WESTERN INTERNATIONAL COLLEGE FZE RAS AL KHAIMAH

athe AWARDS FOR TRAINING AND HIGHER EDUCATION

Assignment front sheet – ATHE

Qualification		Unit number and title
ATHE L4 Extended Diploma in Computing (240 Credit)		Unit 4.4 Relational Database Systems
Learner name	**Learner No**	**Assessor name**
		Ms. Ibtisam Mogul

	Date issued	Hand in deadline	Submitted on
First Submission	1/10/19	30/11/19	
Re-Submission	10/12/19	21/12/19	
Note: students must get feedback within 15 days. Students have 10 working days to resubmit			

Assignment No. & title	1 of 1, Cakes and Crumbs Database Management System
In this assessment you will have opportunities to provide evidence against the following criteria. Indicate the page numbers where the evidence can be found.	

Los	Criteria reference	To achieve the criteria the evidence must show that the learner is able to:	Task no.	Evidence/Page No.
LO1- Understand database management systems	1.1	Explain the database Management System (DBMS)	Task 1	Report
	1.2	Explain the different levels of database architecture	Task 1	Report
	1.3	Describe big data and how it applies to database management systems	Task 1	Report
	1.4	Explain transaction processing within database management systems	Task 1	Report
	1.5	Evaluate the importance of data integrity and quality control within a database management system	Task 1	Report
LO2 - Understand database design	2.1	Explain relationships within a database	Task 3	Report
	2.2	Explain the integrity constraints within relational models	Task 3	Report
	2.3	Explain normalisation and functional dependency within a database	Task 3	Report
	2.4	Explain database administration including integrity and security control	Task 3	Report
LO3- Be able to design a database system	3.1	Design a relational database to meet a specified design brief	Task 2	Report/ Database
	3.2	Explain how the design documents meet design brief	Task 3	Report
	3.3	Evaluate database design following feedback	Task 3	Report

Learner declaration

I certify that the work submitted for this assignment is my own. I have clearly referenced any sources used in the work. I understand that false declaration is a form of malpractice.

Learner signature: Date:

Assignment brief

Qualification	ATHE L4 Extended Diploma in Computing (240 Credit)		
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Assessor name	Ms. Ibtisam Mogul		
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Scenario

You have recently been appointed as database designer for Cakes and Crumbs bakery. Cakes and Crumbs is a bakery that produces a variety of cakes and bread as well as specialty and celebration cakes. It is located in Mankhool, Dubai, UAE. It is a family firm that has been in existence for 7 years and selling their products to customers in the local area. The business has been doing well and until now it has recorded sales and customer information manually by hand. However, the sales are increasing, and the owner now needs to start tracking details about the customer, orders, staff, products, raw materials and suppliers. The owner of Cakes and Crumbs has asked you to design a relational database that will store and record the business information.

Task 1

The owner of Cakes and Crumbs has no experience of database management systems and you need to explain to him the different database management systems that are available and the benefits to him of using this type of system to store his data. You have agreed a date for a meeting and you wish to leave him with a report about database management systems which includes:

1.a) an explanation of database management systems

1.b) an explanation of the different levels of database architecture

1.c) a description of big data and how it can apply to the database management system

1.d) an explanation of transaction processing within a database management system

1.e) an evaluation of the importance of data integrity and quality control within a management system

This provides evidence for LO1- AC: [1.1, 1.2, 1.3, 1.4, 1.5]

Task 2

Using the scenario, produce Design Documentation and Database Development based on database design for a relational database for Cakes and Crumbs Bakery. Your database design documentation and development should include:

2.a) Entity Relationship Diagram and Data dictionaries for each of the tables you feel should be created in the database.

2.b) Normalisation upto 3 NF of each table of Cakes and Crumbs Bakery database.

2.c) Security features to protect the data and Data integrity features to help users with data entry, including database administration.

You must submit this work to your tutor and gain feedback.
This provides evidence for LO3- AC: [3.1]

Task 3

The owner of Cakes and Crumbs Bakery has reviewed your design documentation and provided you with some feedback. However, as he has no experience of relational databases he has asked you to write a report to him explaining the database design features you have used and how these meet the design brief. Use your design documentation to support your arguments in your report.

Produce a report to the owner of Cakes and Crumbs Bakery which includes:

3.a) The screenshot of the Relationship diagram representing the relationships between the tables within the Cakes and Crumbs Bakery database.

3.b) Explanation of Normalisation and functional dependency of each of the Tables within the Cakes and Crumbs Bakery database

3.c) Explanation of Integrity constraints implemented in relational models of Cakes and Crumbs Bakery database.

3.d) Explanation of the data integrity and security controls you have designed for Cakes and Crumbs Bakery database

3.e) Explain how the design documents meet the design brief.

3.f) In addition, your report should evaluate how the database design meets the brief, following the feedback you have received from Task 2.

This provides evidence for LO2, LO3 - AC: [2.1, 2.2, 2.3, 2.4, 3.2, 3.3]

Suggested Evidence

Task No	Assessment Criteria	Suggested Evidence
Task1	1.1, 1.2, 1.3, 1.4, 1.5	The learner must produce a guide which meets the needs of the stated audience. The materials must demonstrate an understanding of database management systems. Learners should investigate and explain what a database management system is and include examples of applications. Learners should explain the three-level database architecture and database system and explain the transaction processing system and how it works within a database system. The learners should investigate the latest research into "big data" and they should relate this to how it applies to database management systems. The learners will consider data integrity and GIGO and what can be done to ensure data integrity and quality control within a database system.
Task2	3.1	The learners need to produce design documentation for Cakes and Crumbs Bakery. As a minimum, they should include ERD, normalisation, data dictionaries and logical vs physical design documentation. They should consider what the business will need in terms of data requirements and the different types of data that will be required within the different tables to ensure effective data management. Normalisation should be carried out to at least 3NF and ERD documents should be annotated correctly considering cardinality and ordinality. The learners will use these designs to support their arguments in their report in activity 3 and therefore they need to be complex enough to meet the requirements. The assessor should provide detailed feedback on the learner work, identifying strengths as well as specific areas for development. This should be documented and can form part of formative or summative assessment. Without detailed feedback, the learner will find it difficult to complete parts of the next task and produce the evaluation required to meet the standards of AC 3.3.

Task3	2.1, 2.2, 2.3, 2.4, 3.2, 3.3	The learners will produce a comprehensive report which meets the standards set by the criteria for this task. Using the design documentation from activity 2, learners will explain their design documentation in detail throughout the report. They will use their design documentation to support their report and this can be included as screen shots or appendices. The learner will explain the relationship within the database and refer to their ERD. They will explain why they have made certain joins/relationships and the keys they have used. The learner will explain the integrity constraints they have considered throughout the design process and they will show the normalisation process from UNF to 3NF fully and correctly. The student will discuss the normalisation process they have been through and normal forms. The learner will explain the security controls they have considered and included in their design documentation along with the database administration that would be implemented if the database is to be created. The learner will explain how their design documentation meets the owner's requirements and they will include an evaluation of their design documentation which is directly related to the feedback.

Sources of information

Books

1. Silberschatz, A., Korth, H.F. and Sudarshan, S. (2011) *Database system concepts*. 6th ed. New York: McGraw-Hill.
2. Elmasri, R. and Navathe, S.B. (2011) *Database systems*. 6th ed. Boston, MA: Pearson Education.
3. Connolly, T.M. and Begg, C.E. (2015) *Database systems: a practical approach to design, implementation, and management*. 6th ed. Pearson Education.
4. Churcher, C. (2012) *Beginning database design: From novice to professional*. Apress.

Weblinks

1. http://db-book.com
2. https://www.tutorialspoint.com/ms_access/ms_access_tutorial.pdf
3. https://www.digitalocean.com/community/tutorials/an-introduction-to-big-data-concepts-and-terminology
4. https://www.ibm.com/.../BIG%20DATA%20%2B%20MAINFRAME.pdf
5. http://www.dbta.com/Columns/DBA-Corner/Improving-Data-Integrity-Using-Check-Constraints-99795.aspx
6. Data dictionary tutorial - https://www.youtube.com/watch?v=Pv8nEkFysBc
7. Normalization- https://www.youtube.com/watch?v=fg7r3DgS3rA
8. Database Normalisation - https://support.microsoft.com/en-us/kb/283878
9. Database normalisation - http://www.sqa.org.uk/e-learning/MDBS01CD/page_26.htm

Guidelines for Submission of Assignments

- Submit softcopy of assignment report, in Turnitin Moodle link.
- Submit soft copy of assignment front sheet along with signed declaration and software solution in normal submission link as a zipped folder with your name as folder name.
- Please note assignment must be submitted on or before deadline date.

ASSESSMENT RECORD SHEET					
Programme	ATHE L4 Extended Diploma in Computing (240 Credit)	**Learner name**		**Learner No:**	
Unit no. & title	Unit 4.4 Relational Database Systems	**Assessor name**	Mrs. Ibtisam Mogul		
Assignment No. & title	1 of 1, Cakes and Crumbs Database Management System	**Target learning aims**	LO1, LO2, LO3		
1st Submission Issue Date	1/10/19	**1st Submission Due date**	30/11/19		
Resubmission Issue Date	10/12/19	**Resubmission Due Date**	21/12/19		
Resubmission authorisation (Name) by Lead Internal Verifier*		**Date Resubmission authorised by LIV****			

Task No	**Target criteria**	**Criteria achieved?** (Yes / No)	**1st Submission tutor comment**	**Criteria achieved?** (Yes / No)	**Resubmission tutor comment**
		1st Submission		**Resubmission**	
1.a	1.1				
1.b	1.2				
1.c	1.3				
1.d	1.4				
1.e	1.5				
2	3.1				
3.a	2.1				
3.b	2.3				
3.c	2.2				

3.d	2.4				
3.e	3.2				
3.f	3.3				

General comments (tutor) – Please comment on the quality of student work, report structure and referencing.

Assessor declaration	I certify that the evidence submitted for this assignment is the learner's own. The learner has clearly referenced any sources used in the work. I understand that false declaration is a form of malpractice.		
Assessor signature		**Date**	
Learner comments			
Learner signature		**Date**	