassword	Text	50
UserEmail	Text (Calculated)	243
UserType	Text	50
UserPosition	Text	50

1.2.14 tbl5_0UserType

1.2.14.1 Properties

AlternateBackShade:	95
AlternateBackThemeColorIndex	1
AlternateBackTint:	100
BackShade:	100
BackTint:	100
DatasheetForeThemeColorInde	0
DatasheetGridlinesThemeColorI	3
DateCreated:	04/01/2013 12:27:55
DefaultView:	2
DisplayViewsOnSharePointSite:	1
FilterOnLoad:	False
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HideNewField:	False
LastUpdated:	05/01/2013 14:43:56
NameMap:	Long binary data
OrderByOn:	False
OrderByOnLoad:	True
Orientation:	Left-to-Right
PublishToWeb:	1
ReadOnlyWhenDisconnected:	False
RecordCount:	10
ThemeFontIndex:	1
TotalsRow:	False
Updatable:	True

1.2.14.2 Columns

Name	Type	Size
UserType	Text	50

2 Task 3: further work

There are a number of places where we feel the software can be improved:

2.1 Layout

Formatting has not been optimised for the small monitors used by your company.

2.2 Login screen

1. The user-name and password arrangements are indicative only: no real data needs to be added to access the rest of the system.
2. The navigation bar is visible at all times, thus allowing anyone to access and modify anything. Once the substantive work has been done, we would split the database into several 'front ends' and a 'back end', so that people could only access and change items their roles permit. Ideally the 'back end' would be run on Microsoft SQL Server, which has extra security features.
3. There should be an audit trail so it's known who entered or updated each datum.

2.3 User screens

4. It's currently possible for staff and customers to change prices in the customer order form. (The easy workaround is to not let customers directly place orders.)
5. When a customer has entered his or her details, he or she should be taken to an order form showing those details - and which does not allow sight of any other customer's details. The customer should be warned that the order will be held until payment or a positive credit-check has been received.

2.4 Filters for products and customers

6. These should be cumulative so that customers can easily find products that meet all their requirements and staff can find customers more easily. Both sets of filters should work without clicking 'Filter' buttons.

2.5 Order process

7. Orders should be held until customers have been unheld. Orders should be categorised as
 - held
 - despatched - awaiting payment
 - despatched - paidThese categories should be reflected in reports on customers.
8. Prices and/or delivery charge could vary with favour status, order amount, etc

2.6 Reports form

9. The totals are incorrect if any product appears more than once within any individual order.
10. All-time lists of best and worst customers should show non-buying customers.
11. All reports on customers should list their orders or total revenue, even if this is zero.
12. Drop-down menus for customers and products should allow reports on customers who have not yet ordered and products that have not been bought, not least because all known customers and products are in these menus.
13. The full report on customers should not display order numbers etc for customers who have not yet placed orders. It should also omit 'blank lines' for customers who have ordered.

2.7 Roles and responsibilities

In general, people should only be able to see and change the data their roles require. For example:

14. Only senior management should be able to see reports.
15. Only senior personnel staff should be able to maintain user details.
16. Customers and sales staff should be able to enter customer names and addresses, and sales staff should be able to see which customers are held and/or favoured – but only appropriate senior management should be able to unhold and/or favour them.
17. Sales staff should be able to enter suggested discount rates, but only relevant senior management should be able to confirm these. Until discounts are confirmed, customers should be charged catalogue prices.
18. Manufacturing should be able to enter suggested catalogue descriptions, but only relevant senior management should be able to confirm them. Until descriptions are confirmed, they should not appear in catalogues.