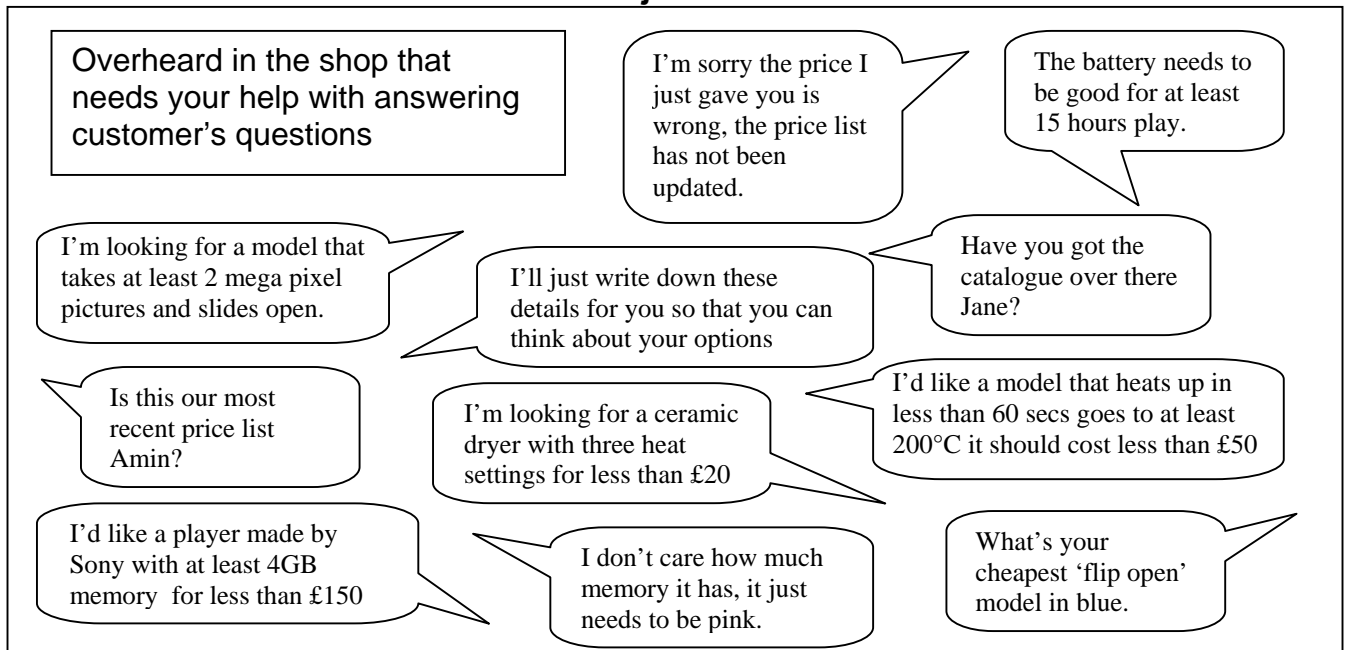


ICT project 1b

Creating a database for a shop.

1094/1994 OCR GCSE (Short Course) ICT Specification A

Project 1b



The scenario: Creating a database for a shop.

You have been asked by a retailer to solve a customer service problem they have in their stores.

At the moment the store works like this:

All the information about products sold is stored on sheets of paper in one A4 binder behind the cash desk. This system isn't very satisfactory, as these sheets are easily torn or lost.

The biggest problem, however, is that there are at least six salespeople working in the shop at any one time, and if one salesperson is using the folder, it means that any questions a customer asks one of the other salespeople can't be answered straight away.

Customers need help on things such as the name of product, price, colour, features etc. Some customers are not prepared to wait, and so the shop is losing business with its current set up. The salespeople need to be able to access the information the shop has about its products more quickly, and all of the salespeople need access at the same time.

To improve customer service you will have to set up a database that will reduce the time spent by staff searching for the answers to customers' questions. You may choose which type of shop to make the database for (e.g. mobile phones, MP3 players, hair care accessories, jewellery, etc.)

However, **you must be able to gather information from a catalogue – cut out & stuck onto paper as non-ict source material.**

Your Deadlines

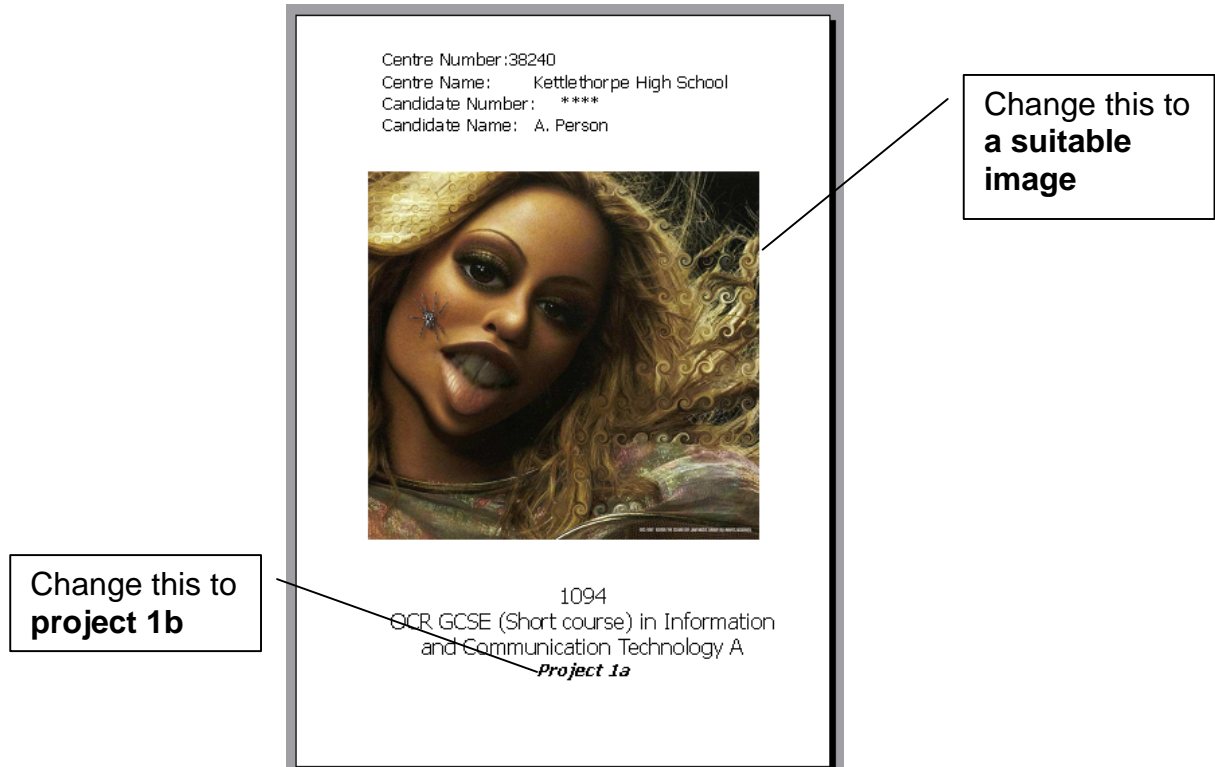
Your teacher will set deadlines for certain points in the project. These deadlines MUST be met. Even though there is not a specific amount of work to complete each lesson, to meet the deadlines you must ensure that full effort is given in EVERY lesson.

Do not be tempted to rush ahead. There is plenty of time allowed for you to complete each task. You must complete every task as laid out in this booklet or you may come unstuck and end up with a **large piece of work worth very few marks.** For the written tasks, guidance and writing frames are provided to *help* you. You still have to think and use your intelligence to complete these tasks. Do not expect your teacher to do any more than explain each task to you. This is **your** coursework after all.

Task One – Front Cover

Make ICT work for you! Open your Project 1a folder and locate your front cover. Click on the file once to select it, click on 'Edit' on the Menu Bar, and choose 'Copy'.

Navigate to your Project 1b folder, choose 'Edit' again, and now paste the file into the folder. All you now have to do is replace your image with something more appropriate, perhaps a piece of clipart of a mobile phone, and alter the project title to 1b.



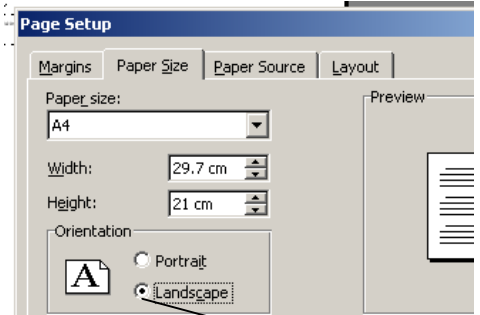
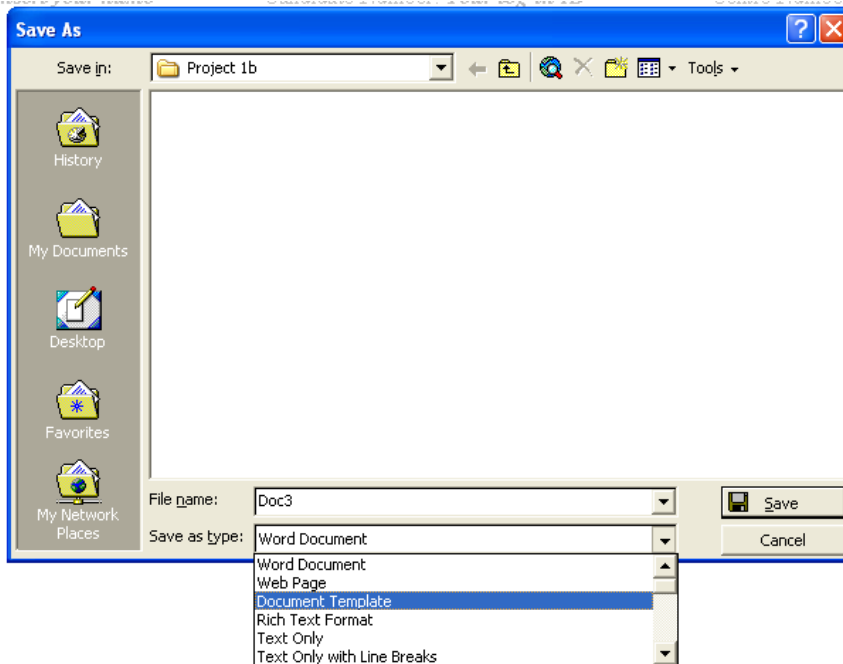
This has now saved you from typing the same information all over again. When you save your work, remember that you are now on Project 1b, so save it to the correct folder in your user area.

Once you have saved your work, you need to print one copy of your front cover. At this stage it doesn't matter if it is B & W.

Task Two – Word templates

For this project you will need two templates with your information in the header & footer, one in portrait orientation and one in landscape orientation. Having both options gives you more flexibility for your work later in the project.

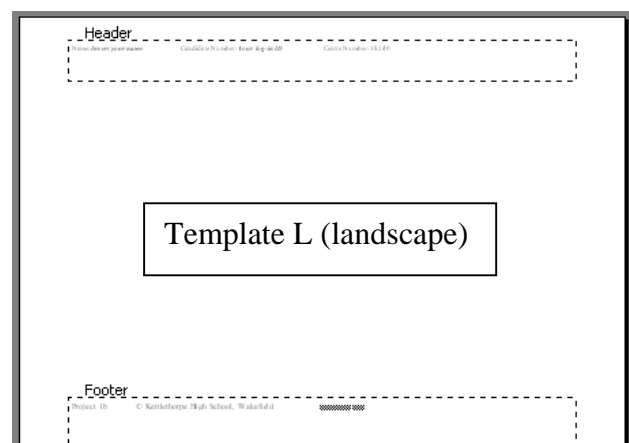
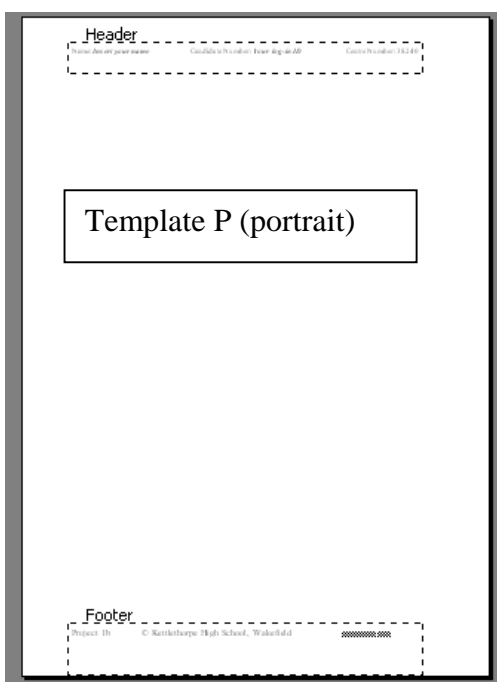
Use the header and footer from this booklet as a guide for your own.



Use
File>Page setup>paper
size>Landscape
To change the orientation of
your template

When saving your templates, make sure you select the correct option, as shown above, in the 'Save as type' option box. With 'Document Template' selected, you have to make sure you then reselect your own user area, as Word will try to save to your workstation's C:\ drive. If you are not sure about this – ask your teacher for help.

You should end up with two templates – Template P and Template L.



Task Three – Describe the Current Situation

You need to provide a brief description of the current system operated by the retailer. A writing frame has been provided for you to use:

Problem Description

This project will aim to solve the information handling problems of [Put the name of the business, organisation or individual here]

[Describe the type of work that is carried out and the services that are provided here]

To do this work and provide these services information is collected and stored about [list the information that is collected and stored here]. [Describe exactly how and where this information is stored here]

[Describe the tasks that are carried out by people using the current system here]

The current system causes the following problems:

- [List the problems that are caused by the current system here].

How to complete this task

- 1) The first step is to think of a (sensible) name for your business, you need to remember that it is a successful local business. A business address may also be useful.
- 2) Read the scenario from the introduction to 1b
- 3) Try to imagine yourself working in the shop and use these ideas to replace the greyed out sections from the text above.

Task Four – Collecting Evidence.

You will have to get information on your product from **3 different sources**.

- a) You will have to get data from a **catalogue** giving information on your product.
- b) You will have to **search the internet** for product information. Pages that have relevant information will have to be 'screen dumped' and printed.
- c) You will have to **conduct a survey** to get further information about your product. This survey will be undertaken among your friends and family.

Every piece of information that you collect will have to be supported by physical evidence (screen dumps, cut up catalogue, filled-in questionnaire)

Task 4a: collecting data from a catalogue, is the first practical task of this project, where you will collect data to populate your database with. You need to select at least twelve products from the catalogue.

You need to clearly identify which products you have selected, as these pages will form part of the evidence in your report.

Once you have selected your products, you need to transfer every piece of information about each product to the A3 table you have been given. Turn this sheet to landscape view – use the top row to fill in field names that you decided on in task 4, such as manufacturer and item, and the left hand column for numbering 1-24, for each product. You need to fill the sheet in neatly in pen; it will be submitted as part of your project, so take care! See the example below –

	Manufacturer	Item	Price	Product code	No. in Stock
1	Nicky Clarke	Hair dryer	£29.99	442/5100	14
2	Toni&Guy	Hair Dryer	£24.99	442/4620	6

Keeping the Evidence

You must cut out and mount the catalogue pages that you have your data from. The pages should be mounted on your template. The name of the catalogue must be given. Do not lose these pages – this would greatly reduce the value of your work.

You have one lesson to complete this task.

Take care of the A3 sheet you are working on, you will be working from this document to complete the next few tasks over the coming weeks.

Task 4b - Collecting Evidence from the internet


You need to collect **data from the internet** for a further 12 products.

- 1) Search for a website that offers information on the products your shop sells.
- 2) Screen dump a page that has data useful to you.
- 3) Paste the screen dump on your template
- 4) Crop and resize as necessary
- 5) Add the web address of the site
- 6) Save with a meaningful name eg mobiles 1, mobiles2, etc
- 7) When you have printed enough dumps to let you fill in 12 records on your A3 sheet, transfer the data to the sheet (best writing)

Every piece of data on your A3 sheet needs to be supported by evidence – **so do not lose your printouts showing the internet data**

Name: *Insert your name* Candidate Number: *Your log-in ID* Centre Number: 38240

Creative ZEN Vision:M 30GB MP3 / Video Player - Black
by [Creative Labs](#)



Our Price: £176.00 & this item **Delivered FREE** in the UK with Super Saver Delivery. [See details and conditions](#)

Availability: In stock. Dispatched from and sold by Amazon.co.uk.

Want guaranteed delivery by 1pm Tuesday, September 5? Choose Express delivery at checkout. [See details](#)

12 used & new available from **£175.49**

Visit our Creative shop to see the full range of Creative products. [Visit now.](#)

[technical data](#) | [customer reviews](#) | [Reviews](#) | [accessories](#)

Product Features

- Capacity: 30GB hard drive
- Size: 104 x 62 x 18.6mm
- Weight: 163g
- 2.5" LCD @ 320 x 240 Color Display
- 15,000 WMA's/ 1,000hrs (at 64kbps)
- 7,500 MP3/ 500hrs (at 128kbps)
- Store tens of thousands of Photos
- Store 120 hrs (MPEG4 videos)
- Up to 4 hrs video playtime
- Up to 14 hrs playtime (MP3, 128kbps, 4mins/ song)
- Up to 8 hrs playtime (WMA, 64kbps, 4mins/ song)
- Up to 14 hrs FM playtime
- Album Art
- FM radio, FM recorder and voice recorder
- Contacts, calendar and tasks
- Repeat, resume, and random play
- Sleep and wake timers
- Customisable main menu
- Functions as an external hard drive
- 8 EQ settings (Acoustic, classical, disco, jazz, new age, pop, rock and vocal)

Amazon.co.uk

Task 4c - Collecting Evidence from a survey

You should now have data about 24 products on your A3 sheet. Probably you will find that not all the fields are filled in for all the records – there will be gaps. If some fields have more gaps than data then they are probably not essential to your database.

For example: if your database is about mobile phones and there are many gaps in a field called 'colour' then this is probably not a very useful field to have. However the field called 'manufacturer' is going to be essential for all databases.

Decide which fields are not essential; indicate this on your A3 sheet (neatly – in pencil). Show your choice of unwanted fields to your teacher.

Designing a data collection form

You need to do a small survey on the products that friends of family might have. This data will be added to your catalogue and internet data. You will collect data about those fields that you decided were essential to your database.

Design a form that will collect the data you need. Below is a part of a form that collects data about peoples' cars. When you design your form consider the following things

- Some people write very untidily – what's been done to ensure legibility.
- What's been done to make it quicker to fill in
- What's been done to try to reduce answers that don't make sense
- What's been done to try to save space

The form can be done in Publisher or Word. (My personal choice is Publisher. CHU)

Get hold of some forms (passport application, provisional driving licence, bank/building society account) to help you with your designing.

Please fill in this data collection sheet.
Please write clearly in black/blue ink.
Please write in capitals - one letter to a box.

Make of car

Model of car

Colour of car

Number of seats (2, 5 or 7)

Type of car (saloon, hatchback, sports etc)

Engine size in cc

Fuel (Petrol, Diesel) P or D

Navigation system ? Yes No Electric windows ? Yes No

Sun roof ? Yes No Central locking ? Yes No

Year of registration Mileage

Price £

When your teacher has seen one printout of your form print it three times and ask friends or family to fill it in. This must be neat and in three different handwritings. Add the data to your A3 sheet.

Task Five – Identifying the Output

This task and all later tasks will be much easier if you have a catalogue that features the products you are selling. The Argus catalogue seems to contain everything, the Carphone Warehouse catalogue is great for mobiles, jewellers have catalogues of rings etc. **It is essential that you have a catalogue for the product you are selling.** You must have your own – you cannot share.

Your aim for this project is to produce a database to help improve the level of service offered by a shop to its customers. In this task you need to think about the sorts of questions that customers may ask a sales assistant in the shop.

1) Imagine yourself in the shop you're working for. Produce ten questions that might be asked by customers. Examples are given on the scenario page. Use the catalogue to help you make up likely questions. These must be sensible questions that could be answered by the shop assistants with access to relevant information ('will this mobile make me look sexy?' does not count as a sensible question).

Below each question write the field/s that should contain the answer.

Eg

Example question: I have £100 to spend on a mp3 player what models are available?

Fields: Price, Maker, model

Example question: I'm looking for a hair dryer with 3 speeds in silver, what have you got?

Fields: Maker, model, colour, speeds, price

2) Look at the fields that you have decided are needed to answer customer's questions. Write a list of the fields that you think would be useful to the customer and the shop. You should aim at about 15 fields for your product.

3) You must say that apart from providing the customer with the correct answer you will also give him/her a printout of the information your database has produced. This gives him/her the information they need to help compare prices.

4) The shop staff will need a graph printing out at the end of each day showing clearly how many items they have in stock. This will help them to easily identify which need re-stocking.

Types of Data

The data type that should be used for a field depends on what you store in it. Some of the different data types available in Microsoft Access are described below.

Text	This data type allows text or a mixture of text and other characters including numbers to be stored in a field. It is used for things like names, addresses and postcodes. Up to 255 characters can be stored in a text field.
Number	This data type is used to store data in fields that contain just numbers. This can be a byte for numbers between 0 and 255, integer for whole numbers between -32,768 and 32,768, long integer for large whole numbers and decimal for numbers with decimal points in them.
Autonumber	This data type is often used for primary or key fields . It automatically inserts a unique number in the field when a new record is added. The number inserted is always next in the sequence from the last one.
Currency	This data type is used to store numbers that represent amounts of money.
Boolean	This data type only allows the values yes/no or true/false to be stored in a field.
Date/time	This data type is used to store dates or times.
Memo	This data type allows large amounts of text to be stored in a field. It is usually used for things like descriptions or notes. Up to 64,000 characters can be stored.

Task Seven – Validation Rules

Validation rules are used to check data as it is being entered to make sure that it is allowable and sensible. It is important that data is checked when it is input to make sure that it is both sensible and correct. If you make a mistake inputting data, especially in a very large database, the error can be very difficult to trace. Data that is not sensible or allowed should be rejected and an appropriate message displayed to the user. It is very important that you describe and set up some validation rules. You will need to include screen captures in your work that you have both set up several validation rules and that they work.

For example, if you had designed a database for a second hand car sales and entered Vauhxlal (instead of Vauxhall) as the manufacturer for a car in stock, when you searched the stock database for all Vauxhalls, no results would be shown, making the results of your query useless. There are two methods that can be used to check data when it is input; one is **verification**, but the one that we will use is **validation**.

To decide upon a validation rule for a field you must first think about the possible values the data could have. If the field is numeric, it might be that only numbers in a certain range are allowed, such 0 to 100 for examination marks, or 7 to 11 for the year groups in this school. Text fields can also contain certain values such as M or F to represent male or female for gender. Some fields may contain a wide range of possible values. For example a field storing addresses could contain many different values. In such cases you can say that a validation check is not possible.

You need to use three different types of validation checks in your database. You need to complete a table showing the fields that your validation checks will work on, the type of check you will be using, the validation rules and the error messages that will be displayed on screen if data entered is not either sensible or allowable. Refer to the following pages for further information on validation checks.

Task 7b Building the database

You should now have a design for the database – you are now ready to build an electronic version.

Work from this design and using Microsoft Access build a table with suitable data types, field lengths and validation rules. Remember to take screen prints of how you have created your database and annotate them to explain each stage of development.

Once your database table is ready, you should be able to key in your research collected in task 4.

Task Eight – Choice of Software

Before you start designing your database on the computer, you have to justify why you will use a particular piece of software for your project. You cannot say things like:

- ... because my teacher told me to use it.
- ... because its all the school has.
- ... because I know how to use it.

You have to compare the software that you will use, Access 2000, with another less suitable piece of software. It is suggested that you choose Excel 2000 as your other software. To complete this task successfully, you need to state:

- the main use of each piece of software
- the strengths of each piece of software
- decide which of the two best suits you for this project

To help you complete this task, you need to read the resources stored in Apps folder. There are some web pages, and basic outlines about the use of spreadsheet and database packages. These will help you complete the writing frame. You will need to list at least four features for each piece of software.

For your conclusion, you need to refer back to Task 5, where you should have explained why you have chosen to use a computer based solution. Are there any similarities between Task 5 and the list you made for Access 2000? You need to make it perfectly clear why Access is the best software to use, and describe how it matches the aims for the project.

Choice of Software

The database packages that I could use to set up the new system are [put the name of the more basic database package here] and Microsoft Access. These packages are available on [say which computers these packages are available on here]

[Put the name of the more basic database package here] offers the following features:

- [List some of the features of this database package here]

Microsoft Access offers the following features:

- [List some of features of Access 2000 here]

I think that Microsoft Access will be the best package to use to set up the new system because [explain your reasons for choosing Microsoft Access here]

Task Nine – Visually checking for accuracy.

This next task is a bit of a “cheat”. You need to provide evidence that you have checked the data in your database to make sure that it is accurate. In order to do this, you need to make 4 or 5 DELIBERATE spelling/typing mistakes in the table. Re-print the database, use a highlighter pen or similar to show up the mistakes on the print-out and hand-annotate the sheet to say something like “*I checked my table and found these mistakes.*”

Task Ten – Getting Answers to Questions.

In task five, you came up with some questions that customers might ask the sales staff. We are now going to use a feature of databases called “querying” to ask these questions.

Your teacher will demonstrate how to start a query.

Task Eleven – Reports

The results of the query are not necessarily what you would want to give to a customer. Instead, you might want to give them a summary with selected information. Microsoft Access allows you to output data in a neat & tidy fashion without having to copy your data into Word. To do this, go to Reports and use the wizard to help create some output:

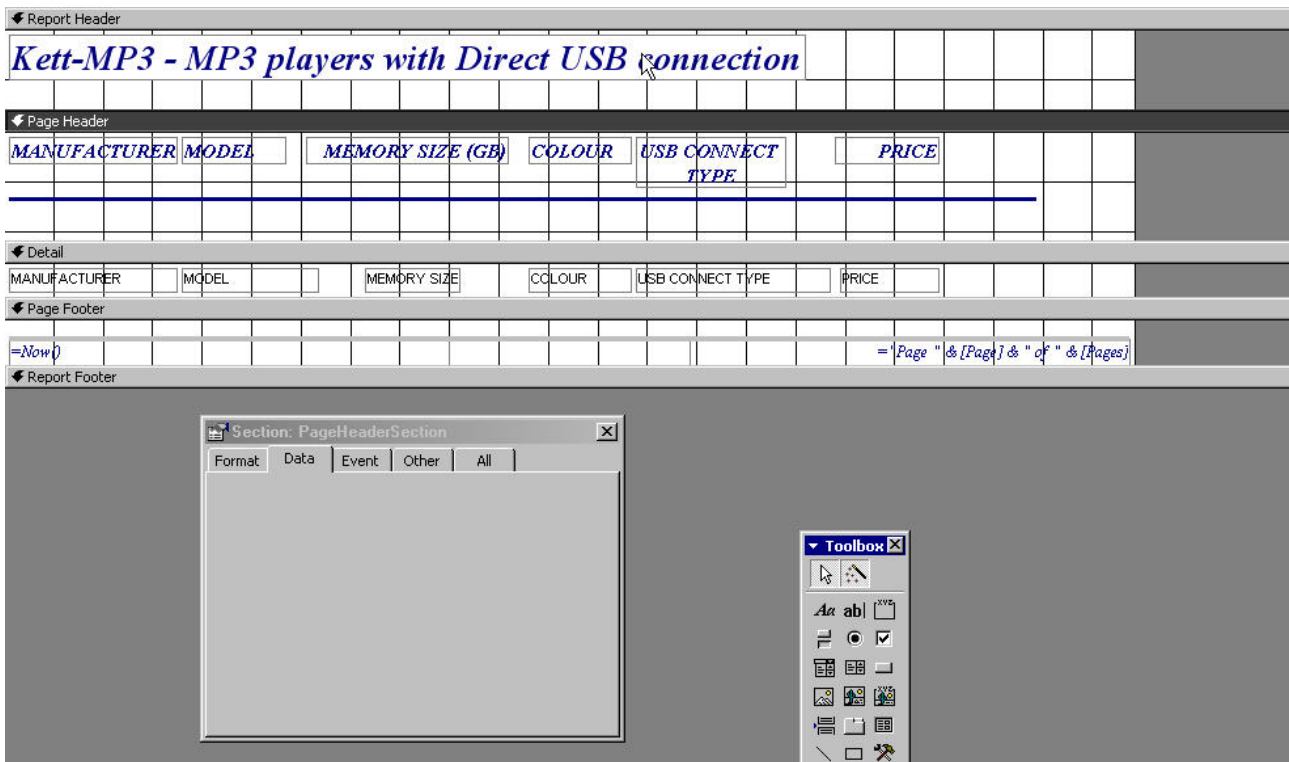
A report created from our test database might look like this:



Kett-MP3 - MP3 players with Direct USB connection

<i>MANUFACTURER</i>	<i>MODEL</i>	<i>MEMORY SIZE (GB)</i>	<i>COLOUR</i>	<i>USB CONNECT TYPE</i>	<i>PRICE</i>
Sony	NWE005	2	Silver	Direct	£99.99
Sony	NWE005	2	Black	Direct	£99.99
Apple	iPod Shuffle	1	White	Direct	£69.00
Apple	iPod Shuffle	0.5	White	Direct	£49.00

This can all be done using the appropriate wizard. Your teacher will demonstrate this to you. Your evidence needs to be a series of prints or screen shots to show your reports. You will need to include a screen shot of your report in “design view”:



Task Twelve – Graphing some of your data.

It is necessary to show some of your information in the form of a graph. In order to do this, it is best to *export* your data table as an Excel spreadsheet. Once you have done this, select suitable columns (e.g. model, price, etc) that would make a graph.

Task Thirteen – Evaluation

In this final task, you must review all of the work in Project 1b. Begin by reminding us of why you were setting out to do this task: How did the shop do this work before you came up with an IT solution? In what ways does your solution make the problem quicker / easier to solve? How might you further improve on your solution? (You don't have to actually make the improvements).

This evaluation should be approximately 1 side of A4 (normal size text.) There should be no images in this report.

Completion

Assemble your project – in order, with each page clearly numbered and annotated. The examiner will want to know what each printout is for. Complete the covering tick-sheet and hand in to your teacher for marking. You may get parts of your work back with suggestions on how to improve it.

Appendix Types of Validation Rules

Validation checks are carried out by the software (in this case Microsoft Access) to make sure that the data which has been input is both sensible and allowable. Data, which is not sensible or allowed, will be rejected. There are many types of validation check that software can make on data; some of these are described below.

- **Range Check:** used to check that data is within a range of numbers or a specific set of values. In a database containing records of all pupils in a school, a range check could be used for the Date of Birth field – the range would be 'between 01/01/87 and 31/12/91', for the current pupils.
- **Type Check:** used to check that the correct type of data has been entered in a field. If numeric data is being input a type check would be used to make sure that text data isn't entered by accident, e.g. a O instead of a 0.
- **Length Check:** used to check that input data contains a certain number of characters. In the example of the school database, the log-on ID for each pupil has to contain four digits and only three were input, an error message would be given to the user.
- **Presence Check:** used to make sure that a value has actually been entered into a field. In some database files entering data in certain fields can be optional. Other fields, such as key fields for example, are compulsory and must have values entered in them. Going back to the example of the school database, a field containing data about special medical condition is not going to affect every pupil, and so is not compulsory. An emergency daytime contact number is necessary for every pupil, and therefore is compulsory.

Using Validation Checks

You do not have to try to use every type of validation check in your database, or use complicated validation rules. You do, however, have to include screen shots as evidence that you have used some form of validation in your work. Some validation checks are simple to include in your work, for example, the presence check. There are alternatives to using validation checks, for example,

input masks and drop down lists (combo or list boxes) limiting the data that can be entered in a field.

Table 1 below gives examples of typical validation rules that can be included in a database. If you choose to write a validation rule, you must write corresponding validation text, the error message that is displayed to the person entering the data. In the school database example, the Gender field has a validation rule, entry may only be 'Male' or 'Female', and uses the equal to operator. The validation text displayed if an error is made is – Please enter Male or Female for Gender.

Operator	Meaning	Example
<	Less than	<20
<=	Less than or equal to	<=20
>	Greater than	>0
>=	Greater than or equal to	>=0
=	Equal to	=“Male” OR “Female” =20
<>	Not equal to	<>ICT
BETWEEN	Test for a range of values, must include a higher and lower value separated by the AND operator	BETWEEN 01/01/86 AND 31/12/90