
Designing & Developing e-Learning Systems

Learning Analysis &
Design

Adsetts Group

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Learning need analysis

Description of target learning population

The development of this E-Learning software is to aid students on the second year, Database Systems module. Students on this module will have previous experience in database development, having completed the Information Systems module on the first year of their course. This module will have introduced them to the database development process as well as key concepts and processes required. The students will have the experience of relating the tasks of the database development process to a real life case study and will be expected to bring that knowledge with them into the second year.

The students can be any age, from 19 up to around 40 years old, however the vast majority will be between 19 and 25 years old. They usually have a complete range of learning styles, meaning that the module content must be kept varied to appeal to all students.

Overall aim

The overall aim is to produce a piece of e-learning software that can be used to support learning on the Database Systems module. The final piece of software must help the students understand two of the Learning Outcomes specified in the Module Descriptor and ultimately pass the Database Systems module. The software will not be taking the place of the lecturer but will rather aid the lecturer in delivering the module to the learners

Learning objectives

There are four main learning objectives that the students will need to meet in order to pass the module however this application is to only focus on two of those:

- Describe, using appropriate terms and concepts, the task and the deliverables of the database development process.
- Appropriately utilise SQL to define models of common organisational scenarios using relational database management systems.

Students will already have basic knowledge of the database development process that they acquired in their first year. This module aims to reiterate that knowledge and build upon it so that the students can successfully apply these skills to real world examples.

SQL will be completely new to most of the students and as such the subject will need to be introduced from the ground up ensuring that all the basics are covered.

Learning methods and approaches

Kolb's Learning Cycle defines that there are four different types of learner and these are the styles that will be taken into account when designing the application. To make the application aid as many people as possible, it will be necessary to appeal to as many of these learning styles as possible.

Converging learners prefer learning by abstract conceptualisation and active experimentation, essentially preferring to try out what they have learned and reaching a conclusion from their

learning experience. Therefore they would prefer active learning approaches such as quizzes and activities of a practical nature.

Diverging learners lean more towards concrete experience and reflective observation. They prefer to learn by reading the course text or by attending workshops and they then like to reflect upon what they have learned to embed the knowledge. A diverging learner would be quite happy reading through notes or watching a presentation and then reflecting on this in a discussion forum or blog.

Assimilating learners are those who prefer to learn through abstract conceptualisation and reflective observation. They learn through drawing conclusions from looking back on what they have experienced.

Accommodators are the most practical of the four styles. They use concrete experience and active experimentation, preferring to do things instead of merely read about them. Therefore quizzes and practical activities would be most beneficial for them.

Honey and Mumford took these styles one step further, and liken converging learners to those which prefer having an experience, diverging learners are those who prefer reviewing their experience, assimilators prefer to conclude from their experience and accommodators prefer to think ahead and plan the next steps.

Including a screencast or video tutorial to teach the students would be mainly beneficial to the diverging learners. However, coupled with a practical activity or reflection period, it would also appeal to all other learning groups. Therefore including a screencast with accompanying notes, along with a quiz/game and a discussion forum where learners can discuss their progress, would be beneficial to all groups of learners.

However, it could also be possible to include a more practical approach to learning. By giving each learner a topic to research and then present back to the group as a whole, the majority of learning styles would be included. Accommodators and Converges would like the presentation activity as they get the experience of presenting what they have learned, diverging learners would benefit from researching the topics in question and, should a discussion forum be included, assimilating learners can reflect of what they have learned and discuss it with the rest of the group.

Skills required by learning facilitator/lecturer

The lecturer will need to be comfortable using a computer and be able to use the internet without any difficulties. As the lecturer is unlikely to have any HTML or coding skills the e-learning site will be updatable using a Content Management System, requiring the lecturer to have nothing more than common sense and the ability to write English in order to maintain the site and update the content when necessary.

How learning could be evaluated

As learners have different learning methods, evaluation of their progress will need to be varied enough to give a fair reflection of their development. Although the evaluation will not be formally assessed in the application, it will be necessary for the tutor to monitor students' progress. For example, those learners who prefer reflective learning techniques may not be able to easily

demonstrate their knowledge with an on the spot test. Therefore a wide range of evaluation methods will need to be implemented.

Convergers and Accommodators are the two most active learners, preferring to learn by experience and practical application of their knowledge. Therefore they would benefit from having to make a presentation to the rest of the group so that they can embed their knowledge of the course. They would also profit from an evaluative quiz at the end of their learning to test them on what they have learned.

Divergers and Assimilators prefer to review their experiences and draw conclusions from what they have observed. Therefore a quiz may not be the best way to assess them. They could, however, benefit from being evaluated on a presentation as it would demonstrate how well they have researched the topic assigned to them. It would be best, though, if there was a discussion forum or blog in which learners could post about what they have learned and ask questions about any content they do not understand. In this way the lecturer can monitor their progress and take note of any difficulties they have.

Timescale for delivery of learning

The module runs for two full semesters with continuous assessment throughout as the module is 100% coursework based. Content to meet Learning Outcome 1 is usually delivered early in Semester 1 so that the learners can apply this knowledge to their assignments. A new topic is introduced to the learners weekly, leading to around 6 weeks of teaching focused on this outcome.

Content for Learning Outcome 3 is generally delivered towards the end of Semester 1 and in early Semester 2 and covers around 10 weeks progressing from the very basic SQL SELECT statements, up to JOINS and GROUP BY and COUNT.

Venue

Current teaching of the Database Systems module takes place at the City Campus of Sheffield Hallam University. The campus is equipped with all the technology (detailed below) that is required to support the module, including PCs with an installation of Oracle. As this is an online application, there will be no specific venue in which the end product will be used and as such it must not require any specific technologies that are not freely available.

Technology

Learners will have access to PCs at the university, all of which have internet access and run Internet Explorer 8 and Firefox 3.6 web browsers. Those learners who have access to computers at home will have either Windows or Mac OSX operating systems running Internet Explorer 6+, Firefox 3+ or Safari 3+ web browsers. Any system developed should therefore support these web browsers.

As some students may have learning difficulties or disabilities, the site will need to be accessible and follow the WAI-Web Content Accessibility Guidelines. Therefore technologies such as Flash or the excessive and unnecessary use of Javascript will need to be avoided to ensure that all students on the course can use the software.

Predicted Costs

To investigate the estimated cost of developing an E-Learning System, there are many factors which need to be considered before attempting to create a prototype because if a project is not properly identified and outlined before it begins then it could result in failure of the project as a whole.

The direct cost of developing and delivering learning

This breakdown consists of all indirect costs involved with developing the E-Learning system, these indirect costs will included the cost of "man-power" or the number of employees that have been involved in the project. Other indirect costs include the cost of actually delivering learning to students. These factors have all been considered and an estimate has been shown below.

Costs and benefits are co-determined

The overall cost for the project we believe will have a good reflection on the outcome and the benefits in which it relays on the students and the information that they learn. The learning has been carefully designed to suit the needs of students and challenge them along the way to learn new information. This will all be assessed towards the end of the module and will show how successful the learning materials we have created has been.

Just because costs can be shifted does not mean that they are zero

There is still alternative cost that needs to be considered although the learning is distributed through different channels. One of the greatest attractions of E-Learning is that it enables students to engage in learning in their own time. And although for students this has become a very useful learning tools it does discourage students to attend university and actual timetables sessions as the information is available on academic websites such as Blackboard.

	Traditional Learning		eLearning	
	Fixed Cost	Marginal Costs	Fixed Cost	Marginal Costs
Direct Cost				
Trainers' compensation			*	*
Outside vendors				
Materials, development				*
Materials, production			*	*
Materials, distribution			*	*
Hardware	*	*		
Software	*	*		
Travel expenses			*	*
Administrative support				
Indirect Cost				
Learners' compensation			*	*
Overhead				
Opportunity Cost			*	*

OUTCOMES & OBJECTIVES (OO) Ver 4.01			
ID	PROJECT NAME	PROJECT ID	SHU-DB-09-10
	The development of an e-learning system to support the delivery of the database systems module	OO ID	LO-1
		FILENAME (autofills on saving)	
		Objectives & Outcomes - database terms & concepts.dot	

OUTCOMES	WHICH LEARNERS?		WHAT IS THE LEARNING OUTCOME?	
	All second year students currently undertaking the Database Systems module on a computing degree route. Students will have previously completed the Information Systems module in the first year.		Describe, using appropriate terms and concepts, the tasks and deliverables of the database development process	
			WHAT TYPE & LEVEL OF OUTCOME IS THIS?	
			According to Bloom's taxonomy this outcome uses the cognitive learning domain.	
	EVENT TRIGGER	The skills learned will be used in the students' futures during the systems development lifecycle when they are designing databases to include in systems		
	DEGREE OF SUCCESS	Students will have satisfied the learning outcome when they can normalise a database to 4NF, draw and complete an entity relationship diagram and explain the tasks required in the database development process		

OBJECTIVES	WHAT DO THE LEARNERS NEED TO LEARN TO ACHIEVE THIS OUTCOME?	WHAT WOULD BE GOOD TO LEARN?	WHAT WOULD BE NICE TO KNOW?
	Normalisation, Determinancy, Entity Relationship Diagrams, Entity Models, Simple Keys, Top-down modelling	Compound Key Normalisation, Interkey Dependencies	Definition of Bottom-Up Modelling
	ARE THERE ANY SPECIAL TERMS OR WORDS USED HERE?	REFERENCES/BOOKS/JOURNALS/URLS	
	Normalisation, Determinancy, Interkey Dependency	DATE, C. J. – An Introduction to Database Systems RITCHIE, C – Relational Database Principles	

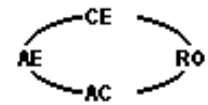
ASSESSMENT	HOW CAN YOU ENSURE THAT THE OUTCOME IS ATTAINED?	
	Students are provided with workbooks giving examples and practice questions. They can also attend computer help sessions for extra support from other students.	
	HOW IS OUTCOME ATTAINMENT ASSESSED?	
	Outcome attainment is assessed through a 30% group assignment, two 15% phase tests and two 20% group assignments	
	WHAT ARE THE CRITERIA FOR FAILING?	WHAT ARE THE CRITERIA FOR PASSING?
	Students score less than 40% across the year. They fail to answer question relating to the database development process and cannot demonstrate the tasks involved	Students are able to successfully describe tasks in the database development process and relate them to real life examples.

OUTCOMES & OBJECTIVES (OO) Ver 4.01			
ID	PROJECT NAME		PROJECT ID SHU-DB-09-10
			OO ID LO-3
	The development of an e-learning system to support the delivery of the database systems module		FILENAME (autofills on saving)
			outcomes & objectives - Utilising SQL using RDBM.docx
OUTCOMES	WHICH LEARNERS?		WHAT IS THE LEARNING OUTCOME?
	University students studying a BSc Computing related degree including the database systems module at level 5		Appropriately utilise SQL to define and manipulate data in non-complex scenarios using a Relational Database Management System.
			WHAT TYPE & LEVEL OF OUTCOME IS THIS?
			According to Bloom's taxonomy this outcome uses cognitive and psychomotor learning domains.
	EVENT TRIGGER	This outcome has many potential triggers such as the need to edit, remove or update data used for dynamic web content.	
	DEGREE OF SUCCESS	To satisfy this learning outcome, students should be able to modify and manipulate data stored in a relational database using SQL queries.	

OBJECTIVES	WHAT DO THE LEARNERS NEED TO LEARN TO ACHIEVE THIS OUTCOME?	WHAT WOULD BE GOOD TO LEARN?	WHAT WOULD BE NICE TO KNOW?
	SQL statements Data manipulation with SQL statements Relational Database modelling	Other database types; Hierarchical, Network, Entity-relationship, Dimensional, Objectional Benefits to RDBM Advanced data manipulation with SQL How to setup a relational database in MySQL	Industrial scenarios/examples of SQL and data manipulation using RDBM systems, including complex scenarios. PHP/HTML to incorporate the use of SQL in actual web applications
	ARE THERE ANY SPECIAL TERMS OR WORDS USED HERE?	REFERENCES/BOOKS/JOURNALS/URLS	
	SQL - Structured Query Language RDBM – Relational Database Management	http://www.w3schools.com/SQL/default.asp http://www.nwlink.com/~donclark/hrd/bloom.html Paul N. Weinberg - SQL, the complete reference Andy Oppel, Robert Sheldon - SQL: a beginner’s guide	
ASSESSMENT	HOW CAN YOU ENSURE THAT THE OUTCOME IS ATTAINED?		
	Relevant, relatable examples of how SQL can be used to manipulate data in a database would make it easier to understand and learn. This would help to ensure that the work is successful.		
	HOW IS OUTCOME ATTAINMENT ASSESSED?		
	Online assessments – tests, running SQL Statements on sample data in order to achieve required results.		
	WHAT ARE THE CRITERIA FOR FAILING?	WHAT ARE THE CRITERIA FOR PASSING?	
	If the students are unable to successfully demonstrate an understanding relating to 40% of the work they will be referred for further work.	The students should be able to successfully manipulate data stored in a relational database using SQL queries.	

Designing & Developing E-Learning

Devising activities for on-line learning - summary proforma



Programme	BSC Computing and related degree routes where Database Systems is taught as a module
Learning outcomes addressed	Describe, using appropriate terms and concepts, the tasks and deliverables of the database development process
Assessment criteria met	The work completed will enable the students to satisfactorily complete the phase tests which are set in the module every couple of weeks.
Aims	The learners will be able to describe what databases are and why they are used, and to apply what they learn to real life concepts. Through teaching each other the learners will be able to define the keys tasks of the database development process.
Task	In the first part, the learner will log-in and get a brief introduction to databases, why they are used and real world application of databases. For the second part, the learner will be assigned a topic by their lecturer and will then have to go away and research it before returning at another time to teach the definition of the topic to the other learners.
Resources	The learner will not need anything more than an internet browser
Timing 1	The learner should spend around 25-30minutes reading through the introductory information on databases. Then, once given the topic to research, they should spend half an hour researching and writing notes on the topic before giving a short 2-3 minute 'presentation' to the other users
Timing 2	The students will get a week to reflect on their research before coming back to their group and sharing what they have learned with them. The tutor can then release the next topics for research once they are satisfied that the previous work has been completed.
Stage(s) in the learning cycle utilised	This activity meets the Active Experimentation and Reflective Observation stages of Kolb's Learning Cycle. By actively researching a topic and then teaching it to other learners, the student fits into the Active Experimentation group. When the learner comes to watch other learners teach their key terminology, they are in the Reflective Observation stage of the Learning Cycle.
Notes for tutors	Tutors will be able to login and check the progress of the students. They can assign specific topics to learners for them to research and teach to other learners and monitor their progress online. Once the tutor is happy that the learners have completed their research, they can reveal the standard key terminology for students to view and compare their answers to.



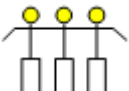



Designing & Developing E-Learning

Devising activities for on-line learning - summary proforma


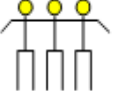








Programme	BSC Computing and related degree routes where Database Systems is taught as a module
Learning outcomes addressed	Appropriately utilise SQL to define and manipulate data in non-complex scenarios using a Relational Database Management System.
Assessment criteria met	The completed work will enable the students to satisfactorily complete the phase test set at the end of this part of the module.
Aims	Learners will be able utilise SQL to alter data within a relational database and identify real-world uses for manipulating data using SQL statements.
Task	First of all learners will be presented with an introduction to SQL and the 7 commands which make up the language. Then after seeing some examples of how these commands can be combined to manipulate data they will be required to complete a quiz/test type activity based on building SQL queries to manipulate data in a relational database system.
Resources	The learner will not need anything more than an internet browser
Timing 1	The learner should spend around 30 minutes reviewing the SQL introductory information. They should then research how SQL can be used on live database systems and practice executing SQL queries to manipulate data and observe what they are able to achieve.
Timing 2	Learners will typically get a week to reflect on each stage of SQL. This gives them time to research and investigate the commands introduced and gain an understanding of how it combines with what they have learnt in other weeks and how it can be used.
Stage(s) in the learning cycle utilised	This activity could potentially include all 4 stages of the learning cycle. Starting with learning about how to implement SQL with AC, then AE to put SQL queries into practice, CE to look at different perspectives and industrial uses for SQL to manipulate data and finally RO as they implement SQL and observe what they are able to manipulate.
Notes for tutors	Tutors will be able to login and check the progress of the learners in their completion of the quiz/test at the end of this learning outcome.

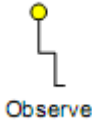


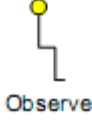

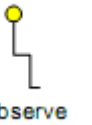

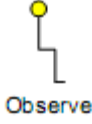

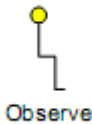


Activity Design Diagram	Activity Title Brief terms & Concepts for deliverables of database development		Activity Identification LO 1 – OBJ 1
<u>Project</u> SHU-DB-09-10	<u>Scope/Location</u> Tutorials	<u>Date/Version</u> 11/02/2010 V1	<u>Designer</u> Adsetts Group

Additional Timing	Action	Media	Sequence	Description
<u>Timing</u> Each learner should spend about 30 minutes reading through the terms and concepts for database development within their group.	 Read		<hr/> <hr/> Start Reading up on concepts and terms ↓	Individuals spend time reading up brief terms and concepts on computers. (SB-004)
<u>Evaluation/Feedback</u> The work that the team members carry out is evaluated in quizzes testing what they have learnt.	 Team		Tutorial base & links to other information ↓	The students then come together and look through other information. These terms are used to help achieve LO. (SB-005)
<u>Assessment Type</u> Formative	 Search		Use the links to perform web research ↓ <hr/> <hr/> End	Group members use web to help identify where these terms and activities are used in database development. (SB-005)
<u>Purpose (Learning)</u> Introduction to simple database development terms and concepts. Sets group members up for LO1 OBJ 2. Describe how to use terms in database development and helps define the key concepts.				
<u>Related Specifications</u> Directly rolls onto LO1 OBJ2 More information can be found from RTL Content holding sheet for LO1 OBJ1				
<u>Additional Information</u> The activity meets the requirements of the learning outcome				




















Activity Design Diagram	Activity Title		Activity Identification
	Individual group member tasks		LO 1 – OBJ 2
<u>Project</u>	<u>Scope/Location</u>	<u>Date/Version</u>	<u>Designer</u>
SHU-DB-09-10	Computer Based	11/02/2010	Adsetts Group

Additional Timing	Action	Media	Sequence	Description
<u>Timing</u> Learner should spend 25-30 minutes reading through introduction. An addition 30 minutes research and note taking is required. Final presentation should take no longer than 3 minutes <u>Evaluation/Feedback</u> Work is evaluated after a weekly basis. Phase test set every 2 weeks to identify learner progress <u>Assessment Type</u> Formative <u>Purpose (Learning)</u> Consolidation LO1 - OBJ 1 Introduction LO1 - OBJ2 Describe what databases are and their purpose Define the key tasks of database development process <u>Related Specifications</u> LO1 OBJ 1 directly linked to LO1 OBJ2 View RTL for further information on LO's Content Holding document for LO1 OBJ2 <u>Additional Information</u> Activity meets the active experimentation and reflective observation stages of Kolb's learning cycle	 Search  Team  Moderate  Present	   	<p>Start</p> <p>Group member researched area</p> <p>↓</p> <p>Group member teaches finding to other group members</p> <p>↓</p> <p>Subject area expert monitors learning and realises clear definition</p> <p>↓</p> <p>Presentation</p> <p>↓</p> <p>End</p>	<p>Each group member should spend time to go away and look into the subject area further and return with a set of information which they can share with their group members (SB-007)</p> <p>The results of this research needs to be relayed back to the members of the group, so that a better understanding of the LO is achieved (SB-008)</p> <p>Tutors will be required to go and inspect every group the check progress, and identify if they are operating on the right track. (SB-008)</p> <p>Finally a presentation will take place which will last no longer than 3 minutes</p>



Activity Design Diagram	Activity Title		Activity Identification
	Screen Cast SQL		LO 3 – OBJ 1
<u>Project</u>	<u>Scope/Location</u>	<u>Date/Version</u>	<u>Designer</u>
SHU-DB-09-10	Computer Based	11/02/10	Adsetts Group

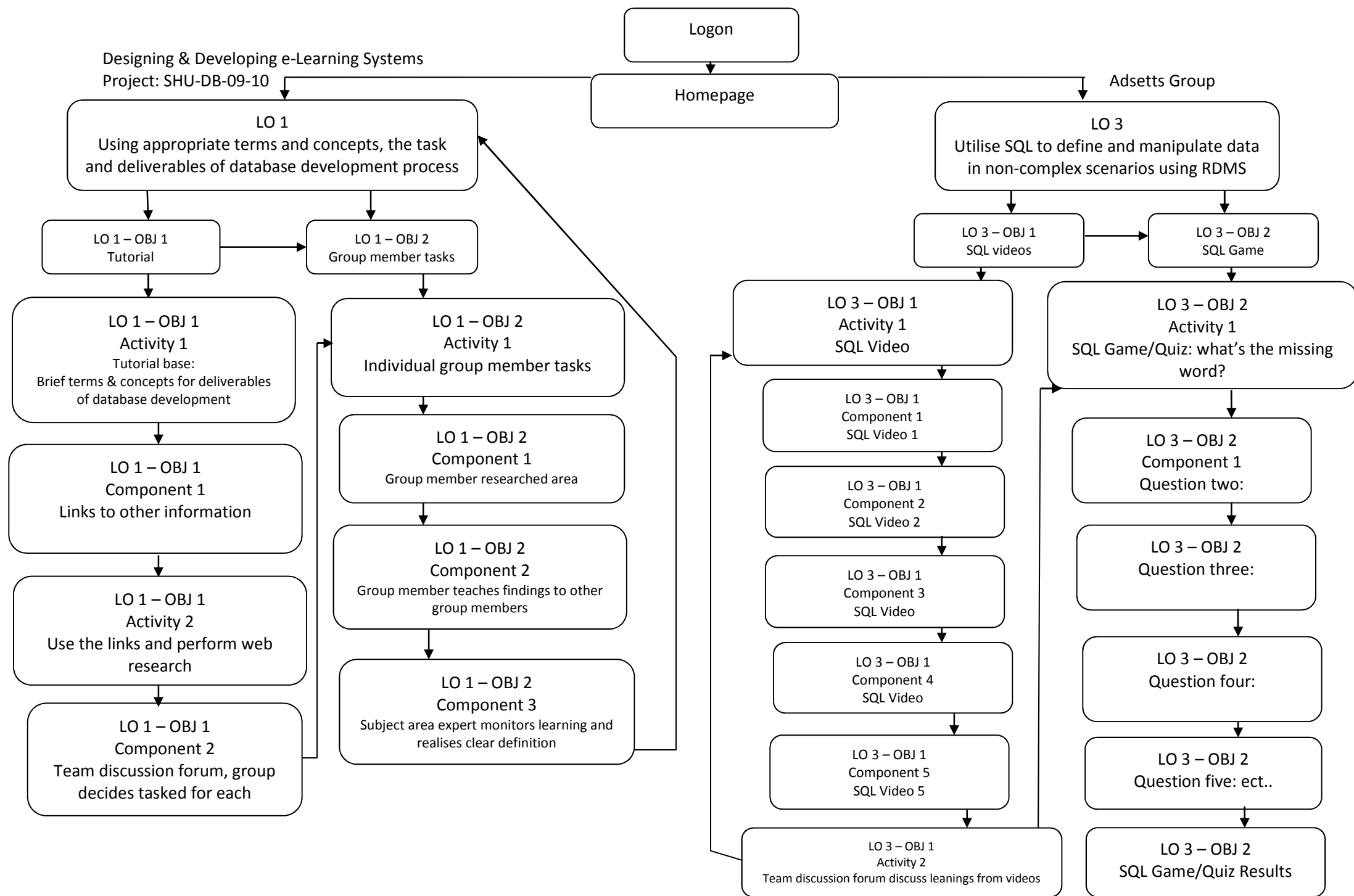
Additional Timing	Action	Media	Sequence	Description
<u>Timing</u> 60-90 minutes for viewing videos & students are advised to spend as much time as they feel necessary to learn the information viewed.	 Observe		 Screen Cast – SQL 1 ↓	Beginning of SQL (SB-009) Watch Introduction to SQL video (SB-010)
<u>Evaluation/Feedback</u> There is no feedback or evaluation required during the video activity	 Observe		Screen Cast – SQL 2 ↓	Watch Creating in SQL video (SB-011)
<u>Assessment Type</u> Not assessed	 Observe		Screen Cast – SQL 3 ↓	Watch Insert, Update & Delete video (SB-012)
<u>Purpose (Learning)</u> Teach SQL from basic uses through to advanced queries and efficient uses	 Observe		Screen Cast – SQL 4 ↓	Watch Advanced queries video (SB-013)
<u>Related Specifications</u> The prerequisite for this activity is the information learned through LO1 OBJ1 and OBJ2	 Observe		Screen Cast – SQL 5 ↓ 	Watch MySQL Best Practice video (SB-014)

Activity Design Diagram	Activity Title		Activity Identification
	SQL Game/Quiz: what's the missing word?		LO 3 – OBJ 2
<u>Project</u>	<u>Scope/Location</u>	<u>Date/Version</u>	<u>Designer</u>
Learning Analysis & Design	Computer based	08/02/2010	Adsetts Group

Additional Timing	Action	Media	Sequence	Description
<u>Timing</u> 30 minutes	 Read		<hr/> <hr/> Start Introduction to the quiz ↓	After learning about SQL the student is presented with the quiz questions to gain a in deep understanding of SQL, this process should imbed their knowledge but at the same time be a fun activity to complete (SB-015)
<u>Evaluation/Feedback</u> Student will review marks and be given guidance on problem areas and provided with a link to the video or external links that will help with this.	 Read		Read the quiz questions ↓	Answering question to test their knowledge of SQL (SB-015)
<u>Assessment Type</u> Formative	 Answer		Answer quiz questions ↓	The quiz will have a number of question for the student to answer (SB-015)
<u>Purpose (Learning)</u> To demonstrate full understanding and awareness of learning outcome 3.	 Read		Read the quiz questions ↓	Once the student has completed the quiz they will have time to evaluate the results. (SB-015)
<u>Related Specifications</u> LO3-OBJ2 requires the knowledge gained from the video content of LO3-OBJ1	 Answer		Answer quiz questions ↓	Once students have evaluated their marks they will be given guidance on problem areas and provided with a link to the video or external links that will help with this. This may mean that the student will need to carry out additional research and preformed the quiz again and a later stage.
<u>Additional Information</u>	 Repeat		Time limit  End of SQL Game/Quiz ↓	
	 Evaluate		Results ↓	
	 Moderate		Additional Research ↓	
	 Search		<hr/> <hr/> End	

Activity Design Diagram	Activity Title SQL Discussion Board		Activity Identification LO 3 – OBJ 3
<u>Project</u> Learning Analysis & Design	<u>Scope/Location</u> Computer Based	<u>Date/Version</u> 17/02/2010 V1	<u>Designer</u> Adsetts Group

Additional Details	Action	Media	Sequence	Description
<p><u>Timing</u> Students are advised to spend as much time as they feel necessary asking and answering questions related to SQL</p> <p><u>Evaluation/Feedback</u> Contributions to the discussion board are not evaluated, although the tutor can provide feedback on questions or contributions made</p> <p><u>Assessment Type</u> None</p> <p><u>Purpose (Learning)</u> Allows the students to reflect on what they have learned from the LO3 OBJ1 and LO3 OBJ2</p> <p>Students can then help others learn if they are struggling to understand SQL concepts</p> <p><u>Related Specifications</u> Follows on from LO3 OBJ1 and LO3 OBJ2</p> <p>Relates to Activity Plan for LO3</p> <p><u>Additional Information</u></p>	 Read		<p>Start</p> <p>Read questions on discussion board</p> <p>↓</p> <p>Offer answers if known</p> <p>↓</p> <p>Ask own questions or start discussion</p> <p>Break in time sequence</p> <p>Check back at later time to see answers</p> <p>Repeat</p>	<p>Individuals read questions asked by other students on the discussion board (SB-016)</p> <p>If they can answer the question they can contribute to the discussion</p> <p>If the student has a question that has not yet been asked/answered, they can post it so that other students may be able to answer</p> <p>The student will then check back at a later time to view the answers to their question. They can again offer to answer other students' questions</p>



Story boards

The following documentation will look at the application in the form of storyboards. Storyboards are a graphical representation of what the system will look like to the end user and can also be of key benefit to the developers of the application.

As all learners have different learning styles and within SHU-DB-09-10 application different learning needs have been taken into consideration to cater of all types of students.

Common learning styles consist of:

- Visual – users prefer to learn by using images to develop their understanding.
- Aural – users prefer to listen to sounds.
- Verbal – user prefer to be verbal and speak and write about their learning.
- Physical – users prefer to be hands on and be able to use their sense of touch.
- Logical – users prefer using logic and reasoning.
- Social – users prefer to learn in groups.

Solitary – users prefer to work alone also known as self-study.

These learning styles will be identified in the story board description to show how the tool caters to the different learning styles. Developing the tool to the different learning styles can help to improve the speed, quality and effectiveness of the learning provide.

Application logon

SHU-DB-09-10

Helping Students Succeed on the Database Systems Module

Help | Contact Us

Menu

- Learning Outcome 1
- Learning Outcome 3
- Additional Resources

home > login

Welcome

This is the online accompaniment to the Database Systems Module at Sheffield Hallam University. Before you can get started, you will need to login using the details provided by your lecturer.

If you have not yet been assigned login details, please contact your lecturer.

Login Here

Username:

Password:

Login

[Forgot your password?](#)

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Figure 1 - SB-001

The screen above show what the user will see when they first enter the site. This is the logon page for the E-learning the support the database systems module. The user will have to logon to the system before starting their learning.

Home screen



Figure 2 - SB-002

This is the home page that the user will see once they have logged on; they are given an introduction to the tool and instructed on what to do next.

Once the user has logged on they will be able to choose from the learning outcome in the menu on the left hand side.

There is also an additional resource link on the menu which will hold extra information for the user to utilize to extend their learning.

Learning outcome 1 – Homescreen

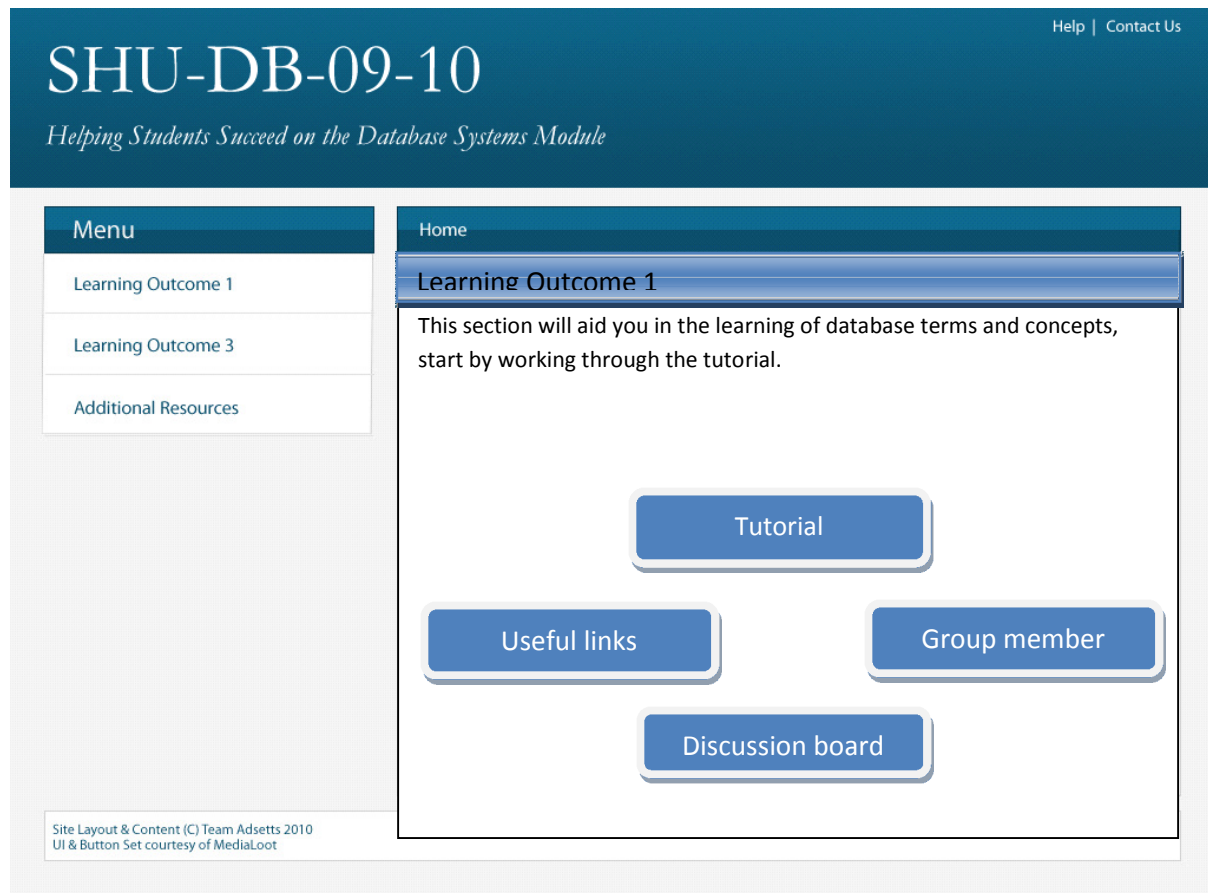


Figure 3 - SB-003

When the user clicks on learning outcome 1 from the main menu on the left hand side, they will be presented with this screen which details what they need to do next.

From here they have the option to click on the follow:

- Tutorial
- Useful links
- Group member task
- Discussion board

The user is advised to start with the tutorial and work through this to understand the database terms and concepts.

LO1 OBJ1 Tutorial Terms and concepts

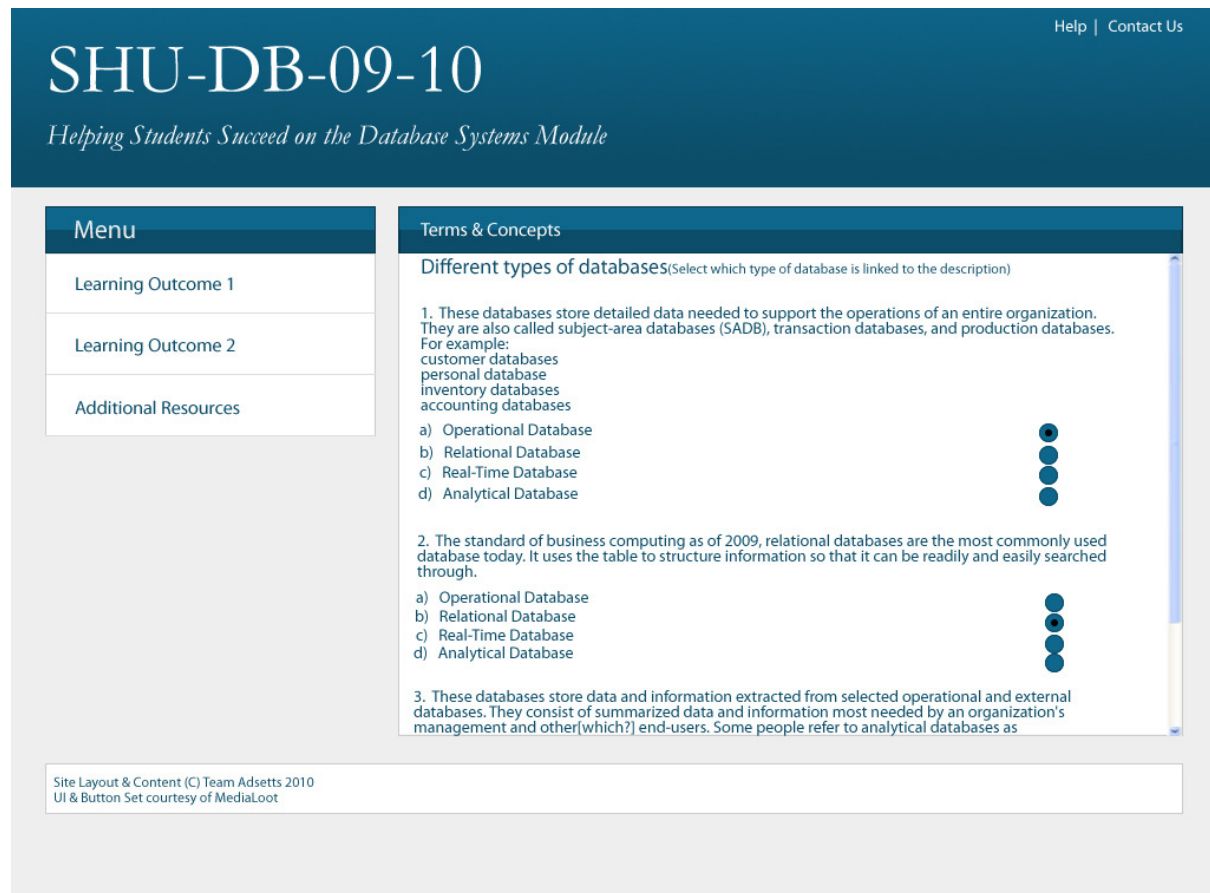


Figure 4 - SB-004

When the user clicks on the tutorial they will see the above screen. The tutorial will educate the use in the terms and concepts of database systems.

Learning styles meant in this section of the tool:

- Visual – Images will be displayed in the tutorial to develop their understanding.
- Logical – Users can apply their logical reasoning to understand the subject matter
- Solitary – This section requires the user to work alone to understand the subject

LO1 OBJ1 Tutorial terms and concepts – links to other study material



Figure 5 - SB-005

When the user clicks on the useful links from the learning outcomes screen they will be presented with this page. They are show links to other helpful information which they can research simple by accessing the suggested books or clicking on the link provided.

Learning styles meant in this section of the tool:

- Visual – users will be presented with images to help their learning.
- Physical – users have the chance to take a more hands on approach and explore their own learning.
- Solitary – users perform this task individually

LO1 OBJ1 Discussion fourm

SHU-DB-09-10

Help | Contact Us

Helping Students Succeed on the Database Systems Module

Menu

- Learning Outcome 1
- Learning Outcome 2
- Additional Resources

Discussion Forum

This discussion forum has been designed for you to discuss any questions that you may have in regards to the terms & concepts of Databases

	Total Posts	Unread Posts
Operational Database Personal databases and customer databases How many databases are there?	6 4	2 1
Analytical Database Multi-Dimensional Databases Operational & External Databases	8 14	1 0
Real-Time Database Traditional databases	10	2
Relational Database Normalisation Rational Rose	4 9	1 2

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UI & Button Set courtesy of MediaLoot

Figure 6 - SB-006

This screen is the discussion board provided for the students to discuss their learning with other group members. This is to support learning outcome 1.

Learning styles meant in this section of the tool:

- Verbal – user can verbal and speak and write about their learning with their peeps.
- Social – users can learn from one another in group discussions.

LO1 OBJ2 Group member task

The screenshot displays the SHU-DB-09-10 e-learning interface. At the top, a dark blue header contains the text 'SHU-DB-09-10' and 'Help | Contact Us'. Below the header, a light blue banner reads 'Helping Students Succeed on the Database Systems Module'. The main content area is divided into a left sidebar and a right main panel. The sidebar, titled 'Menu', includes links for 'Learning Outcome 1', 'Learning Outcome 2', and 'Additional Resources'. The main panel, titled 'home > Learning Outcome 1 > Individual Group Member Tasks', contains a instruction: 'Please press the drop down menu for your group, and ensure each individual is allocated a task.' It lists four tasks: 'Task 1 - What is the Role of the database manager?', 'Task 2 - What is normalisation & why is it needed?', 'Task 3 - What are the key benefits to using SQL Database?', and 'Task 4 - What is "rocking"?'. Each task has a corresponding dropdown menu for group selection. Task 1 has four dropdowns for groups: Adsetts, Arundel, Owen, and Furnival. Task 2 has four dropdowns for groups: Adsetts, Arundel, Owen, and Furnival. Task 3 has four dropdowns for groups: Adsetts, Arundel, Owen, and Furnival. Task 4 has four dropdowns for groups: Adsetts, Arundel, Owen, and Furnival. At the bottom of the main panel, a footer reads: 'Site Layout & Content (C) Team Adsetts 2010 UI & Button Set courtesy of MediaLoot'.

Figure 7 - SB-007

The users will see this screen when they click on group member tasks. Users can then assign themselves to a task and research in to this area. All users can utilise their different learning styles by doing the research in a manner that suits their individual needs therefore this plays to many different learning styles below:

- Visual – users prefer to learn by using images to develop their understanding.
- Aural – users prefer to listen to sounds.
- Verbal – users prefer to be verbal and speak and write about their learning.
- Physical – users prefer to be hands on and be able to use their sense of touch.
- Logical – users prefer using logic and reasoning.
- Solitary – users prefer to work alone also known as self-study.

LO1 OBJ2 Group member teaches others

The screenshot displays the SHU-DB-09-10 web application. The header is dark blue with the title 'SHU-DB-09-10' and the subtitle 'Helping Students Succeed on the Database Systems Module'. A 'Help | Contact Us' link is in the top right. A left sidebar contains a 'Menu' with links to 'Learning Outcome 1', 'Learning Outcome 2', and 'Additional Resources'. The main content area has a breadcrumb trail: 'home > Learning Outcome 1 > Group Adsetts - File Exchange'. Below this, a message says 'Please use this area to exchange documents between your group.' with an 'Add File' button. The 'File Exchange - Group Adsetts' section lists two files: 'Presentation Final' (posted by Student 1 on 17/02/2010) and 'Presentation Draft' (posted by Student 4 on 05/02/2010), each with a 'Remove' button. A footer box contains the text: 'Site Layout & Content (C) Team Adsetts 2010' and 'UI & Button Set courtesy of MediaLoot'.

Figure 8 - SB-008

To reflect on the users individual group members task users produce a presentation to share with the group to illustrate their research in to the problem domain. This incorporated the Social learning style as users share their knowledge in a group format.

Learning outcome 3 - Homescreen

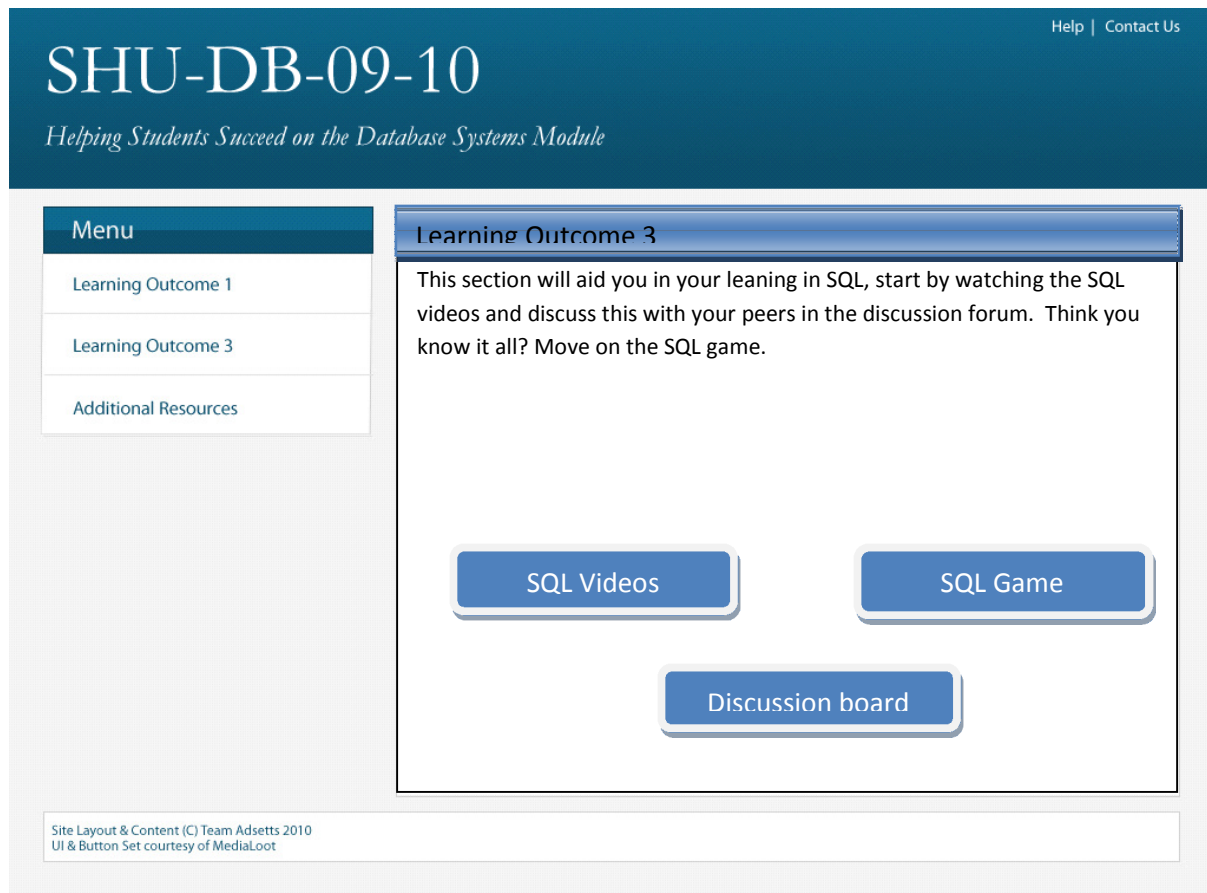


Figure 9 - SB-009

When the user clicks on learning outcome 3 from the main menu on the left hand side, they will be presented with this screen which details what they need to do next.

From here they have the option to click on the follow:

- SQL videos
- SQL game
- Discussion board

The user is advised to start with the SQL videos and work through these to understand the problem area.

LO3 OBJ1 SQL video 1



Figure 10- SB-010

Users will see this screen when they click on the SQL videos from the learning outcome 2 screen. This screen is the first in the series of 5 videos for the students to watch and learn from.

Learning styles meant in this section of the tool:

- Visual – users prefer to learn by using images to develop their understanding.
- Aural – users prefer to listen to sounds.
- Solitary – users prefer to work alone also know as self-study.

LO3 OBJ1 SQL video 2

The screenshot displays the SHU-DB-09-10 e-learning interface. The header features the title 'SHU-DB-09-10' and the tagline 'Helping Students Succeed on the Database Systems Module'. A navigation menu on the left includes 'Learning Outcome 1', 'Learning Outcome 3', and 'Additional Resources'. The main content area shows a video player titled 'Data Definition' with a list of DDL commands: CREATE DATABASE, CREATE TABLE, CREATE INDEX, ALTER TABLE, DROP DATABASE, DROP TABLE, and DROP INDEX, each with a brief description. The video player includes standard controls like play, pause, and volume, and a progress bar showing 1.00x speed and 00:15/03:40 duration. Navigation links for 'previous Video' and 'next Video' are visible at the bottom of the video player area.

SHU-DB-09-10
Helping Students Succeed on the Database Systems Module

Menu

- Learning Outcome 1
- Learning Outcome 3
- Additional Resources

home > Learning Objective 3 > Video 2

Data Definition

DDL – Data Definition Language

- CREATE DATABASE Creates a database
- CREATE TABLE Creates a table
- CREATE INDEX Creates an index (search key)
- ALTER TABLE Changes a table
- DROP DATABASE Deletes a database
- DROP TABLE Deletes a table
- DROP INDEX Deletes an index

Creating in SQL.mp4 1.00x 00:15/03:40

previous Video next Video

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Figure 11- SB-011

This screen is the second in the series of 5 videos for the students to watch and learn from.

Learning styles meant in this section of the tool:

- Visual – users prefer to learn by using images to develop their understanding.
- Aural – users prefer to listen to sounds.
- Solitary – users prefer to work alone also know as self-study.

LO3 OBJ1 SQL video 3

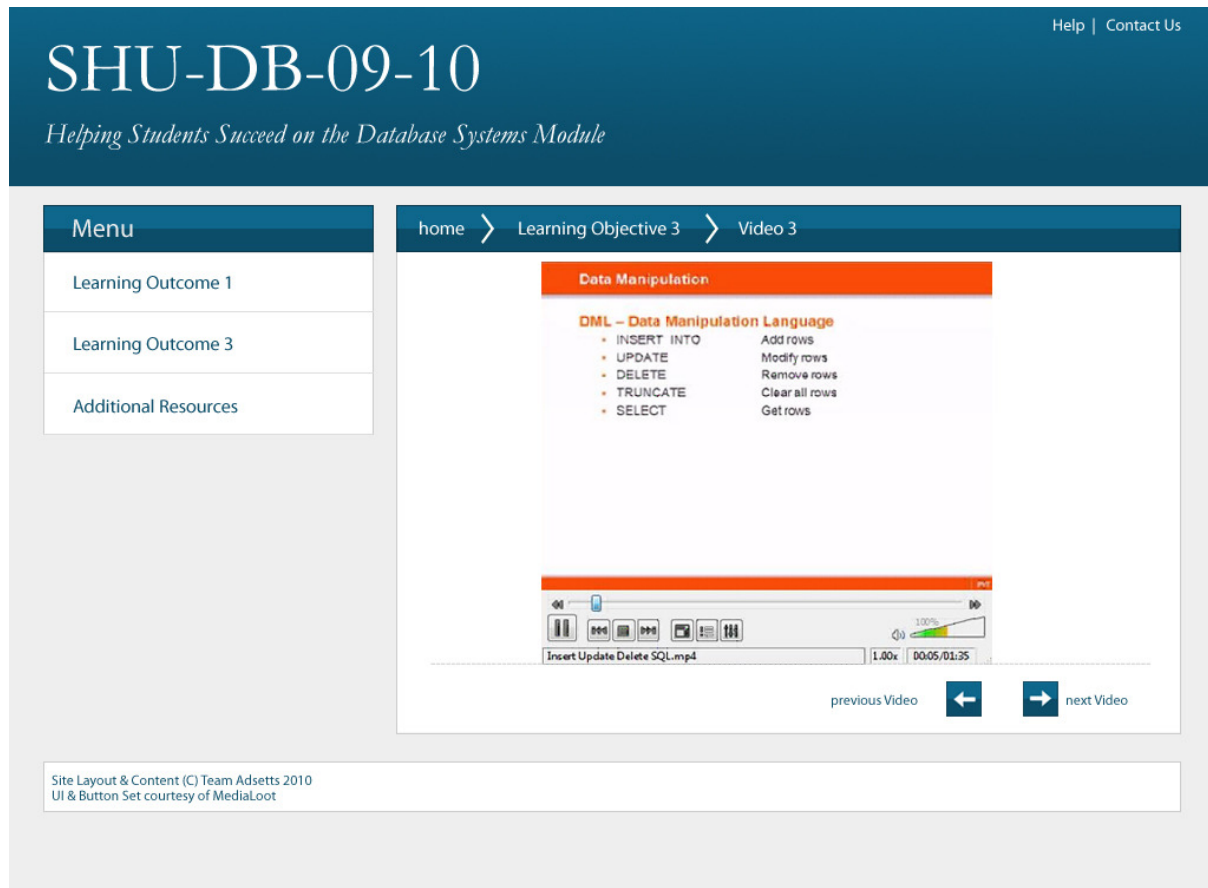


Figure 12- SB-012

This screen is the third in the series of 5 videos for the students to watch and learn from. Learning styles meant in this section of the tool:

- Visual – users prefer to learn by using images to develop their understanding.
- Aural – users prefer to listen to sounds.
- Solitary – users prefer to work alone also know as self-study.

LO3 OBJ1 SQL video 4

Help | Contact Us

SHU-DB-09-10

Helping Students Succeed on the Database Systems Module

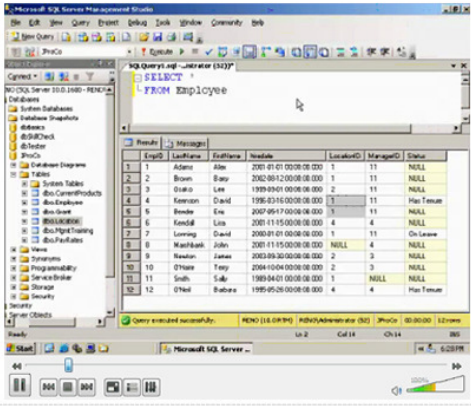
Menu

Learning Outcome 1

Learning Outcome 3

Additional Resources

home > Learning Objective 3 > Video 4



EmpID	LastName	FirstName	StartDate	LocationID	ManagerID	Status
1	Adams	Alan	2001-01-01 00:00:00.000	1	11	NULL
2	Brown	Barry	2002-05-12 00:00:00.000	1	11	NULL
3	Chen	Lee	1995-09-01 00:00:00.000	2	11	NULL
4	Kassam	David	1996-03-15 00:00:00.000	3	11	Has Tenure
5	Bender	Eva	2007-09-17 00:00:00.000	3	11	NULL
6	Ford	Lin	2001-11-15 00:00:00.000	4	4	NULL
7	Lawing	David	2000-01-01 00:00:00.000	1	11	On Leave
8	MacBeath	John	2001-11-15 00:00:00.000	NULL	4	NULL
9	Rasmussen	Janice	2003-09-30 00:00:00.000	2	3	NULL
10	O'Hare	Faye	2004-10-04 00:00:00.000	2	3	NULL
11	Smith	Sally	1989-04-01 00:00:00.000	1	NULL	NULL
12	O'Neil	Barbara	1995-05-29 00:00:00.000	4	4	Has Tenure

previous Video ← → next Video

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Figure 13- SB-013

This screen is the fourth in the series of 5 videos for the students to watch and learn from.

Learning styles meant in this section of the tool:

- Visual – users prefer to learn by using images to develop their understanding.
- Aural – users prefer to listen to sounds.
- Solitary – users prefer to work alone also know as self-study.

LO 3 OBJ1 SQL video 5



Figure 14- SB-014

This screen is the fifth in the series of 5 videos for the students to watch and learn from.

Learning styles meant in this section of the tool:

- Visual – users prefer to learn by using images to develop their understanding.
- Aural – users prefer to listen to sounds.
- Solitary – users prefer to work alone also know as self-study.

LO3 OBJ2 SQL quiz



Figure 15- SB-015

This is the screen that the users will see when interacting with the quiz, the user will be shown a number of questions to test their knowledge they have acquired from the studying learning outcome 3 objective 1.

After learning about SQL the student is presented with the quiz questions to gain an in-depth understanding of SQL, this process should embed their knowledge but at the same time be a fun activity to complete. The quiz will have a number of questions for the student to answer.

Once the student has completed the quiz they will have time to evaluate the results. Once students have evaluated their marks they will be given guidance on problem areas and provided with a link to the video or external links that will help with this. This may mean that the student will need to carry out additional research and perform the quiz again at a later stage.

Learning styles meant in this section of the tool:

- Logical – users can use their logic and reasoning to answer the questions.
- Solitary – users perform this work alone also known as self-study.

LO3 OBJ1 Discussion fourm

SHU-DB-09-10

Help | Contact Us

Helping Students Succeed on the Database Systems Module

Menu

- Learning Outcome 1
- Learning Outcome 2
- Additional Resources

Discussion Forum

This discussion forum has been designed for you to discuss any questions that you may have in regards to SQL

	Total Posts	Unread Posts
Video 1 Video Volume DBMS	2 4	0 1
Video 2 DDL - Data Definition	8	1
Video 3 DML - Data Manipulation Language	10	2
Video 4 Inner Joins Query writing	4 8	1 4
Video 5		

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Figure 16- SB-016

This screen is the discussion board provided for the students to discuss their learning with other group members. This is to support learning outcome 3.

Learning styles meant in this section of the tool:

- Verbal – user can verbal and speak and write about their learning with their peeps.
- Social – users can learn from one another in group discussions.

Content Holding CH 002			
ID	Which Project Name?	Which Project ID	Which OO ID does this relate to?
	SHU-DB-09-10	15/02/2010	LO1
		FILENAME (SHOULD MATCH CH NUMBER ID EXACTLY)	
		CH 002.doc	

CATEGORY			Which learning objective is it:		
	Video			LO1 OBJ1	
		If yes, is it:		N2L	G2L
		Please indicate with an "X" This rates the relative importance of this piece of content within the OO where it is used		X	X

Content Details

Video: MP4

Developer: Adsetts Group

Version: 1

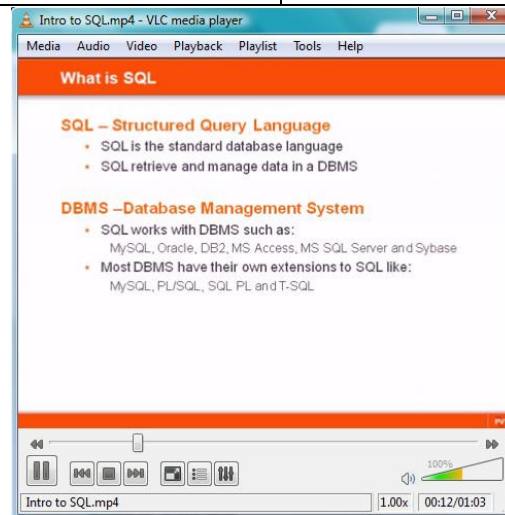
Date Created: 15/2/2010

Location: Development Server WWW2

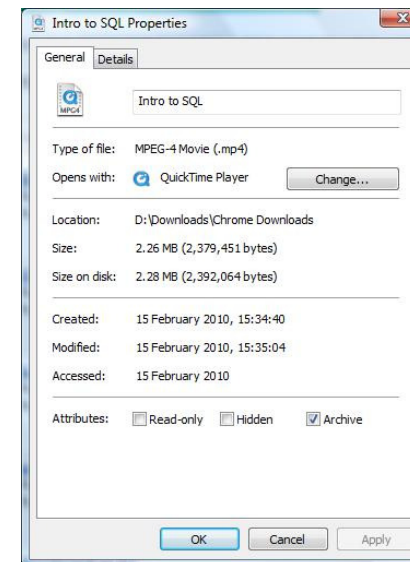
Path: D:\Downloads\Chrome Downloads

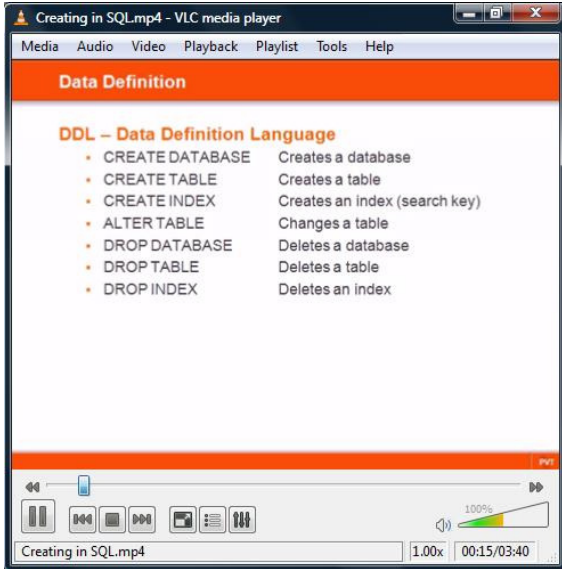
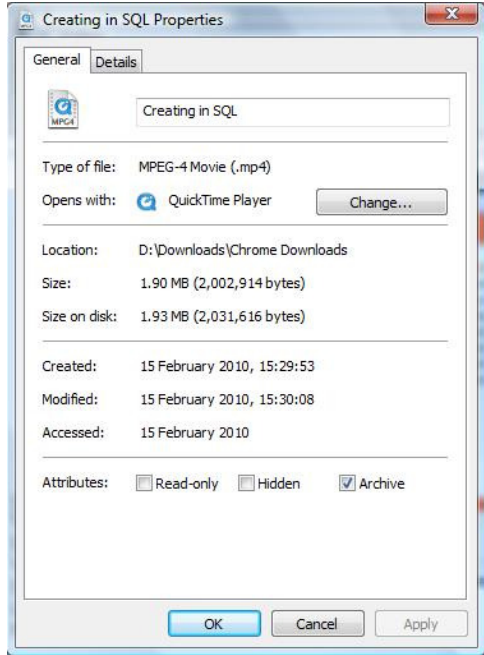
Status: Final

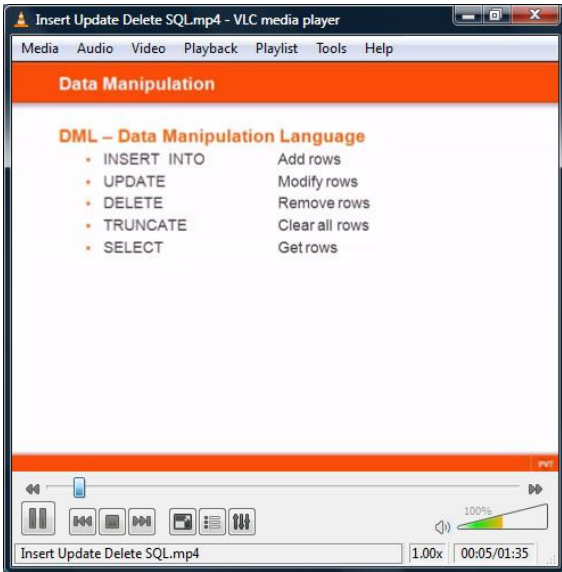
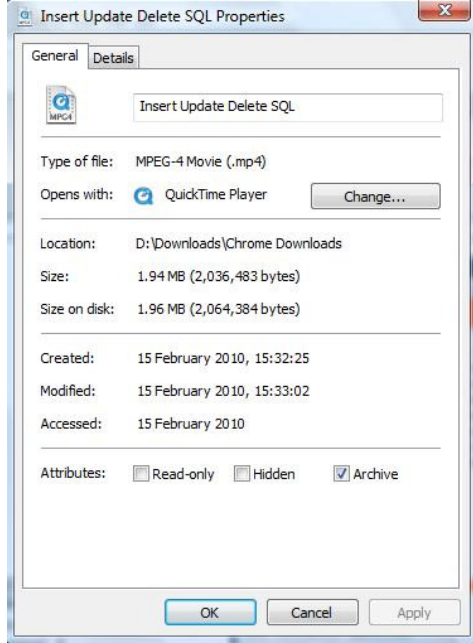
Approved Complete By: Cheryl Middleton.



Status Completed - Further Details



Content Holding CH 003							
ID	WHICH PROJECT NAME?		WHICH PROJECT ID	WHICH OO ID DOES THIS RELATE TO?			
		SHU-DB-09-10		15/02/2010	LO1		
			FILENAME (SHOULD MATCH CH NUMBER ID EXACTLY)				
			CH 003.doc				
CATEGORY			Which learning objective is it:				
	Video		LO1 OBJ2				
			If yes, is it:		N2L	G2L	N2K
			Please indicate with an "X" This rates the relative importance of this piece of content within the OO where it is used		X	X	X
<div> <div> <p>Content Details</p> <p>Video: MP4</p> <p>Developer: Adsetts Group</p> <p>Version: 1</p> <p>Date Created: 15/2/2010</p> <p>Location: Development Server WWW2</p> <p>Path: D:\Downloads\Chrome Downloads</p> <p>Status: Final</p> <p>Approved Complete By: Cheryl Middleton.</p> </div> <div>   <p>Status Completed - Further Details</p> </div> </div>							

Content Holding CH 004						
ID	WHICH PROJECT NAME?		WHICH PROJECT ID	WHICH OO ID DOES THIS RELATE TO?		
		SHU-DB-09-10		15/02/2010	LO3	
			FILENAME (SHOULD MATCH CH NUMBER ID EXACTLY)			
			CH 004.doc			
CATEGORY			Which learning objective is it:			
	Video			LO3 OBJ1		
		If yes, is it:		N2L	G2L	N2K
		Please indicate with an "X" This rates the relative importance of this piece of content within the OO where it is used		X	X	X
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>Content Details</p> <p>Video: MP4</p> <p>Developer: Adsetts Group</p> <p>Version: 1</p> <p>Date Created: 15/2/2010</p> <p>Location: Development Server WWW2</p> <p>Path: D:\Downloads\Chrome Downloads</p> <p>Status: Final</p> <p>Approved Complete By: Cheryl Middleton.</p> </div> <div style="width: 50%;">  <p>Status Completed - Further Details</p>  </div> </div>						

Content Holding CH 002			
ID	WHICH PROJECT NAME?	WHICH PROJECT ID	WHICH OO ID DOES THIS RELATE TO?
	SHU-DB-09-10	17/02/2010	LO1
		FILENAME (SHOULD MATCH CH NUMBER ID EXACTLY)	
		CH 004.doc	

CATEGORY	Which learning objective is it:				
	Video	LO1 OBJ1			
		If yes, is it:			
		Please indicate with an "X" This rates the relative importance of this piece of content within the OO where it is used			
			N2L	G2L	N2K
			X	X	X

Content Details

Video: MP4

Developer: Adsetts Group

Version: 1

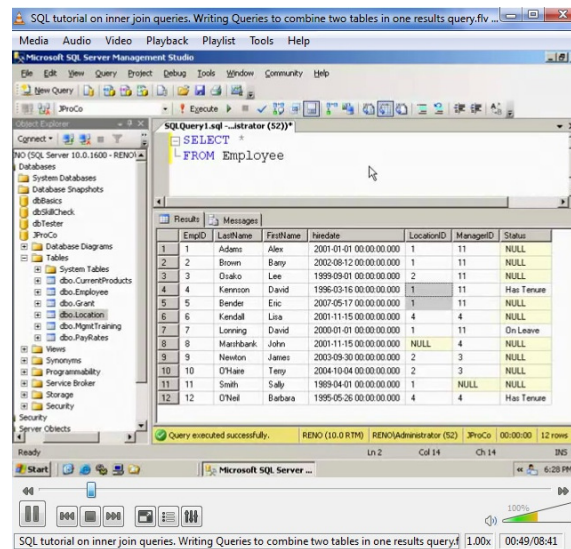
Date Created: 17/2/2010

Location: Development Server WWW2

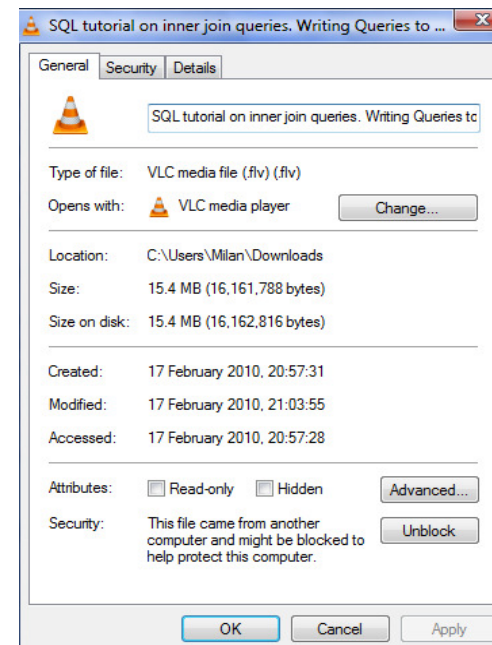
Path: C:\Users\Milan\Downloads

Status: Final

Approved Complete By: Cheryl Middleton.



Status Completed - Further Details



Content Holding CH 002							
ID	WHICH PROJECT NAME?		WHICH PROJECT ID		WHICH OO ID DOES THIS RELATE TO?		
	SHU-DB-09-10		17/02/2010		LO1		
			FILENAME (SHOULD MATCH CH NUMBER ID EXACTLY)				
			CH 005.doc				
CATEGORY			Which learning objective is it:				
	Video		LO1 OBJ1				
			If yes, is it:		N2L	G2L	N2K
			Please indicate with an “X” This rates the relative importance of this piece of content within the OO where it is used		X	X	X

Content Details

Video: MP4

Developer: Adsetts Group

Version: 1

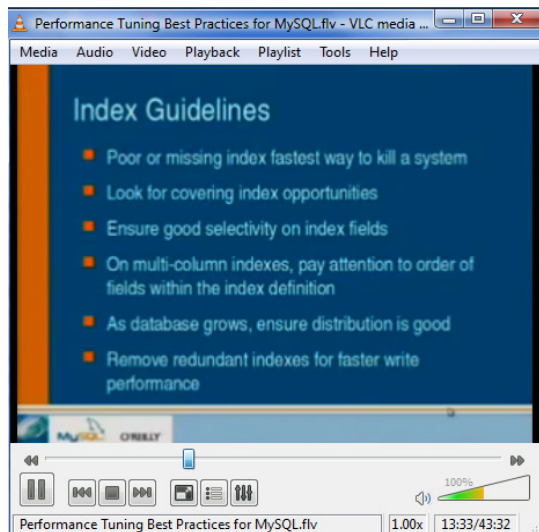
Date Created: 17/2/2010

Location: Development Server WWW2

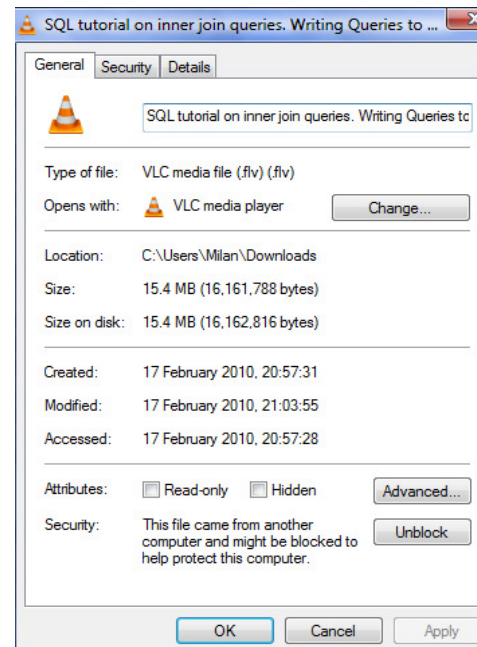
Path: C:\Users\Milan\Downloads

Status: Final

Approved Complete By: Cheryl Middleton.



Status Completed - Further Details



Consideration of Assessment Regime

The students will be assessed on their progress in a number of different ways to ensure that learners with differing learning styles are all treated on a level playing field. Taking into account the different learning styles identified by Kolb in his Learning Cycle, the e-learning software will include the following methods of assessment:

Student Research and Presentation

Students will be assigned topics from Learning Outcome 1 to research and will be required to discuss/present their findings to the other members of their group. While they will not be graded, the tutor will ensure that the students have completed the work and then correct any errors made by the students. This fits in with both the Concrete Experience and the Abstract Conceptualisation stages of Kolb's Learning Cycle with the student doing the research learning by Concrete Experience and the students being presented to learning through Abstract Conceptualisation.

From the Learning Needs Analysis, this fits in with the students developing skills with regards to database design and modelling.

SQL Quiz

The SQL Quiz will be presented to students after they have completed the SQL video tutorials in Learning Outcome 3. It will enable students to test their knowledge on the skills they have just learned. The quiz will be multiple choice and will consist of 20 random questions pulled from a database. Again this best suits students who fit into the Concrete Experience and Abstract Conceptualisation stages of Kolb's Learning Cycle. It also fits in with those who prefer Active Experimentation as the quiz allows them to apply what they have learned to questions relating to real-world examples.

The students will instantly get feedback on where they have failed to answer questions and will then be advised which topics they should cover again.

Discussion Board

Although it is not being assessed, the Discussion Board could be the most important part of the e-learning software. It allows students to reflect on and discuss their progress within the module and to ask questions on any topics they do not understand. For students who prefer the Reflective Observation stage in Kolb's Learning Cycle, this will be most beneficial to them. It will also help those students who have problems speaking to others face-to-face as they will be able to raise problems or questions in a forum where others will provide answers. The tutor will be able to monitor students who are struggling and help them consolidate their learning.

Module Assessment

While the assessment in the e-learning software will help the students to develop their knowledge on the Database Systems module, the software must also address the overall assessment from the module descriptor. By utilising the methods of learning and assessment listed above, the students will hopefully be able to embed the knowledge required to succeed on the module.

In testing the students with the SQL quiz, they will be better prepared for answering questions on the phase tests. The tutor can customise the questions so that they can reflect the style of questions that can be found on the test. Although there will be nothing stopping students from searching round the internet for answers, it should help them prepare for answering questions of SQL in a test environment.

Through asking the students to research key terms with regards to database design and then present their findings to others they will be in a better position to tackle the main case studies given to them in the module. A lot of the work is case study based, including the assignments, and so appeals mainly to the Active Experimentation students who enjoy learning by trying out what they have learned. Therefore, by mainly appealing to other learning styles in the e-learning software, students will hopefully be on a level playing field when it comes to the module assessments.