

Assignment Brief

Centre Name:	Southport College		
Programme Title:	BTEC HND in Computing & Systems Development		
Unit no. & Title:	Unit 33 Data Analysis and Design		
Assignment No./Title:	U33-A3 Testing and documenting a relational database system		
Hand-out Date:	22/02/2016	Hand-in Date:	13/05/2016
Learning Outcome	LO4 Be able to test and document relational database systems LO 1 Understand data models and database technologies		
Assessment Criteria:	AC4.1 Critically review and test a relational database system AC 4.2 Create documentation to support the implementation and testing of a relational database system AC 4.3 Create user documentation for a developed relational database system AC 4.4 Explain how verification and validation has been addressed AC 4.5 Explain how control mechanisms have been used. AC 1.1 Critically compare different data models and schemas AC 1.2 Critically discuss the benefits and limitations of different database technologies AC 1.3 Analyse different approaches to database design		
Scenario or vocational context:			
Scenario: You work in a systems development department of a multi-national technology provider.			

Having implemented your Database for Best Play Games, you are now required to test and document your system. This can only be completed by completing the prescribed tasks to ensure it is fit for purpose. Once completed, you will be able to hand over the completed system to the client.

This is required so you can hand over your working system to the client.

Your Manager has asked you to prepare documentation for students from the nearby university engaging in Work Placements at the firm. They have assisted with the design and implementation of an RDBMS as part of their end project. In order to ensure efficiency, they must be the existing systems and the design options used by them.

Your Manager has advised you that this can only strengthen the valuable links with the University. This means increased job security for you and a chance to improve your profile.

TASK 1 — this provides evidence for AC4.2

Having implemented your database, it is important for you to document how you did this. This will enable the system to be developed to adapt to the changing needs of the Client's business. You should create documentation with supporting examples and imagery that will act as a record and guide.

You will also need to develop a test plan to critically test the relational database. This must check that the design, functionality and usability have met the user requirements (Black Box testing) and that there are no errors with the finished product (White Box testing).

TASK 2 — this provides evidence for AC 4.1

Using the test plan you created in the previous task, you must now test your database and check that it is fit for purpose. You should ask a colleague to review your work with your test plan.

You must also produce your own personal database review. This should address the features and functions of the database, the fitness for purpose and how it meets the client requirements.

TASK 3 — this provides evidence for AC 4.3

Once your test and review is complete, you will need to create user documentation for the database you have created. This will take the form of a stepped user guide and should be supported by screenshots of the database input, output, querying and reporting screens. You should consider highlighting menu driven and hotspot related items. This may require you to re-visit your database to implement some of these features.

TASK 4 — this provides evidence for AC 4.4

You will need to evidence how data validation and verification processes have been implemented. This should be done by the use of screenshots showing and highlighting tables, forms and queries, focusing on their particular field properties and how they validate data being input into the database.

Verification means you should check that everything happens as expected and that data matches expected outcomes.

TASK 5 — this provides evidence for AC 4.5

You should highlight what control mechanisms have been implemented and how they have been used. This should relate to the requirements specification and quality management embedded into the system. This is also related to the testing and review of the database

TASK 6 — this provides evidence for AC 1.1

Produce documentation to critically compare different data models and schemas.

Research, define and report on the following DBMS models

- **Hierarchical;**
- **Network;**
- **Relational;**
- **Two other models:**

For the purposes of clarity it is important to also give consideration to:

- **Data Manipulation Languages;**
- **Data Definition Languages;**
- **Data Independence;**
- **Data Redundancy Issues;**
- **Data Integrity;**

You must include a Database Schema breakdown, with definitions, supporting imagery and examples

TASK 7 — this provides evidence for AC 1.2

Produce material to critically discuss the benefits and limitations of different database technologies. Please include all bulleted areas

- **New developments:**
- **Dynamic Storage;**
- **Data Mining And Data Warehousing;**
- **Web Enabled Database Applications;**
- **Other Developments**
- **Multimedia Databases, Document Management Systems, Digital Libraries**

TASK 8 — this provides evidence for AC 1.3

Produce material to analyse different approaches to database design, including points bulleted

below

- Top Down And Bottom Up;
- Tools And Techniques
- Entity Analysis, Entity Relation Diagrams (ERDs), Determinacy Diagrams, Data Flow Diagrams (DFD);
- Entities; Attributes And Key Identifiers;
- Relationship Types And Enterprise Rules;
- Degrees Of Relationships;
- Functional Dependency;
- First, Second And Third Normal Forms

What you must hand in for assessment

For TASK 1 you must hand in:

- Documentation in the form of one or more of the following:
 - Booklet, report, slideshow file, video, website (must include offline copy of website source files) or multimedia presentation.

For TASK 2 you must hand in:

- Test Grid, review, in the form of one or more of the following:
 - Booklet report, slideshow file, video, website (must include offline copy of website source files) or multimedia presentation.

For TASK 3 you must hand in:

- , Illustrated user guide in the form of one or more of the following:
 - Slideshow file, video, website (must include offline copy of website source files) or multimedia presentation.

For TASK 4 you must hand in:

- Evidence report in the form of one or more of the following:
 - Booklet, report, slideshow file, video, website (must include offline copy of website source files) or multimedia presentation.

For TASK 5 you must hand in:

- Evidence report in the form of one or more of the following:
 - Booklet, report, slideshow file, video, website (must include offline copy of website source files) or multimedia presentation.

Materials should preferably be submitted in electronic form (file upload or optical disc) but may be submitted on paper or other format.

Merit Descriptors

Indicative Characteristic (tick those appropriate to THIS specific assignment)

M1 Identify and apply strategies to find appropriate solutions	✓	<ul style="list-style-type: none"> • Effective judgements have been made • Complex problems with more than one variable have been explored • An effective approach to study and research has been applied
M2 Select/design and apply appropriate methods/ techniques		<ul style="list-style-type: none"> • Relevant theories and techniques have been applied
	✓	<ul style="list-style-type: none"> • A range of methods and techniques have been applied
		<ul style="list-style-type: none"> • A range of sources of information has been used
		<ul style="list-style-type: none"> • The selection of methods and techniques/sources has been justified
		<ul style="list-style-type: none"> • The design of methods/techniques has been justified
		<ul style="list-style-type: none"> • Complex information/data has been synthesised and processed • Appropriate learning methods/techniques have been applied
M3 Present and communicate appropriate findings		<ul style="list-style-type: none"> • The appropriate structure and approach has been used • Coherent, logical development of principles/concepts for the intended audience • A range of methods of presentation have been used and technical language has been accurately used
	✓	<ul style="list-style-type: none"> • Communication has taken place in familiar and unfamiliar contexts
		<ul style="list-style-type: none"> • The communication is appropriate for familiar and unfamiliar audiences and appropriate media have been used

Distinction Descriptors	Indicative Characteristic (tick those appropriate to THIS specific assignment)	
D1 Use critical reflection to evaluate own work and justify valid conclusions		<ul style="list-style-type: none"> • Conclusions have been arrived at through synthesis of ideas and have been justified
		<ul style="list-style-type: none"> • The validity of results has been evaluated using defined criteria
	✓	<ul style="list-style-type: none"> • Self-criticism of approach has taken place
		<ul style="list-style-type: none"> • Realistic improvements have been proposed against defined characteristics for success
D2 Take responsibility for managing and organising activities		<ul style="list-style-type: none"> • Autonomy/independence has been demonstrated
		<ul style="list-style-type: none"> • Substantial activities, projects or investigations have been planned, managed and organised
		<ul style="list-style-type: none"> • Activities have been managed
		<ul style="list-style-type: none"> • The unforeseen has been accommodated
	✓	<ul style="list-style-type: none"> • The importance of interdependence has been recognised and achieved
D3 Demonstrate convergent/lateral/creative thinking		<ul style="list-style-type: none"> • Ideas have been generated and decisions taken
	✓	<ul style="list-style-type: none"> • Self-evaluation has taken place
		<ul style="list-style-type: none"> • Convergent and lateral thinking have been applied
		<ul style="list-style-type: none"> • Problems have been solved
		<ul style="list-style-type: none"> • Innovation and creative thought have been applied
		<ul style="list-style-type: none"> • Receptiveness to new ideas is evident • Effective thinking has taken place in unfamiliar contexts

Recommended resources

Books

Avison D and Fitzgerald G – Information Systems Development: Methodologies, Techniques and Tools (McGraw Hill Higher Publishing Company, 2006) ISBN 0077114175
Chao L – Database Development and Management (CRC Press, 2006) ISBN 0849392381
Connolly T and Begg C – Database Systems: A Practical Approach to Design, Implementation and Management (Addison Wesley, 2004) ISBN 0321210255
Howe D – Data Analysis for Database Design (Butterworth-Heinemann Ltd, 2001) ISBN 0750650869
Kroenke D – Database Concepts, 2nd Edition (Prentice Hall, 2004) ISBN 0131451413
Ponniah P – Database Design and Development: An Essential Guide for IT Professionals: Visible Analyst Set (John Wiley & Sons Inc, 2006) ISBN 0471760943
Ritchie C – Relational Database Principles (Thomson Learning, 2002) ISBN 0826457134

Websites

www.deeptraining.com/litwin/dbdesign/FundamentalsOfRelationalDatabaseDesign.aspx
www.geekgirls.com/menu_databases.htm
www.smart-it-consulting.com/database/progress-database-design-guide/

Notes

- Your evidence for assessment must be submitted with a signed learner declaration
- Your work must be referenced and any quotations clearly sourced
- You must hand in individual work for assessment for all tasks (including group work tasks)

Learner Declaration

I confirm that this is entirely my own work. It has not been copied from other learners, textbooks, journals or other sources. I understand that grades are finalised after marking and verification.

Learner's signature _____ Date _____

Note: For work submitted by electronic upload (via Southport College's Waves VLE) students must log in with a username & password and will be presented with a disclaimer stating that "by uploading work from a logged-in user account I confirm my agreement with the published assignment learner declaration". This time-stamped submission (which may not be deleted) will be counted in place of a physical signature.

Submission Policy

Work must be submitted **by 3:00pm on the indicated hand-in date**. If submitting physical work, it must be handed to **Denise Reese in the Secretaries' Office (room RG1.22)**, who will issue a time-stamped receipt.

Extension Policy

- All extension requests must be submitted to your pastoral tutor on the correct extension

form. A copy can be found in your course handbook and will be available on Waves VLE.

- All extension requests must be submitted to your pastoral tutor at least five working days prior to the submission date.
- Submission of an extension form does not mean it will be automatically approved. Saying that you have not had enough time to complete the assignment is not an adequate reason.
- If the request is approved then you will then have the option to achieve grades.
- Your tutor will store the extension form. The cover sheet will record the outcome of the request.
- If you are absent from college on the day of submission you must provide evidence of your absence attached to your assignment on your return (medical note, etc).