Assignment front sheet

Qualification		Unit number and title	
Pearson BTEC Higher Nationals in Computing and Systems Development		Unit 17: Database Design Concepts	
Student name		**Assessor name**	
		Dr Derek Peacock	
Date issued	**Completion date**	**Submitted on**	
23rd February	9th March 2017		
Assignment title	17-1: Database Systems		

Unit & LO No	Learning outcome (LO)	AC	In this assessment you will have the opportunity to present evidence that shows **you are able to:**	Task no.	Evidence
U17 LO 1	Understand databases and data management systems	1.1	analyse the key issues and application of databases within organisational environments	1	
		1.2	critically evaluate the features and advantages of database management systems	1	
U17 LO 2	Understand database design techniques	2.1	analyse a database developmental methodology	2	
		2.2	discuss entity-relationship modelling and normalisation	2	

Learner declaration
I certify that the work submitted for this assignment is my own and research sources are fully acknowledged.

Student signature: Date:

In addition to the above PASS criteria, this assignment gives you the opportunity to submit evidence in order to achieve the following MERIT and DISTINCTION grades

Grade Descriptor	Indicative characteristic/s	Contextualisation
M1 Identify and apply strategies to find appropriate solutions	an effective approach to study and research has been applied	*Web pages analysing and evaluating database managements systems and data modelling were produced on schedule and contain accurate, relevant and comprehensive information on the selected topics*
M2 Select/design and apply appropriate methods/techniques	relevant theories and techniques have been applied	*A database design for the chosen example that is in third normal form or better and where the E-R Diagram and the class diagram are consistent.*
M3 Present and communicate appropriate findings	a range of methods of presentation have been used and technical language has been accurately used	*Web pages that clearly present information on database systems and data modelling, and that use a range of presentation methods and accurately used appropriate technical language*
D1 Use critical reflection to evaluate own work and justify valid conclusions	conclusions have been arrived at through synthesis of ideas and have been justified	*Web pages showing critical evaluation of database management systems and E-R modelling approaches compared to noSQL databases*
D2 Take responsibility for managing and organising activities	Effective planning, organising and managing of individual tasks	*NOT AVAILABLE*
D3 Demonstrate convergent/lateral/creative thinking	ideas have been generated and decisions taken	*NOT AVAILABLE*

Assignment brief

Unit number and title	Unit 17: Database Design Concepts
Qualification	Pearson BTEC Higher Nationals in Computing and Systems Development
Start date	
Deadline/hand-in	
Assessor	Dr Derek Peacock

Assignment title	17-1: Database Systems

Purpose of this assignment

Databases provide the infrastructure to many organisations, and they offer support to key business applications and information systems. The most common database model used commercially is the relational one. This assessment provides students with opportunities for in depth understanding of database management systems and database modelling tools and techniques

Scenario

Valerian Software is a small software development firm newly established that is looking to develop novel dynamic interactive websites that make use of modern web development best practices.

You have been recently appointed as a trainee web developer and you are required as part of your job to complete an on-going CPD program which will last two years.

Your group has been given the job of evaluating database management systems, and suggesting the best one to use as the backend of an online e-commerce application.

Task 1 (U17-1.1)

Create individual web pages in your personal e-portfolio that analyses and lists the key issues and application of databases within an organisation such as integrity, security, recovery, concurrency, performance and industry standards

Task 2 (U17-1.2)

Select one relational database management system to analyse in detail. These could include SQL Server, Access, MySQL, Oracle, SAP or DB2

Create a feature comparison table which summarises the features of the selected system and compares it to a noSQL document based system such as MongoDB.. You should choose whichever database system you believe offers the most advantages, and you should justify their choice, and post it as a blog entry on which others can comment.

Finally hold a group discussion and decide on the best choice. Summarise in the your website the group choice and the reasons it was favoured.

Task 3 (U17-2.1)

Analyse database development methodology including requirements analysis, requirements specification, logical and physical design. Explain data elements such as data types, indexes and constraints applied during E-R Modelling. Compare ER diagrams with class diagrams.

Task 3 (U17-2.2)

Discuss ER Modelling and Normalisation by selecting an example to illustrate the key concepts. This example should contain at least 5 entities, 24 attributes and be a different example to any other member of your group.

You should select a real e-commerce example such as customers placing orders online for selected products such as mobile phones, books, music, games, cars, properties, holidays or a service such as project management or blog sites. You may simplify the real example, but any simplifications should be listed. You should also select example pages from the chosen web site which illustrate the data requirements of the site.

Use your chosen example to illustrate the process of E-R Modelling and Normalisation and your completed web pages should include a physical E-R diagram, a logical E-R diagram and a class diagram of the chosen system.

Evidence checklist	Summary of evidence required by student	Evidence presented
Task 1	Individual Web pages that analyses and lists the key issues and application of databases within an organisation	
Task 2	Individual Web pages summarising the key features of the selected DBMS, a comparison to MongoDB and with blog entries selecting and justifying the choice of the best system	
Task 3	Web pages explaining Entity-Relational Modelling and Normalisation illustrated by a unique example with a physical E-R, a logical E-R and a class diagram.	
Task 4		
Task 5		
Task 6		

Achievement Summary

Qualification	Pearson BTEC Higher Nationals in Computing and Systems Development	Assessor name	Dr Derek Peacock
Unit Number and title	Unit 17: Database Design Concepts	Student name	

Criteria Reference	To achieve the criteria the evidence must show that the student is able to:	Achieved? (tick)
U17-1.1	analyse the key issues and application of databases within organisational environments	
U17-1.2	critically evaluate the features and advantages of database management systems	
U17-2.1	analyse a database developmental methodology	
U17-2.2	discuss entity-relationship modelling and normalisation	

Higher Grade achievements (where applicable)			
Grade descriptor	Achieved? (tick)	Grade descriptor	Achieved? (tick)
M1: Identify and apply strategies to find appropriate solutions		D1: Use critical reflection to evaluate own work and justify valid conclusions	
M2: Select / design and apply appropriate methods / techniques		D2: Take responsibility for managing and organising activities	
M3: Present and communicate appropriate findings		D3: Demonstrate convergent /lateral / creative thinking	

Assignment Feedback

Formative Feedback: Assessor to Student

Action Plan

Summative feedback

Feedback: Student to Assessor

Assessor Signature		**Date**	
Student Signature		**Date**	