

Outline scheme of learning

Edexcel GCE in Applied ICT A2 - Unit 7: Using Database Software

Topic	Learning activities/outcomes	Learning Objectives &/or Key question	Resources	Homework and Assignments	Syllabus extract(s)
1	<ul style="list-style-type: none"> • Induction: Expectations, Standard ways of working, Introduction to Unit • Music find starter • What's your UPN? • The DVLA database and the police discussion • Applications card matching 	<p>Students will be able to:</p> <ul style="list-style-type: none"> • understand the usage of modern database applications 	Chapter 7.1 <ul style="list-style-type: none"> • Media player + tunes • Internet databases • Card-pairs (applications) 	<ul style="list-style-type: none"> • Find uses of databases in your life • Read Chapter 1 	WYNTL 7.1 Database applications <ul style="list-style-type: none"> • exploring other database applications
2	<p>Database concepts</p> <ul style="list-style-type: none"> • Key terms bingo • Add new order to database • Add a new order line to the database • Card matching: keys and records • Allocating field names • Data type matching • Query a database using a wizard • Query a database using design view • Using a simple user interface to the database • T/F key terms • Database wordsearch 	<p>Students will be able to:</p> <ul style="list-style-type: none"> • understand the structure of a relational database • use a database to enter, edit, query and output data • define key terms in a database • define the basic data types 	Chapter 7.1 <ul style="list-style-type: none"> • Key terms bingo cards • Simple order database • Captivates • Card-pairs (keys) • True False quiz • Database wordsearch 	<ul style="list-style-type: none"> • Revise key terms • Read Chapter 2 pt 1 	<p>7.1</p> <p>Pay particular attention to design issues such as:</p> <ul style="list-style-type: none"> • the database structure • the user interface • measures used to protect the quality of the data • types and forms of output • the methods used to extract information
3	<p>Database application development lifecycle</p> <ul style="list-style-type: none"> • Create and test physical model starter • Create list of prototypes • Describe user documentation • Create functional spec for PRS holidays (5 parts) • Case study PRS 	<p>Students will be able to:</p> <ul style="list-style-type: none"> • understand the life cycle of a database • understand the use of prototypes • understand the purpose of a functional specification • create a functional specification 	Chapter 7.2 <ul style="list-style-type: none"> • Model airplane • Flash presentations (lifecycle) 	<ul style="list-style-type: none"> • Create functional specification for Videobank • Read Chapter 2 to end 	<p>7.2</p> <p>The first step in the process is to produce a functional specification identifying the requirements of the database – exactly what it needs to do – including:</p> <ul style="list-style-type: none"> • the task(s) the database must perform • the information it must supply, in what format, to whom • the data to be input into the database, how and from where • the processing that is required • the level of security needed <p>7.3 Database development</p>
4	<p>ER models</p> <ul style="list-style-type: none"> • Discuss physical model • Library role play • Mustoe Library case study • E-R diagrams exercise • A supermarket customer • More ER diagrams • Case Study PRS 	<p>Students will be able to:</p> <ul style="list-style-type: none"> • understand that E-R is top down modelling • understand key terms in ER modelling (entity, attribute, relationship) • understand 1:m, m:m, 1:1 • create ER diagrams • understand that primary and foreign keys underlie relationships 	Chapter 7.3 <ul style="list-style-type: none"> • Flash presentations (ERM) • Physical model • Role play cards 	<ul style="list-style-type: none"> • Revise E-R diagrams • Read Chapter 3 pt 1 	<p>7.4 Data modelling</p> <p>You will learn what each of these terms means and will practice constructing ER models showing the entities, their attributes and the relationships between them for a given scenario.</p> <p>You will learn how to determine the degree of a relationship and to take steps to resolve many-to-many relationships.</p>

5	Normalisation <ul style="list-style-type: none"> Identify repeating groups and redundant info Training course EAR diagram Normalise Mustoe Normalise athletes in races Normalise Mp3 player playlists Normalise magazine articles Case study PRS: normalise 	Students will be able to: <ul style="list-style-type: none"> understand that normalisation is bottom up modelling understand the steps normalisation create a model in 3nf from unnormalised data use primary and foreign keys to form relationships 	Chapter 7.3	<ul style="list-style-type: none"> Read Chapter 3 pt 2 Complete/review case study PRS exercises 	You will learn how to normalise an initial data model to third normal form
6	Nailing down the data (data dictionaries etc) <ul style="list-style-type: none"> Card match-data and type Length validation table: Videobank Potential problems with data table Validation rules table Data dictionary practice Case study PRS Database crossword 	Students will be able to: <ul style="list-style-type: none"> understand the purpose and use of a data dictionary understand the use of data typing understand the different types of validation create a full data dictionary 	Chapter 7.3 <ul style="list-style-type: none"> Pdf- cards match 	<ul style="list-style-type: none"> Read Chapter 3 pt 3 Complete/review case study PRS exercises on normalisation 	You must be able to choose suitable data types and formats for fields, including, e.g.: <ul style="list-style-type: none"> limited length unlimited length memo number, (integer, auto record number, floating point) Boolean (true and false, Y and N) date, eg dd/mm/yy, dd month time, eg 24-hr clock, hh/mm/ss currency, eg pound (£), dollar (\$).
7.	Implementing the relational data model: <ul style="list-style-type: none"> Entities Create the PRS database Name the tables Enter field names for stock table Define primary key and save Select data types Data validation picture association exercise Set presence Set length Work out some input masks Create some input masks Set range validation Validate dates Setting range validation Validate lists Set list validation Set default value Add descriptive comments Define other tables 	Students will be able to: <ul style="list-style-type: none"> understand how to build a relational database understand how to create tables, define fields and define validation understand how to do basic tests on validated fields 	Chapter 7.4 <ul style="list-style-type: none"> PRS data model 	Read chapter 7.4 pt1	7.5 Creating a relational database You will learn how to use database software to build physical representations of data models, in which entities are represented as tables and attributes as fields. 7.9 ICT skills In tables to represent entities: <ul style="list-style-type: none"> defining the fields in each table to represent attributes defining appropriate data types and formats defining primary keys 7.6 Validation techniques <ul style="list-style-type: none"> presence check range check file lookup check list check format (picture) check length of data check
8	Implementing the relational data model: <ul style="list-style-type: none"> Relationships Select tables to relate Rearrange tables to match EAR Complete relationships from ER Extension: Implement Toddling Tots Data Model 	Students will be able to: <ul style="list-style-type: none"> understand how to select tables to relate understand how to create relationships understand how to enforce referential integrity 	Chapter 7.4 <ul style="list-style-type: none"> PRS data model Toddling Tots Data Model 	<ul style="list-style-type: none"> Read chapter 7.4 pt 2 Implement Toddling Tots Data Model 	7.5 You will use the primary/foreign key mechanism to create relationships between tables and learn how to make relationships compulsory by enforcing referential integrity.

9	Querying the database: 1. Introduction and projection queries <ul style="list-style-type: none"> Case Study PRS: Import and append csv fields Create qryStockCheck Create basic lists for reports Create qryPriceList Sorted price lists Entering SQL into Access 	Students will be able to: <ul style="list-style-type: none"> understand how to import data from external data sources understand how to create basic queries understand how to sort data 	Chapter 7.5 <ul style="list-style-type: none"> PRS database 	Revise basic skills	7.9 ICT skills In importing data from and exporting data to other databases and applications defining searches and sorts (single and multiple fields and tables)
10	Querying the database: 2. Restriction & join queries <ul style="list-style-type: none"> Where (filter or restriction) queries Additional simple range queries table Build queries Query challenge- group exercise Create goods not yet delivered query Parameter queries Create queries with multiple conditions Create Join queries 	Students will be able to: <ul style="list-style-type: none"> understand how to create where queries understand the different operators that can be used in where queries understand how to create relational queries understand how to create join queries 	Chapter 7.5 <ul style="list-style-type: none"> PRS database 	Revise restriction and join skills	•7.9 ICT skills In defining searches and sorts (single and multiple fields and tables) using relational logic in searches. Learners should be able to create complex searches of their database (including linked tables, parameter searches, calculated fields, multi-field searches, range searches.
11	Querying the database: 3. Calculated fields <ul style="list-style-type: none"> Why should you calculate fields? Create queries using calculated fields and aliases Create qryCostValueOfItems Create qryAutoOrder Requisition query Create profitperitem query Create qryInvoice Create queries using aggregate functions 	Students will be able to: <ul style="list-style-type: none"> understand how to create queries with calculated fields understand how to create queries with grouping 	Chapter 7.5 <ul style="list-style-type: none"> PRS database 	Revise calculated fields	T&L Strategy Learners should be able to create complex searches of their database (including linked tables, parameter searches, calculated fields, multi-field searches, range searches and totals).
12	Querying the database: 4. Grouping <ul style="list-style-type: none"> Create queries with grouping Create a query using grouping & parameters 	Students will be able to: <ul style="list-style-type: none"> understand how to create queries with calculated fields understand how to create queries with grouping 	Chapter 7.5 <ul style="list-style-type: none"> PRS database 	Revise grouping	T&L Strategy Learners should be able to create complex searches of their database (including linked tables, parameter searches, calculated fields, multi-field searches, range searches and totals).
13	Querying the database: 5. Action queries <ul style="list-style-type: none"> Create a price list archive Create actual stock table Update prices Update prices using SQL Update another table Discussion re order of deletes and updates Archive old orders 	Students will be able to: <ul style="list-style-type: none"> understand how to create append, update, delete queries 	Chapter 7.5 <ul style="list-style-type: none"> PRS database 	Revise action queries	T&L Strategy Learners should be able to create complex searches of their database (including linked tables, parameter searches, calculated fields, multi-field searches, range searches and totals).
14	Querying the database: 6. Macros <ul style="list-style-type: none"> Create a macro to archive price lists Create a macro to update prices safely Create a macro to archive old orders Automate the backing up of the database Review the implementation 	Students will be able to: <ul style="list-style-type: none"> understand how to create and use macros to automate tasks and add functionality 	Chapter 7.5 <ul style="list-style-type: none"> PRS database 	Revise queries	7.9 ICT skills In using macros to automate common tasks.

15	Creating the HCI: Input forms <ul style="list-style-type: none"> • Create the basic customer form • Customise the customer form • Add a combo box • Create Supplier and Stock forms • Add conditional formatting to the stock form • Create a tabular stock check form • Create an order form with a subform • Add a total field to the subform • Create a calculated field dependent on a sub form • Finish and test the order form 	Students will be able to: <ul style="list-style-type: none"> • understand how to create a single table form using a wizard • understand how to create a multi- table form using a wizard • understand how to customise a form to meet the client's requirements • understand how to add calculations and totals to a form 	Chapter 7.6 <ul style="list-style-type: none"> • PRS database 	<ul style="list-style-type: none"> • Read ch 7.6 pt 1 • Revise forms 	7.9 ICT skills In using wizards effectively, creating screen data-entry forms that: <ul style="list-style-type: none"> • enable the entry of data into single and multiple tables • have appropriate entry-form field lengths • provide clear labeling of entry-form fields • provide instruction fields where necessary • include validation checks on field entries as appropriate • enable the selection and entry of data from built-in lists (constructed from other tables) • include calculation (formula) fields • make use of automated number fields (counter fields) • use date and time fields
16	Creating the HCI:Output reports <ul style="list-style-type: none"> • Use Columnar view • Adding a blank textbox to control to a report • Extension: Create picking and stock reports • Create multi table reports • Extension: Create a report rptCostValueOfItems 	Students will be able to: <ul style="list-style-type: none"> • understand how to create a single table report using the wizard • understand how to create a multi table using a wizard • understand how to customise a report to meet the client's requirements • understand how to add calculations and totals to a report 	Chapter 7.6 PRS database	Read ch 7.6 pt 2 Revise reports	Create database reports that: <ul style="list-style-type: none"> • have suitable headers and footers • have an appropriate format and layout • have sorted data grouping • include calculations and total fields • include specified queries.
17	Creating the HCI: Front end <ul style="list-style-type: none"> • Create the basic form • Adding the basic controls • Discussion: alternate menus • Implement the warehouse form • Create the required add mode macros • Implement the sales form • Create a combo box on a form • Extension: Finalise and test the menus 	Students will be able to: <ul style="list-style-type: none"> • understand how to create a menu form • understand how to add combo boxes to the form • understand how to set start up configurations • understand how to use macros with forms 	Chapter 7.6 <ul style="list-style-type: none"> • PRS database 	<ul style="list-style-type: none"> • Read ch 7.6 pt 3 • Revise menus 	7.9 ICT skills <ul style="list-style-type: none"> • have appropriate entry-form field lengths • provide clear labeling of entry-form fields • provide instruction fields where necessary • include validation checks on field entries as appropriate • enable the selection and entry of data from built-in lists
18	Queries and HCI Revision/Assessment <ul style="list-style-type: none"> • Automate the goods out process 	Students will be able to: <ul style="list-style-type: none"> • Understand how to use development techniques together to create a solution 		Complete case	WYNLT (all)

19	Testing <ul style="list-style-type: none"> • Test quantity in the stock table • Why do we test? • Test the location field • test the reorder level • Test using a test file • Analyse the results • test the goods out process • Test a query • Test price updating • Test the order requisition • Test the main form • Requirements checklist 	Students will be able to: <ul style="list-style-type: none"> • Define key terms in test plans • Define key terms in test logs • Define tests that check valid, invalid and boundary data • Define tests that check solution against the specification 	Chapter 7.7 <ul style="list-style-type: none"> • Prstest.mdb • Profitest.csv • Stocktest.csv 	<ul style="list-style-type: none"> • Read ch 7.7 • Revise testing 	7.8 Testing You will learn to test any databases you create to make sure that they work correctly. You should carry out checks to ensure that: <ul style="list-style-type: none"> • the solution meets all the requirements of the functional specification • all menus work properly • validation checks prevent unacceptable data from being entered • the database can cope with normal, extreme and abnormal data • output from the database is complete, accurate and in the required format • other people can use it without help.
20	Preparing for the examination <ul style="list-style-type: none"> • Introduction to examination and preparation • Toddlng Tots Toy Library Scenario • Create a final data model • Toddlng Tots Toy Library exam tasks • Toddlng Tots Toy Library review 	Students will be able to: <ul style="list-style-type: none"> • Understand how the examination will work • Understand strategies to deal with the examination 	Mock examination	<ul style="list-style-type: none"> • Read ch 7.8 • Read mock exam scenario • Read mock exam 	ALL
21	Debrief exam				ALL
22	Pre-Examination Investigation <ul style="list-style-type: none"> • Experiment with pre-release materials to gain understanding of Examination Model 	Students will be able to: <ul style="list-style-type: none"> • Understand the scenario upon which their Examination is based • Manipulate the EDEXCEL supplied scenario 	<ul style="list-style-type: none"> • Edexcel supplied Pre-Release material • Office Software 	<ul style="list-style-type: none"> • Read and make notes on scenario • Use exam scenario to decide how it might work and how it can be used 	ALL