Drum kit costing system essay sample

Chris Wright owns a drum shop called Drum Gurus. It has been operating for about 5 years and he now wishes to improve the pricing system in order to provide a better service to his customers. He sells drum kits, cymbals, drums, accessories, and parts to customers. As there are more drummers coming onto the scene Chris is selling more and more complete drum kits as opposed to accessories and individual items. The current invoicing system is manual and time consuming. When a customer comes in to buy a drum kit it's a lot of working out because of the various code numbers and prices that are available. In addition the use of calculators to check prices can often result in mistakes due to human error. You have to make sure that you have typed in the right numbers and pressed the right buttons. He used to sell about 1-2 drum kits a week but now that his business has expanded this has increased to about 7-8 a week. It takes quite a long time to work it out on a calculator and then check if it's correct.

Chris has to add up all the items individually, and if the customers find that it is too pricey he may have to do it all over again. With at least 80% done individually each time, it is really time consuming. If the customer wants to change the size of a drum or cymbal or take something out, or add something new, Chris has to add the item and change the total. Also if a buyer wants to buy a cymbal, Chris has to locate it in his price catalogue and then work it out. Then the customer might change his mind so he has to work it out and find it again. Sometimes he might write down the wrong items or make a mistake with the price. Most customers think that this system is inefficient and really needs to be improved. Another problem is the

possibility of losing the sheets that he wrote the prices and customers orders on and it is a lot of work trying to dig them out of piles of sheets

There are quite a lot of problems with the current system. It takes a long time to work out if a customer decides they want to buy something different. When Chris gets an order he will have to locate the price for the item and work out the total price manually and may get it wrong. If he has more than one customer in the shop it can get harder and put more pressure on him to get it right. He would have to go quicker and probably make more mistakes.

When customers buy drum kits, they sometimes get various items that are optional and so it has to be taken off the list and that consumes more time. There are some items of a drum kit that are included but the customer can have add ons and the proposed system would easily include them in the total. Also, when the customer buys a drum kit they also get a free pair of drumsticks with it and that will come up automatically on the pricing system. The current manual system it self is dreadful and Drum Gurus are having problems with it and have asked me to create a fresh new computerised system.

Analysis

Investigation

Interview

I had an informal interview with Chris Wright, the owner of Drum Gurus. Chris explained to me that he wanted to make a much better version of their current drum kit costing system. Chris gave me a few simple ideas to help

with the redesigning of the drum kit costing system. Chris also mentioned to me that his old system wasn't very effective, and that he wanted a much simpler costing model. He gave me some background information about the type of drum kits and prices etc, to change the current system.

Observation

I went to Drum Gurus to see for myself how the old system works. As I suspected, the system performed poorly and was slow at loading prices. They recently set up a website which is an improvement on the manual system he used to use, but it is still not sufficient. Chris deals with quotes by writing down a customers order on a piece of paper and files it away in a filing cabinet.

Analysis

Interview Analysis

After meeting with Chris Wright I found out what I needed to do to accomplish this task. I now have been given a list of their top selling drum kits and their prices. Also he gave me some accessories to put in as well. I will include these in my drum pricing model:

Drum Kit Make

Price ()

Pearl Export

499. 99

Yamaha – YD

369. 99

Premier Artist Birch

619. 99

Premier Artist Maple

619. 99

Tama Rockstar

579. 99

The Cabria Lite

429. 99

The Pacific E series

449. 00

Yamaha X Series

739. 00

Accessories

Price ()

Zildjian ZBT/ZXT cymbal cleaner

7. 00

Doc's Proplugs

12. 95

Isolation Headphones

27. 99

Qwik Time metronome

19. 99

Stagg MC-03XX DL/BL 3 metre mic cable

4. 40

ProMark Cymbal Rattler

11. 95

Stagg MSFM Free mounting music stand

17. 50

Vater's Stick Holders

11. 95

Moongel

5. 99

Pearl K050 drum key

2. 19

Cymbals

Price ()

Sabian AA 8 inch splash

63. 67

Sabian AA 14″ Mini-china

100. 77

Sabian AA 18″ Medium thin crash

142. 77

Sabian B8 16″ crash

60. 17

Sabian B8 20″ ride

83. 97

Sabian AA Metal-X 10″ splash

74. 17

Sabian AA Metal-X 18″ china

142. 77

Zildjian Avedis 8″ splash

65. 65

Zildjian Avedis 14″ Thin crash

104. 00

Zildjian Avedis 16″ Medium thin crash

126. 75

Zildjian Avedis 18″ Vintage crash

207. 35

Zildjian A Custom 14″ crash

118. 95

Zildjian A Custom 20″ Sizzle ride

187. 85

Paiste 2002 20 inch ride

172. 50

Paiste Signature 10 inch splash

95. 25

Paiste Signature 20 inch Full ride

214. 50

Sticks, beaters & brushes

Price ()

Pearl Timpani beaters, hard

11. 34

Pearl Xylophone beaters, soft

11. 34

Pearl Timpani beaters, medium

13. 59

Vic Firth 5A wood

7. 49

Vic Firth Steve Smith

8. 49

Vic Firth SD6 swizzle stick – stick/mallet

15. 99

Premier Nylon brushes

9. 54

Pearl Nylon retractable brushes

9. 18

Pearl Wire retractable brushes

11. 97

Output Requirements

My output requirements are that:

* The model should give the overall prices of the different drum kits and drum accessories

* It will also be able to give the price without and with discounts for the total price and order.

* Finally it will be able to print of a final quote onto a page of A4 paper and be easy to follow

Drum Kit

Price ()

Accessories

Total

Pearl Export

499. 99

Moongel (5. 00)

504. 99

Input Requirements

For the input requirements I am going to include all the drum kits and accessories that Chris has given me. The prices of the equipment will have been saved into the system, but it will always be possible to change the prices of the equipment if and when necessary. The users will have to state the quantity and also all the items they want, just like in the previous tables. The customer will be able to change anything easily and the total will always change and come up automatically when the order is completed. They will be able to choose from a selection of drum kits, cymbals, snare drums, accessories and much more.

Processing Required

The system will have to be able to achieve:

* Calculate the total price for the accessories and drum kits.

* Display the price

* How many items will be purchased

* Show the size and make of every cymbal they are about to purchase

The data items to be processed include: costs, sizes, makes, colour.

Furthermore the system will have to achieve many other operations. For example it will have to calculate the total price for the Drum kit taking into account all the individual items such as snare drum, toms, bass and cymbals. It will also add the quantities and prices. Once completed it will display the price. Here is an example:

Items to be purchased: 1x Paiste Signature 10 inch splash + 1x The Cabria Lite + 1x Vic Firth 5A wood. That makes 95. 25 + 429. 99 + 7. 49 = 532. 73

Possible Solutions

The final product could use:

* Formulas on a word processor. This would be acceptable but word processors are not really designed for formula and calculation work. You can add tables and insert pictures but on the whole it is not suitable for calculation and working out the prices

* A spreadsheet. This would probably be the best solution as it is designed for calculations using simple formula. It can work out many calculations if you program it with a set formula. The spreadsheet can work out the total price; calculate discounts and will not make any mistakes as long as the information is input correctly. This would be the simplest solution for Chris.

* A custom written program or software. This would be ideal but would be very expensive and would probably not be worth the cost in the long run as it would limit the use of the computer.

Specification

Detailed Specification of Solution

I will help build and design a spreadsheet-pricing model that will help Chris Wright with his problems. The pricing model will work out prices of drums and accessories etc quickly and accurately by just adding in the prices, easily calculating a total.

My pricing model will work out things like:

* If they want a cymbal, if so which on and how many

* If they want Basses, if so which ones and how many

* If they want Sticks, if so which ones and how many, and etc....

Evaluation Criteria

I will judge my model to be successful if it meets the following criteria:

1. It automatically works out the price of the drum equipment that is chosen because it would make finding the prices easier and quicker.

2. The users details will be shown in the print off quote and that there is validation that works when the customer enters the details.

3. The pricing model could be printed on A4, so the prices can be given to the customers to keep.

4. It has an appropriate way of selecting options so it is easy to use.

5. It must be easy to use so it saves time having to work out how to use the system. It will also not require high levels of training to use it, if Chris employs new staff.

6. It allows more than one of each product can be chosen, as the customers may want more than one item.

7. The formulas cannot be overwritten; they are protected so the quote is always correct.

8. Their options can be changed easily if they want to alter their choices

9. It will automatically include the Postage and Packing and also the VAT in the total cost on the quote page.

10. When an option changes the total price and the price next to the option changes as well.

Design of the ICT System

System Flow Chart

System Flow Design

This is the sequence of events for using the quote system:

* Take a copy of the template for the quote and save it under the customers name, surname and address.

* Select the drum options from the drop down menu for:

* Bass drum

* Snare drum

* Cymbal

* Tom Toms

* Accessories

* Sticks, beaters and brushes

* Stands and seats and pedals

* Stools

* Full drum kits

As each item is chosen the model will choose the correct price for each item and put it in the subtotal price of that category for each choice.

Once this has been done, the customer will click on invoice and the details will be displayed clearly. Make sure all the items in the box displayed are correct and then enter the details to have it delivered.

Implementation

Hardware resources required

To start off Chris will need a desktop or laptop computer. The minimum resources required to run the program are as follows:

* Keyboard

* Mouse

* Monitor/Screen

* 200MB Hard Disk

* Pentium 75 MHz

* 16Mb of RAM

However to be on the safe side and to speed up most of the process I recommend getting a Pentium 4 Processor and at least a 40GB Hard Disk.

In my own opinion this computer here fits the best description and meets all the criteria to run and create models on Microsoft Excel 2000. I recommend a Dimension 2400 because it meets all the demand to run Microsoft Excel 2000.

Dell Dimension 2400:

* Dimension 2400

* Microsoft(r) Windows(r) XP Home Edition

* Intel(r) Celeron(r) Processor (2. 40GHz, 400 FSB)

* 256MB DDR SDRAM at 400MHz

* 40GB Ultra ATA/100 7200RPM Hard Drive

This will be much better choice of computer than the minimum standards one, because the programs can run a lot quicker and more efficiently. There will also be more disk space to save quotes. The user could also install more programs and software to help the business expand. For example if they

wanted the Internet to search other competitors that could easily be installed and run smoothly.

Dell Photo All-In-One Printer 922:

* Black & white and colour printing

* Print, copy, scan

* Borderless photo printing

These specifications more than fulfil the requirements to run office 2000 which mean that they will allow it to run very quickly and any future software upgrades will enhance the speed. There will be no need for upgrades because it runs fast enough and can store a lot of documents, as there is a lot of hard drive space. I feel it is worth the money and can last for at least 4 years, which will be long enough to run new upgrades and programs in the future.

The printer is the only other piece of hardware being added to the desktop and I recommend a Dell Photo All-In-One Printer 922. This can print in colour making documents appear more professional. It can print at least 11 pages a minute and its scanning capabilities means the company can customise the documents. Also its compact size is allows for flexibility in the work area.

Software resources required

I have chosen to use Microsoft Excel 2000:

Excel has many functions, which help me automate the process. I will use the lookup function to search the prices list for the cost that matches the user choices made and transfer it to the price column.

Another function in Excel allows for the instant calculations of formulas. Where there are numbers involved, Excel can help me make calculations. It can calculate the sums, change other cells to correct the answer and add up multiple cells instantly.

Another good reason for using Excel is the cell protection capability. I will lock the cells that contain any formulae, price, options and important data such as the address for Drum Gurus. Once the cells have been protected, the prices cannot be altered nor can the options or any formulas. Once completed Chris won't lose out financially and there should be no problems or complaints.

Finally when I am documenting my implementation I will be able to use the formulae function that will make it much easier for people to follow and see how it all works. I could also print out my spreadsheet showing the row and column headings, which would help the customer follow and understand what is going on.

Finally I think Microsoft Excel 2000 is the best option as it is the easiest to use, the most secure, the cheapest and the easiest to follow.

Data collection, data capture and input

Data is collected from the customer and is then entered into the quoting system and saved there.

There are two main methods of entering data into the system and they are:

* Using drop down menus to enter information from a specified list.

* Typing numerical or text values directly into the cells.

Typing into the cells

The following information will be entered directly into the cells.

* Customer's first name

* Customer's surname

* Customer's telephone

* Customer's address

* Customer's Postcode

* Customer's E-mail

Justification behind this

All of these text and numerical values will be different from other customers so it would make more sense for them to type their own details in. Drop down menus would be more time consuming and a lot more difficulty to enter data and it would be hard to understand and follow.

Drop down menus

Although drop down menus will not be sued with the customers details they will be useful to enter the following data:

* Bass drum

* Snare drum

* Cymbal

* Tom Toms

* Accessories

* Sticks, beaters and brushes

* Stands and seats and pedals

* Stools

* Full drum kits

* Payment method (credit card choices)

The advantages of using drop down menus are that it forces the customer to choose a choice from a limited selection. They cannot enter what they want they can only choose what is available. It also eliminates the factor of typing errors, because if incorrect data was entered then the total price of quote would be incorrect as well.

Every drop menu is powered by two things, which are located in format control

* A cell that tells the software which has been selected from the list. (Cell link)

* A perpendicular range of cells containing the various options available. (drop down lines)

For example all data relating to the cymbals drop down menus is located in data sheet and entered into row 23 of the interface sheet.

The entire drop down menus requires their own individual cell link, this will be located underneath the drop down menu, hidden from the user. They will be hidden because there is no need for the customer to access them and therefore they should be kept out of sight.

Data verification and/or validation

There are two main types of data validation checks, which are used in various parts of my model. Within my model I have text restrictions and option restrictions.

They are located:

* The areas outlined in Green have text length restrictions.

* The areas outlined in Blue contain drop down menus, which restrict the customer's options.

* The areas outlined in Red have numerical length restrictions.

Text length Restrictions

All the details that relate to the customer are text fields. A restriction on the amount of text that the user can enter has been initiated. This is to stop them entering too much irrelevant information and running over the cell size.

Also the cells cannot be left blank either, there is a minimum and maximum amount of characters that can be entered in order to carry on with the order.

Customer Name

The customer name must be less than 15 characters. If more than 15 characters are entered then an error message will appear telling them to change this.

This is the warning message that will appear:

The same validation is used with the:

* Surname

* Address (but allows more characters to be entered)

* Postcode

* E-mail

Justification

The reasoning behind doing all of this is to help the user enter their details. Without the validation, wrong information could be entered, the final quote print could be printed incorrectly due to too many characters and going onto new lines which would take up space and it might not print on a whole page. It is also to save them time, if they keep typing in too much it will waste their time so the validation is to help them and help Chris to easily look up a customer on his database.

Drop down menus

The following information is entered into the model, using drop down menus:

* Bass drum

* Snare drum

* Cymbal

* Tom Toms

* Accessories

* Sticks, beaters and brushes

* Stands and seats and pedals

* Stools

* Full drum kits

* Payment method (credit card choices)

All the information is contained and easily laid out in the data sheet. It is also easy to update it when Chris wants to add more items or change prices.

Once I had all my data I had to input it using format control to the drop down menus.

These following settings create the drop down menus for each category.

* The input range tells the drop down the location of the list to be displayed; in this case the cells are D3 to D19 of the data sheet.

* Cell link is located in the cell directly underneath the drop down menu, and is where the drop down menu will go on the interface.

* The drop down lines tells you the amount of choices you want to be displayed. I want all 17 to be displayed.

Justification

The reasoning behind this is to help the user not to enter what they want. It is very time consuming to enter what they want and it also eliminated the threat of typing errors that would confuse Chris when he comes to search that item on his database. I chose drop down menus because they are easy to use and eradicates any mistakes.

Numerical length Restrictions

The numerical length is to help the user enter the correct data. I did some research and found out that the biggest phone number come to a total of 930599 if you add it up. So I put that as my maximum and the minimum is 100. It also says allow whole number, this means that the customer cannot enter any text, only numbers, this is to help them and Chris to know that if they wanted to contact them it would only have their phone number.

This is the warning message that comes up if they enter the wrong data:

Budget:

The idea of the budget is to allow the customer to input an estimate amount of money that they wish to spend. If the amount goes over on their budget, the text goes red to indicate they have gone over and by how much.

If the customer does not know how to use the budget there is a little box that pops up when it is selected to tell the user how it works and what to do.

This is the validation I used for the budget:

The maximum that they can enter is 1000000 and they minimum is 0. They use enter in numbers and not text otherwise that would make the budget invalid. The money remaining cell would not work and the user would not have any idea how much money they had left if they wanted to enter a budget. I feel that this is a good idea because they could enter a budget that is ridiculously too much and would be pointless or they could enter some text by mistake and the validation will help them and correct them.

If any relevant information is entered an error message will appear.

Justification

The reason that I added validation to this was to help the user not enter any text otherwise it would ruin the whole idea of the budget. Also for the telephone number I added validation because the customer might enter an extra digit that should trigger the validation if it is over 2.

Summary

I have added validation to my drop down menus, text and numerical cells to help the user. If the user were to enter the wrong text, or try and change the

formula or option then a validation box will appear and telling them what is wrong and how they can change what they have done wrong. The main reasons were to assist the model run smoothly and eliminate any problems due to the customer entering the wrong details or choosing something that they should not.

Data and/or program structures

To make my model work properly and functioning I had to use many different formulae. I will display them and explain how they work and I why I need them.

The price of each item is calculated using the index function. This works by look at the cell link for the dropdown menu and links that to the price list for each part on the price list page. I have chosen to use the INDEX function because it is easy to make and if any more options need to be added, Chris just goes to the data sheet and changes it and the price will increase of decrease appropriately or the selection will be updated. Index returns a value or the reference to a value from within a table or range. There are two forms of the INDEX() function: array and reference. The array form always returns a value or an array of values; the reference form always returns a reference.

I have chosen to use the SUM function to calculate the total cost of parts, as it is easier than typing in the entire individual cell numbers. The SUM function is where it automatically adds up various cells without Chris having to work them out himself and providing it adds up the right cells it has less

chance of error than a human. The final total is calculated by adding the total parts, post and packing and them multiplying it by 1. 175 for VAT.

The data structure is set out very simply. Chris can easily update the data sheet and in consequence the drop down menus and prices will be updated as well once he press enter on that cell in the data sheet. It is very easy to use and follow. There is extra space at the bottom of each category so Chris can add more or take out items.

Output format

This is the interface page and the main page. This is where all the choices are made.

1. I have put all the titles in bold so the customer is not confused for options.

2. At the top the part in blue always stays at the top so you always know the total cost and if you have entered a budget how much is left. No matter how far you scroll down, the total price and the buttons to go to back and forward stay at the top so it is easy to find.

3. The options are spaced out, and also the budget and details are spreads out so there is no confusion and the customer can do each bit, slowly and do a section at a time.

4. The borders are bold around a section so the user knows where one ends and starts.

5. There are buttons at the top to help the user navigate around the quote system much easier.

1)

The details of the customer are clearly displayed and if the user discovers any problems they can go back and change.

2) There is a blue box around the items selected to show the user all the items being purchased. It is also to make it stand out and to divide it from the details.

3) The total is in bold so the user can instantly find the total price.

4) The payment box is by itself so the user can choose their own method of payment. By clicking cash or cheque another window will open giving them instructions on how to pay by that method.

5) There is an order number (every one is unique) so that if there any problems the customer can ring up and quote that number and Drum Guru can find out what has happened to that order.

6) The address of the company so the user can contact them if any problems, also there is a brown box, which tells them how to contact as well and about how long they have to wait.

Testing

Evaluation Criteria

1. It automatically works out the price of the drum equipment that is chosen because it would make finding the prices easier and quicker.

2. The users details will be shown in the print off quote and that there is validation that works when the customer enters the details.

3. The pricing model could be printed on A4, so the prices can be given to the customers to keep.

4. It has an appropriate way of selecting options so it is easy to use.

5. It must be easy to use so it saves time having to work out how to use the system. It will also not require high levels of training to use it, if Chris employs new staff.

6. It allows more than one of each product can be chosen, as the customers may want more than one item.

7. The formulas cannot be overwritten, they are protected so the quote is always correct.

8. Their options can be changed easily if they want to alter their choices

9. It will automatically include the Postage and Packing and also the VAT in the total cost on the quote page.

10. When an option changes the total price and the price next to the option changes as well.

Test Plan

Test No.

Criteria to Test

Test Information

Expected Results

1. 8. 10.

Works out the price and subtotals. I will change the information in the data sheet and see if it changes the total price. I will change and see if all the options work in the drop down menu

The total price to be correct and all other prices to be correct. The items in the drop down menu are shown

The final quote can be printed on one A4 page when printed.

It will fit onto one page

When an option is selected the correct price is shown. I will test by selecting different options and see if the price changes

The prices change as I select different options.

The quantity can be chosen and the total is changed when more of that item is chosen. E. g. 3 items chosen it is 3x that price.

The total will change if the quantity changes.

The formulae cannot be altered. Trying to change the formulae will test this.

The formulae will not change.

The VAT and P&P are added to the total price. I will go into my invoice and see if they are added and check the formulae.

The P&P and VAT will be added to the total.

When the details are entered they are automatically entered into the quote. Also if there are too many characters a validation box comes up. I will test by putting too many characters and entering information and seeing if it appears on the quote.

The validation works if too many characters are added and that the customer's details are shown in the quote.

Testing

Test 1

* It automatically works out the price of the drum equipment that is chosen because it would make finding the prices easier and quicker.

* I will change the information in the data sheet and see if it changes the total price. I will change and see if all the options work in the drop down menu

Firstly I have changed the price of a Sabian B8 20″ ride from 83. 49 to 500. 00. Now I will go into my interface and choose this item.

I have changed the item in the data sheet and the unit price has changed and so has the total price. The options can be changed easily as all I did was enter in 500 into the cymbal column, which said price. The total price has

changed and the unit change and it is very easy to change an option and a selected price. As the screenshot shows the prices change and so does the total price.

Test 2

* The final quote can be printed on one A4 page when printed.

* It will fit onto one page

Here is a screen shot of the invoice. I have then clicked on print preview and this is what was shown

As you can clearly see, it says preview: page 1 of 1 and that is the whole invoice on an A4 page. As a result I can confirm that you can print the invoice onto a single A4 page of paper.

Here it shows that the paper size is A4 and fits to a portrait orientation.

Test 3

* When an option is selected the correct price is shown. I will test by selecting different options and see if the price changes

* The prices change as I select different options.

It would be pointless to take a screenshot of every single part and how the price changes but I have changed the items from previous screen shots and as you can see the unit prices have changed and so has the total price at the top.

Test 4

* The quantity can be chosen and the total is changed when more of that item is chosen. E. g. 3 items chosen it is 3x that price.

* The total will change if the quantity changes.

I have changed the quantity of each item. As you can see for " Full Drum Kits" 179. 99 x 7 = 1. 259. 93. This means that if you change the quantity then the total price of that item changes accordingly. Also you can see how the budget works, because I have gone over target the " money remaining cell" has gone to red indicating I am over my budget. So as you can see from the screenshot that the total will change if the quantity changes.

Test 5

* The formulae cannot be altered. Trying to change the formulae will test this

* The formulae will not change.

This is a screenshot of the formulas that are used to work out the total price and the unit price. I have the same validation for the total price at the top and all the formulae in the invoice. So I will demonstrate by only changing the total price and unit price because all the formulae have the same validation and it would be very pointless taking a lot of screenshots.

As you can see all my formulae are protected using the protection sheet I mentioned earlier. If Chris wanted to change any of the formulae for any reason he would have into Tools, Protection and then click " unprotect

sheet". He would then have to enter his password and could change any formulae he wanted to.

So this proves that you cannot change any of the formulae unless you know the password to unprotect the sheet.

Test 6

* The VAT and P&P are added to the total price. I will go into my invoice and see if they are added and check the formulae.

* The P&P and VAT will be added to the total.

Here you can see that the Subtotal minus the Postage and Packing and the VAT comes to 912. 05. So if you add the VAT (17. 5%) and the 7. 00 for the Postage and Packing, the total comes to 1, 079. 88. This proves that the pricing system adds VAT and Postage and Packing.

Here are the formulas that prove that VAT and Postage and Packing are added.

So from this I can say that VAT and P&P are added to the Total price at the end.

Test 7

* When the details are entered they are automatically entered into the quote. Also if there are too many characters a validation box comes up. I will test by putting too many characters and entering information and seeing if it appears on the quote.

* The validation works if too many characters are added and that the customer's details are shown in the quote.

This is the validation box that shows that in the customer details that there is a limit to the amount of characters that can be entered.

I tried to enter a name that had more than 15 characters into it and this is what happened.

Finally to complete this test here is the box in the invoice that displays the customers details, which were entered into the interface.

So from this I can say that the validation does work if too many characters are added and that the customers' details are shown in the quote.

Evaluation

Evaluation of the system produced

1. It automatically works out the price of the drum equipment that is chosen because it would make finding the prices easier and quicker.

As I proved in test 1, the model automatically works out the price once an option has been chosen. The user just chooses an option and the quantity and the price for that item is calculated. At the same time to total price including VAT and Posting and Packaging is also determined.

2. The users details will be shown in the print off quote and that there is validation that works when the customer enters the details.

I have made it possible for the customers to see their details in the print off at the top of the invoice. As I have tested, the validation works in every aspect of the customer's details. So the users details were shown in the screen shot of the print off and the validation did work when entering characters and numbers into the details.

3. The pricing model could be printed on A4, so the prices can be given to the customers to keep.

As seen in test 2 from the screen shot of the print preview, the final quote can be printed onto a single page of A4 paper.

4. It has an appropriate way of selecting options so it is easy to use.

The user interface is clear, because I have used simple fonts, and colours to distinguish different sections. The drop down menus are easy to use, all you have to do is click and select. Nothing has to be typed in manually and the prices are worked out automatically.

5. It must be easy to use so it saves time having to work out how to use the system. It will also not require high levels of training to use it, if Chris employs new staff.

I feel it is easy to use for certain reasons. Firstly, you can see the whole model on one screen. This means there is no need to keep scrolling up and down, which just wastes time. It is easy for a person who has no experience on a computer to use, as everything is self-explanatory, and key parts are in bold, and/or in different colours. It is just generally laid out in a logical order,

and therefore should be easy to use regardless of weather the person has experience on computers or not.

6. It allows more than one of each product can be chosen, as the customers may want more than one item.

I proved that in test 6 that you can change the amount of a certain item that you want. As well as doing this, the total price for that item is updated taking into account the amount of the item that is required.

7. The formulas cannot be overwritten; they are protected so the quote is always correct.

I proved this in test 5. I showed that if you tried to type anything manually into the prices or drop down menus, it would show the user an error message, and not let them do it.

8. Their options can be changed easily if they want to alter their choices

I have shown this in my testing. It was test 1. The results showed that if any of the parts were changed, the drop down changed automatically.

9. It will automatically include the Postage and Packing and also the VAT in the total cost on the quote page.

I have proved this in test 6. I did this by seeing if the model came to the same price as I had worked out when I made a quote manually. Both of the answers came to the same total which indicates that the Postage and Packing and VAT was included without human intervention.

10. When an option changes the total price and the price next to the option changes as well.

As I demonstrated in test 1, when an option changes, the price next to it changes as well indicating the total price for that one item. Simultaneously the total price is changed as well to keep up with the changing of the options.

Possible Refinements

Even though I fulfilled my evaluation criteria, there are some improvements I could make.

I noticed that if a user wanted to buy two cymbals, but two different cymbals that it could not be done. They could choose two cymbals but they had to be the same kind. This was the same for all the other parts, if they wanted two or three different sticks; it was not possible to do this. They only way that this could happen would be for them to fill out two forms. That would be very time consuming.

To amend this I would have had it where the user clicks on the item that he wants and it goes into the basket/invoice. Once it is there he can go back to the interface and choose another cymbal. There will be no quantity because to get two of the same cymbal he would just have to click on the desired object, go back to the interface and click on it again. That would not be very time consuming either. If the user made a mistake they could just click on " go to invoice" and just click on the item and press delete.