

# BTEC ICT LEVEL 3

Unit 1 - Information Systems

Unit 2: Creating systems to manage information

## **Introduction Unit 1:**

Learners study the role of computer systems and the implications of their use in personal and professional situations.

## **Introduction Unit 2:**

Learners study the design, creation, testing and evaluation of a relational database system to manage information.

# Week 1 Tasks (Unit 1)

- ▶ A digital device is a piece of physical equipment that uses digital data, such as by sending, receiving, storing or processing it.
- ▶ We rely on them in our personal and work lives for all sorts of reasons. This could be for getting directions, doing our shopping, entertaining ourselves, managing our business stock and finances, or a great many other reasons.
- ▶ Task: Explain what the devices are below, their main features and their uses.
  - ▶ Personal Computers
  - ▶ Servers
  - ▶ Mobile Devices
  - ▶ Entertainment Systems
  - ▶ Navigation Systems

Evidence this task.

# Extension

Test yourself on Week 1 Quiz.

# Week 2 Tasks (Unit 1)

- ▶ As we looked at in the previous lesson, a digital device is a piece of physical equipment that uses digital data, such as by sending, receiving, storing or processing it. We saw a number of devices, many of which had multiple capabilities, like browsing the web, playing games and writing reports.
- ▶ However, there are many specialist digital devices that perform a single, or small number, of specific tasks. We saw one of these, a navigation system.
- ▶ Research the features and uses of the following devices:
  - ▶ Multifunctional Devices
  - ▶ Digital Cameras
  - ▶ Data Capture & Collection Systems
  - ▶ Communication Devices & Systems

Evidence this task.

What other devices can you think of that are capable of both input and output?

# Extension

- ▶ Test yourself on week 2 quiz.

# Week 3 Tasks (Unit 1)

- ▶ Digital devices are used in all aspects of our lives, and in all different workplaces. For example, in our personal lives and while at school we use digital devices to educate ourselves, to entertain ourselves and to socialise with friends and family.
- ▶ Find 3 examples of ways we use devices for:
  - ▶ Education & Training (*example: virtual learning environments*)
  - ▶ Personal (*example: online shopping and banking*)
  - ▶ Social (*example: VoIP*)
- ▶ Expand on the devices you have found and explain how they are used.

Evidence this task.

# Extension

- ▶ Test yourself on week 3 quiz.

# Week 4 Tasks (Unit 2)

- ▶ A relational database is made up of more than one table and these tables will be linked together by certain fields. Where these fields are linked, this is called a relationship. This allows us to organise our data in a much more efficient manner.

Task 1: Define the following key terms:

- ▶ Entity
- ▶ Attribute
- ▶ Entity relationship
- ▶ Tuple / Record

Evidence these tasks.

Task 2: Explain what is meant by the following entity relationships and give an example of entities they can be used with: one to one, one to many, many to many.

Example (one to many : one teacher can have many students)

# Extension

▶ Label the following using the key words:

- ▶ Entity
- ▶ Attribute
- ▶ Tuple

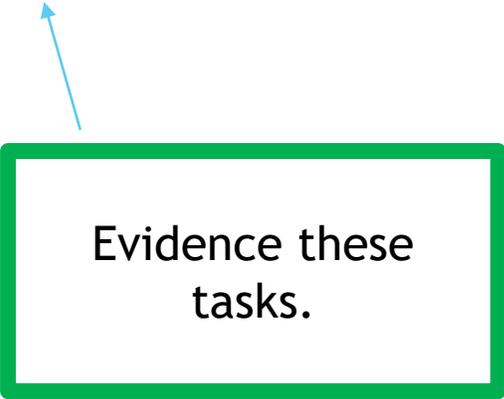
Employee_ID	Employee_Username	Employee_Name
1	7328	Steve
2	9843	Anna
3	2389	Ahmed
4	4739	Tina

# Extension

- ▶ What are the relationships between these entities?
  - ▶ Mother and child
  - ▶ Student and class
  - ▶ Owner and Car
  - ▶ Vet and Owner and Pet and Appointments

# Week 5 Tasks (Unit 2)

- ▶ Relationships between two tables are created through matching fields that appear in both tables. These fields are known as the relational keys and there are a few different kinds of key.
  - ▶ Research the difference between a primary key, foreign key and a composite key.
  - ▶ Create some tables of data to show examples of how these are used.



Evidence these tasks.

# Extension

- ▶ Show the relationship between these two tables and show which are the primary and foreign keys.
  - ▶ Some boxes have been left blank for you to add fields if necessary, but you may not need to use them all.

OwnerID
OwnerName
OwnerPhone
OwnerEmail

PetID
PetName
PetGender
PetAge

# Week 6 Tasks (Unit 2)

- ▶ Answer the questions below by researching.
  - ▶ What is normalisation?
  - ▶ Why do we normalise data?
  - ▶ How do you normalise data from 1<sup>st</sup> normal form to 3<sup>rd</sup> normal form? Find an example to work through.

Evidence these tasks.

# Extension Task

- ▶ Normalise this data to 3<sup>rd</sup> normal form:

Customer ID
Customer FirstName
Customer Surname
Customer Telephone
Order ID
Order Date
Order Total
Product ID
Product Name
Product Price