Data Validation and Verification

Computers can produce inaccurate results only if the data inputted is incorrect. If an input is scanned in by a computer this reduces the risk of errors. In my system it is important that all the data is accurate as well as correct. There are two main ways of achieving this. These are **Verification** and **Validation**. Verification allows me to ensure that the data entered into my system is correct. This is important since when a new patient comes to join I will need to collect the correct information. As for validation, this will be useful so you can set various checks and limit the mistakes in the data.

Verification

By verifying what the computer comes up with you can reduce errors, like if you are at a catalogue shop and you tell the person behind the till a number and it comes up with an item. This item is then checked with the customer to check that it is the right item. The item is then sent down from their storage floor and is again verified that it is indeed the correct item. This constant verification greatly reduces errors

I will need to use verification in two scenarios. These are booking an appointment in either person or on phone and when a new patient joins. I will deal with these two situations separately, firstly with booking appointments.

In booking an appointment either on the phone or in person I will need to collect the following information.

- Patient Number
- Patient Name and Surname
- D.O.B
- Time and date of appointment

I asking for the patient's number will verify the above. When I have collected this I would have to ask a number of questions, such as the patients address or D.O.B to verify that this is the right person and no one is trying to make a hoax. Once I have got all his or hers details and allocated them a GP, I will check the data over again to confirm that its all correct. This will all be inserted directly into the system.
When a patient calls over the phone I will use the same method of asking their Patient Number than asking a question such as their D.O.B to see if it's the right person. Again once I have enough information to confirm that this isn't a hoax I will allocate them a GP, and check the data over again to confirm that it is correct. In this case the data would also be input directly into the system.

When a new patient comes depending on how busy the surgery will depend what data entry method I would use. If it were busy then I would issue the person a paper-based copy of the Patients form for them to fill out. Once they had finished it I would ask them to check over it to confirm that all the information is correct. If the surgery wasn't busy then I would instead ask them the question in the intend that they can answer the questions for me to put the answers directly in the online system. Once all the questions had been asked I would then go over the answers once more to confirm everything is correct.

This is how verification will be used in my system.

Validation

Validation is the process of detecting any data that is inaccurate, incomplete or unreasonable. A computer programme performs validation.
Validation programmes will perform some or all of the following checks

Character type checks	Character checks to make sure that the right type of characters have been entered such as characters where there should be characters and numbers where there should be numbers
Range checks	That a value entered is in the right range e.g. 18 is not a valid age for a pension
Hash Totals	This will check that the values on something like an invoice have been keyed in correctly the hash total has no real meaning as a number
Control total	A control total is like a hash total except the total has a meaning like the cost of something
Check digits	When a number is directly inputted to a computer there will be errors and check digits are a way around this we call barcodes International Standard Book Number or ISBN
Spelling checkers	Any software with words in it should have a spell checking function
Length checks	Sometimes a certain item of information should always be a certain number of characters, then the length checker will alert you that the values are incorrect

Types of Errors

There are two main types of errors these are:

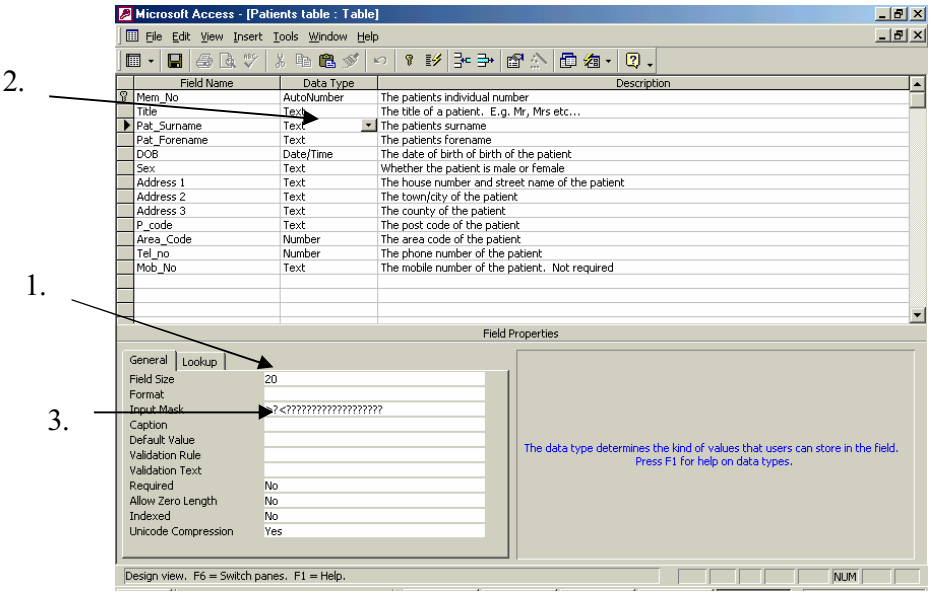
Transcription errors

Misreading or misunderstanding data causes these, this could be caused by bad handwriting or confusing handwriting for example where the letter s looks like the number 5.

Transposition errors

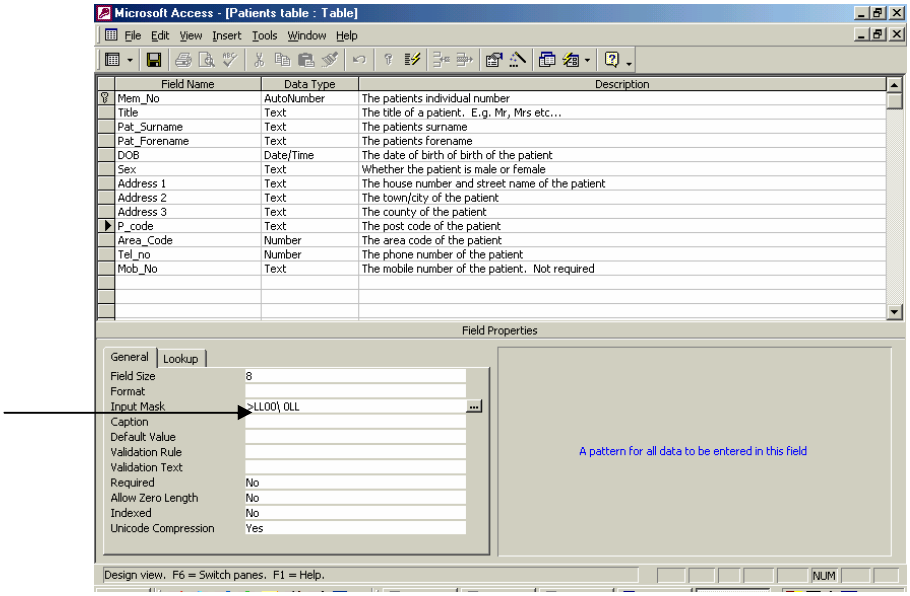
These errors occur where two digits or letters are swapped around as if you are working at high speed you don't always look at the screen so it is common to type ot instead of to or 5124 instead of 5214 about 70% of all errors are transposition errors.

Within my system I have used Validation to hopefully enhance it and limit mistakes.



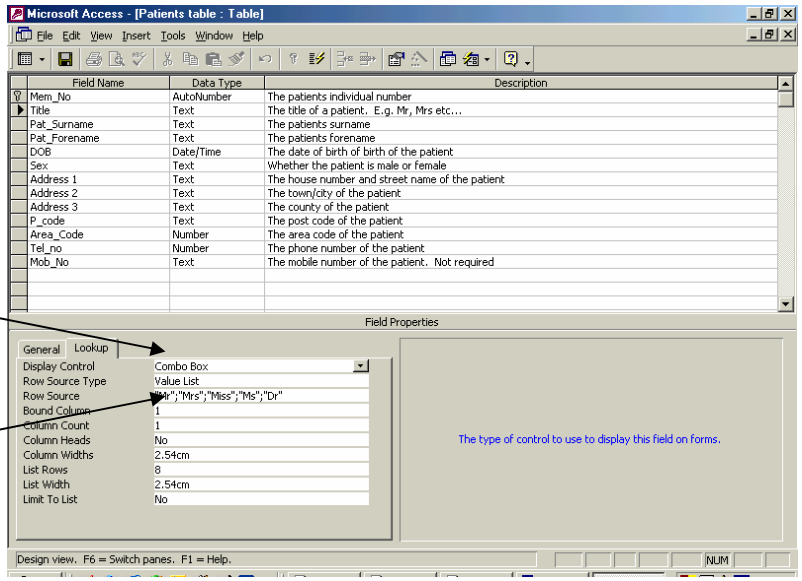
1. Here you can see that I have used validation to limit the number of characters that can be inputted into the surname.
2. Here I have used a data type filter so no numbers can be inserted in to the patient's surname. This doesn't stop mistakes but will limit the mistakes within my system.
3. Here I have used an input mask this is so you automatically put a capital in the beginning of a surname. This rectifies the mistake of forgetting to put a capital at the start of a surname.

Another, and more accurate method of validation within my system is the use of an input mask. I used a simple type of input mask in 3 above and here is another part in which I have used an input mask.



Here you can see another example of an input mask in my system. This one is used for the Postcode. As you can see this input mask reduces mistakes by allowing the first two figures of the Postcode to be capital letters only and the next two numbers only. Then it has an automatic space. The next figure is a number with the remaining two being capital letters. This input mask is a good method of validation since it doesn't allow you to insert letters where numbers are required and vice-versa. It also automatically makes a space within your Postcode.

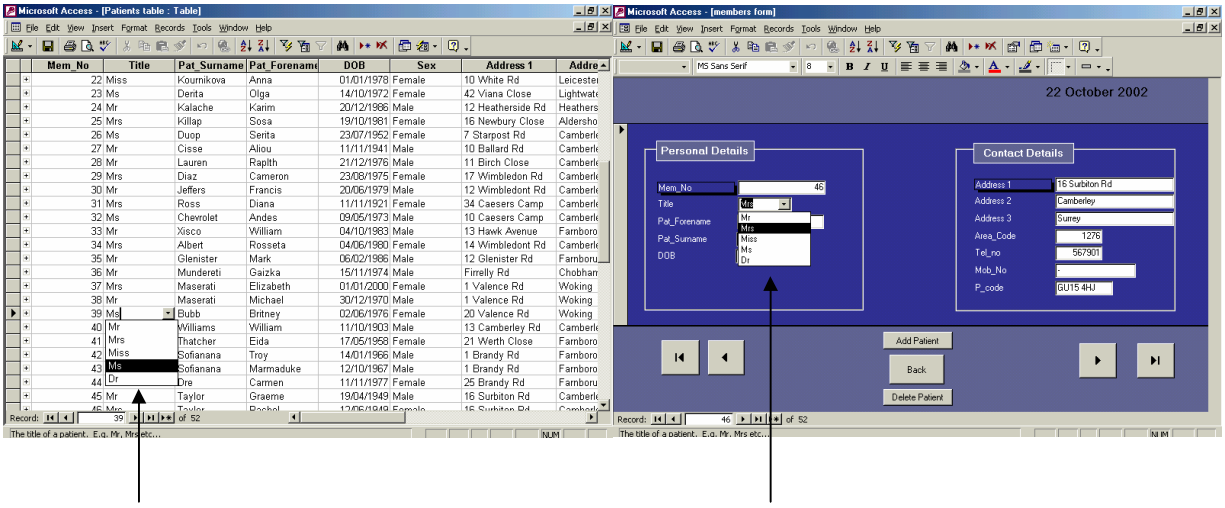
The final method of Validation used in my system is the combo box. With this it only allows for a set number of answers. Of course this can only be used on a field that only has set answers such as “sex” or “title”. I have in fact used this on both of the prior mentioned.



1.

2.

1. Firstly I have set the type of control to Combo box.
2. In row source I have then chosen the values that you can select from. As you can see the only values selectable for the “title” table is Mr, Mrs, Miss, Ms and Doctor. This has set up my combo box for use in both my patient’s form and table as you can see below.



The above examples both show the combo box working successfully in my database. This actually limits the mistakes made since it is impossible to but Mr as MMR and Dr as SDFS. It allows is time saving and makes sure that the data **isn’t** unreasonable and incomplete.

As you can see the verification and validation methods used in my system enable me to have more accurate data, which is essential within a database of this importance.

As the aim of this part of my system was, it allows me to ensure that the data input into my system is correct.