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| **COURSE NAME / CODE** | | | BTEC National Subsidiary / Diploma / Extended Diploma in IT |
| **UNIT(s) No / Name** | | | Unit 18 – Database Design |
| **LEVEL** | 3 | Assignment No & Title | Assignment 1 – Features of a database/Design of a database’ |

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| **LECTURER/ASSESSOR** | Sandra Joseph /Emmanuel Oladipo | | | | |
| **ISSUE DATE** | 26/01/2017 | **DEADLINE DATE** | | 21/02/2017 | |
| **SUBMISSION DATE** |  | |  | | |
| **RESUBMISSION AUTHORISATION**  BY LEAD INTERNAL VERIFIER\* |  | | **Authorisation Date (By iv)** | |  |
| **RESUBMISSION DATE\*\*** |  | |  | | |

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| **\***All resubmissions must be authorised by the **Lead Internal Verifier**. Only **one** resubmission is possible per assignment, providing:   * The learner has met the initial deadlines set in the assignment, or ha met an agreed deadline extension * The tutor considers that the learner will be able to provide improved evidence without further guidance * Evidence submitted for assessment has been authenticated and accompanied by a signed and dated declaration of authenticity by the learner   \*\*Any resubmission evidence **must** be submitted within 10 working days of receipt of assessment |

**Student declaration**

*I declare that this assignment is all my own work and the sources of information and material I have used (including the internet) have been fully identified and properly acknowledged as required.*

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| **STUDENT NAME** | **SIGNATURE** |
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**ASSESSMENT DETAILS & GRADING CRITERIA**

(NB: Columns 1 &2 of the table below will be completed once the assignment has been submitted) Please note that criteria & evidence should be aimed to give the learner the maximum grade available within their qualification (i.e. A, Pass, Distinction)

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| **Learning Aims Covered** | | | LO1&LO2 | | |  | |  |
| LO1 | | Understand the features of relational databases | | | | | | | | | |
| LO2 | | Be able to design, create and populate a relational database | | | | | | | | | |
| **GRADING CRITERIA FOR TASK** | | | **EVIDENCE** | **EVIDENCE SEEN** | | **Page No#** | **CRITERIA MET** | | | | |
| **Y** | **N** | **Y** | | **I** | **N** | **IV** |
| P1 | Explain the features of a relational database | | **Task 1** Presentation / Word Document |  |  |  |  | |  |  |  |
| P2 | Design a relational database for a specified user need | | Task 1. Report with screenshots and diagrams of design |  |  |  |  | |  |  |  |
| M1 | Explain referential integrity and the purpose of primary keys in building the relationships between tables | | **Task 2** Presentation / Word Document |  |  |  |  | |  |  |  |
| D1 | Discuss how potential errors in the design and construction of a database can be avoided | | **Task 3** Presentation / Word Document |  |  |  |  | |  |  |  |

**KEY: Y = Yes, I = Incomplete, N = No**

**BREAKDOWN OF HOW GRADES WILL BE AWARDED:**

(NB: Please tick as appropriate)

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| **TYPE OF QUALIFICATION** | **TICK** | **DESCRIPTION** |
| **BTECS / WORKSKILLS** | **√** | Pass / Merit / Distinction / Fail |
| **A LEVELS / A2** |  | A-U |

**Internal Verification of Assignment Brief**

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| **IV Full Name** |  | **Signed** |  | **Date:** |  |
| **LIV Full Name** |  | **Signed** |  | **Date:** |  |



**BTEC Sample Material**

**Learner Consent Declaration**

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| **Centre No & Name** | **51330 – UTC Reading** | |
| **Subject & Level** | **BTEC National Subsidiary / Diploma / Extended Diploma in IT** | **3** |
| **Unit No & Title** | **Unit 18 – Database Design** | |
| **Learner No & Name** |  | |

I agree to the learner work identified above, after having been made anonymous, being used to support any of the following activities, which may involve the display of work online through the BTEC website or through publications:

* Professional Development and Training
* Centre Assessment Example Material
* Standardisation Support
* Publication Materials

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| **Assessor Signature** |  |
| **Name** (block capitals please) | Emmanuel Kayode Oladipo |
| **Job Title** | Director of Vocational Learning |
| **Date**: |  |

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| **Learner Signature** |  |
| **Name** (block capitals please) |  |
| **Parent/Guardian consent if under 16 years of age** |  |
| **Date**: |  |

Please ensure that this sheet is completed on submission of your assignment.

Please note that your assignment **MUST** have the following (unless otherwise stated):

1. Cover page
2. Table of Contents
3. Introduction
4. Conclusion
5. Bibliography & References

**SCENARIO**

Having applied for a job as Assistant Database Administrator with the prominent database provider ***UTC Db***, you are expected to have a detailed knowledge of relational databases. You have been asked, as part of your interview, to give a presentation detailing that knowledge. Your presentation must address how business information can be represented; pertinent information on key features, such as entities, keys and referential integrity, and data validation.

**TASK 1 Evidence you must produce for this task.**

You are required to write an in depth report that demonstrate your understanding of relational databases focusing on features of relational databases;

Features of a database

**(P1)** *Prepare a presentation (up to 10 slides) which explains:*

* *How business information can be represented using entities and attributes*
* *How entities can be related to each other using primary and foreign keys*
* *What is meant by referential integrity*
* *How data can be validated when entered into a database*
* *Provide examples*

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| **To achieve the criteria you must show that you are able to:** | **Unit** | **Criterion Reference** |
| *How business information can be represented using entities and attributes* | 18 | P1 |
| *How entities can be related to each other using primary and foreign keys* | 18 | P1 |
| *How data can be validated when entered into a database* | 18 | P1 |

**Task2:** Design, build and test a custom business application that supports a fast growing landscape gardening company called “Coastal Corners” as they move from a small business using spreadsheets between a few people to a larger company with many people all over the country using different devices and operating systems. Your design must take on board the clients’ requirements which must include the followings:

Generate customers’ invoice

access to the job information

Interactive frontend

Switch board/ Dash Board of the business for easy navigation

Search facility

Reporting on customers and jobs

Security of the database

Help facility

**Evidence you must produce for this task.**

You are required to design and document a relational database for a specified user need based on the traffic data provided below:

At least 3 drafts of your interface/frontend design, Report and query design

Backend design to include database structure and E-R diagrams, normalisation procedure

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| **To achieve the criteria you must show that you are able to:** | **Unit** | **Criterion Reference** |
| Design a relational database for a specified user need based on the traffic data provided   * Demonstrate normalization to 3NF based on the data provided and any assumptions made documented to meet the customer’s requirements * Produce an ERD * Produce data dictionary   Screen sketches of all front-end screens | 18 | P2 |

**TASK 3 Evidence you must produce for this task.**

**Referential integrity**

**(M1)** *Extend your presentation (up to 8 more slides) and explain:*

* *How referential integrity is set in a database*
* *What errors are detected when referential integrity is set*
* *How these errors can be corrected*
* *How data can be recovered from multiple tables by the use of the primary and foreign keys*
* *Provide examples*

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| **To achieve the criteria you must show that you are able to:** | **Unit** | **Criterion Reference** |
| *How referential integrity is set in a database* | 18 | M1 |
| *What errors are detected when referential integrity is set* | 18 | M1 |
| *How these errors can be corrected* | 18 | M1 |
| *How data can be recovered from multiple tables by the use of the primary and foreign keys* | 18 | M1 |
| *Provide examples* | 18 | M1 |

**TASK 4 Evidence you must produce for this task.**

**Potential errors**

**(D1)** *Extend your presentation (up to 8 more slides) to identify and explain:*

* *A range of common errors in database design and construction*
* *Discuss impact of errors*
* *How these errors can be avoided*
* *Provide examples*

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| **To achieve the criteria you must show that you are able to:** | **Unit** | **Criterion Reference** |
| *A range of common errors in database design and construction* | 18 | D1 |
| *Discuss impact of errors* | 18 | D1 |
| *How these errors can be avoided* | 18 | D1 |
| *Provide examples* | 18 | D1 |

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| Sources of information | Textbooks   * Hernandez M – Database Design for Mere Mortals: A Hands-on Guide to Relational Database Design, 2nd * Edition (Addison Wesley, 2003) ISBN 0201752840 * 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   **Website**  www.databasedev.co.uk |

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| **SUMMATIVE ASSESSMENT RECORD SHEET** | | | | | | |
| **Programme** |  | | **Learner Name** |  | **Assessor Name** |  |
| **Unit No. & Title** |  | | **Target Learning Aims** |  | **Issue Date** | Click here to enter a date. |
| **Assignment No & Title** |  | | | | **Final Submission Date** | Click here to enter a date. |
| **Target criteria** | **Criteria Achieved** | **Final Assessment Comments** | | | | |
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| **Summative comments** | | | |
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| **Assessors declaration** | | | |
| I certify that the evidence submitted for this assignment is the student's own and the learner will be able to provide improved evidence without guidance. I understand that any false declaration is a form of malpractice. | | | |
| **Resubmission authorisation\*** |  | **Resubmission Date:** | Click here to enter a date. |
| \* All resubmissions must be authorised. Only 1 resubmission is possible per assignment. | | | |
| **Assessor Signature** |  | **Date:** | 24 January 2017 |
| **Learner comments** |  | | |
| **Learner Signature** |  | **Date:** |  |