THINK FUTURE

Hesmita Patel,

BTEC National Student

I wanted to do this course because I know that so many jobs require IT skills. I found it quite hard going, as there is a lot of technical content. I had thought that databases were pretty straightforward so it was quite a surprise that they can get quite complex. However, I did enjoy the challenge and, after a while, I began to enjoy using database software. I find it very interesting to see all the things you can do with it and I'm sure these skills will come in very handy in the business world.

I'm a bit apprehensive about the assessment, as there are lots of skills and techniques I need to be able to use for both making the design and creating the database, so I need to make sure that I am fully prepared for it.

In the future, I would like to learn more about web and server-based database systems as I think this is a really key skill for someone interested in using databases professionally.

Focusing your skills

Development plan

It is important to work out which skills you need to develop in the future. Here are some ideas to help you create a development plan.

1 Make a development plan listing the skills you currently have and those you want to develop. For the skills you need to develop, you should investigate ways of developing them and include this information in your plan.

2 Take every opportunity to develop your skills. There are lots of free resources available on the internet and lots of widely used web development tools, including database software, which is available free of charge.

3 Practise your skills by either setting up databases for your own use or look for work experience opportunities where you can practise these skills.

Getting ready for assessment

This section has been written to help you to do your best when you take the external examination. Read through it carefully and ask your tutor if there is anything you are not sure about.

About the test

The set task should be carried out under supervised conditions.

- Electronic templates for use in task activities will be provided, ahead of your assessment, for centres to download for you. These will be supplied to you at the start of your assessment.
- Work should be completed on a computer. Make sure that you have a power lead if you are using a laptop.
- Internet access is not permitted.
- During any break, materials must be kept securely by your tutor.
- You must not bring anything into the supervised environment or take anything out without your tutor's knowledge and approval.
- You should make sure that you back up your work regularly. You should save your work to your folder using the naming instructions that will be indicated in each activity.
- Remember to bring anything else you might need, such as glasses for working onscreen and refreshments.
- Turn off your mobile phone to avoid distractions!

Preparing for the test

This unit is assessed under supervised conditions. The number of marks for the unit is 66. Pearson sets and marks the task.

The external assessment will last for 10 hours in a 1 week period, and can be arranged over a number of sessions. You will be assessed on your ability to design, create, test and evaluate a relational database system to manage information.

Make sure that you arrive in good time for each test session and check that you have everything you need for the test beforehand. Make a schedule for the task to ensure that you leave yourself enough time at the end to check through your work.

Listen to, and read carefully, any instructions that you are given. Marks are often lost through not reading instructions properly and misunderstanding what you are being asked to do. Ensure that you have checked all sides of the assessment task before starting.

Proofread and correct any mistakes before handing in your work.

Key terms typically used in assessment

There are some key terms that may appear in your assessment. Understanding what these words mean will help you understand what you are being asked to do.

- The following table shows you the key terms that will be used consistently in your assessments to ensure that you are rewarded for demonstrating the necessary skills.
- Please note: the list below will not necessarily be used in every paper/session and is provided for guidance only. Only a single command word will be used per item in your test.

Key terms	Definition
Annotated screen shot	Image copy of a computer screen (obtained by pressing the print screen key then pasting into a document) with added annotations explaining what the image shows.
Database structure	The structure is composed of fields (a single piece of data, e.g. a name or date of birth), records (a complete set of fields, e.g. an employee's personnel record) and tables (a collection of records, e.g. all employees' personnel records).
Data dictionary	A centralized repository of information about data, such as meaning, relationships to other data, origin, usage, tables, fields and format.
Entity-relationship diagram (ERD)	A diagrammatical representation of database tables and their relationships to other data, origin, usage, tables, fields and format.
Evaluate	A review and synthesis of each stage of database design, (i.e. development, processes and outcomes) to provide a supported judgement about the quality. Typically, a conclusion will be required.
Normalisation	The process of organising raw data into separate related tables to minimise data redundancy.
Query	An SQL select statement which extracts data from a table or tables which match defined criteria.
Report	A database report presents information from a database. Information should be displayed simply and efficiently. Printed reports from the database should allow the viewing of information quickly and easily.
Test log	Used to plan and record program testing, record the outcomes of testing and the changes made to solve problems.
User interface	The visual part of the database through which a user interacts with a computer or software. A good interface is intuitive and allows a user to easily enter the required data accurately. A user interface is implemented using screen forms with titles, labelled boxes for data entry, buttons to perform actions and other features to make interaction as easy as possible.

A few more guidelines

- Always make a plan for your answer before you start writing. Sketch this out so that you can refer to it throughout – remember to include an introduction and a conclusion and think about the key points you want to mention in your answer. In this plan, think about setting yourself some timeframes so that you can make sure that you have time to cover everything you want to – and, importantly, have time to write the conclusion!
- Try to keep your answer as focused on your key points as possible. If you find your answer drifting away from that main point, refer back to your plan.
- Make sure that you understand everything being asked of you in the activity instructions. It might help you to underline or highlight the key terms in the instructions so that you can be sure that your answer is clear and focused on exactly what you have been asked to do.

Sample answers

Look at the sample questions which follow and the tips on how to answer them well.

Worked example

Set task brief

You have been asked to produce a database to manage cinema bookings. You have identified that the cinema has shows (with a film title, rating and description) and it has customers who want to come to see the shows.

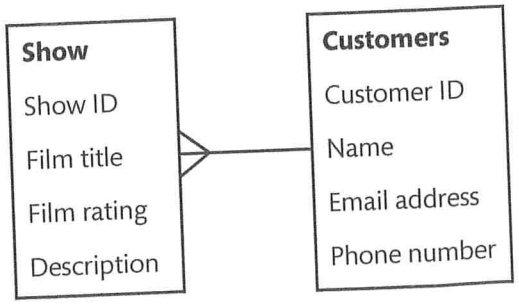
In the real assessment, you will be given a more detailed brief.

Activity 1: Entity-relationship database

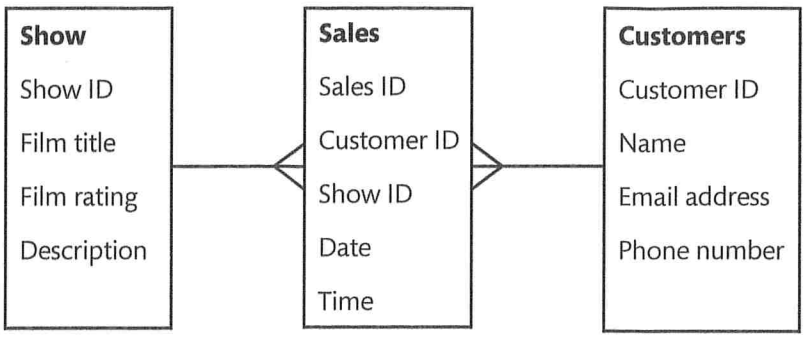
Produce an entity-relationship diagram (ERD) for the database by normalising the given data to third normal form.

Sample answer

You have drafted out an ERD which looks like this:



This shows that the Customers table is a one-to-many relationship with the Show table, as one customer can go to see many different films. However, each show has more than one customer. Lots of people go and see each showing of the film, not just one. This is, therefore, a many-to-many relationship, which needs to be resolved with a link table. Adding a Sales table to link the Show table and the Customers table will resolve the many-to-many relationship.



Activity 2: Data dictionary

Produce a data dictionary for your database using the given document.

In the real assessment you will be given a template table.

Sample answer

The first draft for the Sales table looks like this:

Data dictionary: Sales table			
Field name	**Key?**	**Datatype**	**Validation**
Sales ID	Primary	Integer	
Customer ID		Integer	
Show ID		Integer	
Date		Text, 6 characters	
Time		Text, 4 characters	

To improve this data dictionary, the Customer and Show IDs should be listed as foreign keys.

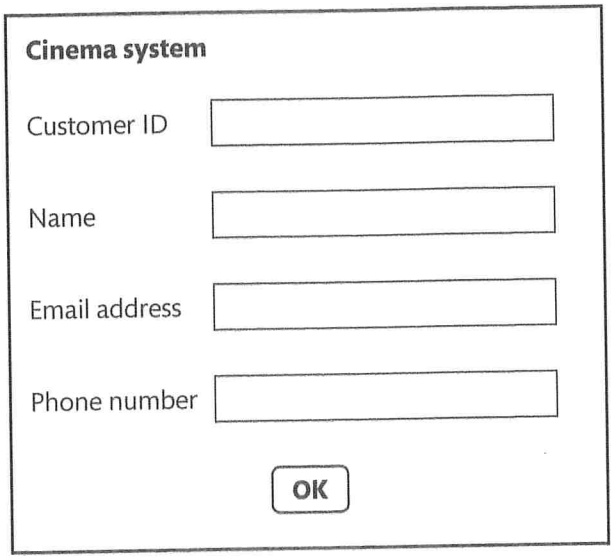
Date and time fields should have date datatypes, to ensure that they are automatically validated as the correct format for a date or time.

Activity 3: Design the user interface

For another task, you are asked to produce an interface design for the process of registering a new customer and making a sale.

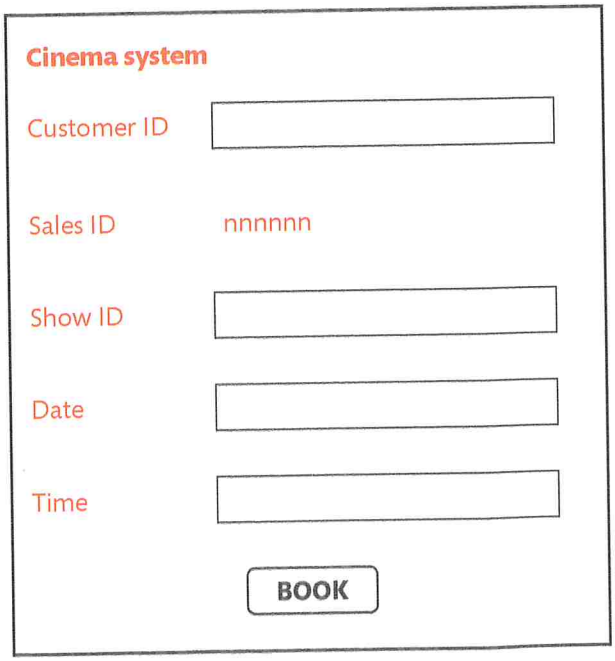
Sample answer

Your first interface design is for the customer registration:



However, the Customer ID should not be entered by the user, as it needs to be unique. It should be created automatically (an Access AutoNumber field).

The next screen is the Sales screen where the film is selected:



The Sales ID should be an AutoNumber field so that it is correctly shown as a field that the system displays rather than one that the user enters. However, the user would not know which Show ID to enter. This field would be better as a drop-down box which displays the film names.

It might also be a good idea to add a Cancel button to allow the user to back out of the transaction.

This design needs some improvement. The Customer ID would come from the previous screen so does not need to entered, just displayed.

In your assessment, you are also likely to be asked to complete other activities, such as the following.

- Activity 4: Testing plan
- Activity 5: Database development and testing (using data provided)

Activity 6: Evaluation of your database solution
Evaluate your solution.
You should consider:

- how well your solution meets the requirements of the scenario
- the quality, performance and usability of the database
- the changes made during the development and testing process.

Sample answer
This is your first draft:

I have worked very hard on this database and I am really happy with the result. Most of it works well and it does what it is supposed to do and could be used to book cinema tickets with a few additions. I think the user interface is ok but perhaps it needs a few more buttons to make it easier to use, like some 'Back' or 'Cancel' buttons on some forms. The report I produced could also be made better by tidying it up a bit. I didn't have a lot of problems creating the database. There were a few things I found difficult but I managed to sort them out.

The main problem with this evaluation is that is it too vague. For example, it says you are happy with the database but does not say why. You would need to say something like:

I'm happy with the database design as the tables are all related correctly and there is no duplication of data. I checked the design with the normalisation process. The data dictionary is also fully complete with appropriate data types and validation for all the fields where it can be used. This should help make sure that correct data is input, wherever possible. The queries I developed extract the correct data and have all the required fields and provide the forms and reports with the data that they require.

The forms are laid out reasonably well but would benefit from some of the labels and fields being adjusted in size and position, and including Cancel buttons would make them easier to use.

You would also need to provide more detail about how the development process went and the problems you had and how you overcame them. This is one reason why keeping a diary during the development process, in which you can note down these things, can really help when it comes to writing the evaluation.

Remember that when writing an evaluation you need to give specific details about:

- what you think is good (and why it is good) or went well with your database
- what you had difficulty with and how you overcame those difficulties
- what you would improve or correct given more time.