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| erc_intranet_logo_09a  Receipt No:  **Assessment Details**  **Unit:** Data Analysis and Database Design  **Course & Level:** Foundation Degree in Computing (FdSc), Level 5  **Assignment No: 3 of 3** (Implementation - 35% of final)  **Form of Assignment:** Product**/**Written  **Unit Coordinator:** Ellen Smuts  **Deadline: Thursday 19th June 2020** | | |
| **Task Details**  **Task 1: Design Implementation (70%)**  **Task 2: Database Management (10%)**  **Task 3: Testing (20%)** | | **Checklist** |
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| **Date of Issue:**  **Thursday 26th March 2020** | **Student No:** | **Mark:** |
| **Submission Date:**  **Thursday 19th June 2020**  **Deadline Met? Yes No** | **Staff Signature:** | |
| BY SUBMITTING THIS WORK I CERTIFY THAT THIS ASSIGNMENT IS MY OWN WORK, WHERE MATERIAL HAS BEEN USED FROM OTHER SOURCES IT HAS BEEN PROPERLY ACKNOWLEDGED | | |

**Introduction:**

This assignment involves the implementation of a database suitable to support the day to day activities of an organisation. You will need to present the working database you have implemented and the presentation must include the accurate use of complex Queries SQL, forms, reports and testing of database. Your presentation must also include: an explanation of role of database administrator and database management issues and testing strategies.

Scenario

*Wheels for Hire,* a store specialising in the rental of mobile home sand touring vans, is owned and managed by Henry Bentley. The business has been run, on a manual system, unchanged since 1978. Unfortunately Henry is more of a cycling enthusiast than a businessman and now the business is in need of a serious overhaul.

The core business is mobile homes and touring vans to people – who have to register with the rental shop and pay a rental charge plus a damage deposit which will be refunded if the equipment is returned undamaged.

Over the years various camping / mobile home related products have been introduced for sale e.g. picnic equipment, gas stoves etc.

Customers can either walk in or phone in to hire / book the mobile homes and touring vans when required. A rental charge of £40 per day/£240 per week for mobile home is made and £30 per day/£180 per week for a touring van. A refundable deposit of £450 per vehicle is taken as insurance against damaged returns. Henry has 6 Mobile homes and 10 touring vans. All merchandise is paid for when bought.

Henry has heard of the Holy Grail of business systems, the relational database, and would like to give one a whirl; this will hopefully enable him to manage the business more efficiently.

The system should be able to support him in the day to day running of the business. You have been commissioned by a software house to develop this system using an RDBMS on any Windows based PC.

In-order to help with the daily administration of the rental Henry requires the following basic functionality:

* Input details of customers and their rental deals
* input details of merchandise, and monitor stock levels
* allow ad-hoc queries, the following are *examples* only:
  + Customers details
  + Merchandise sales
  + Stock level of hire vehicles
  + Ordering and purchase of new equipment
  + Outstanding fees – missed payments

**Tasks**

1. Implement your logical data design from the previous assignment using *any RDMS* you feel confident with.

Use an appropriate number of records (at least 20) to fully test all aspects of the system. The working database **must** include the following:

Forms

* A Data Entry System for your database, with which you should enter sample test data. As a minimum this must include a form for each of your relations but better grades will be gained for data entry forms that match the way the database will be used.

Queries

* Queries (at least two) that require data from a single table.
* Queries (at least two) that require data from more than one table.
* At least one query requiring data from more than two tables.
* Provide the SQL code for the above queries
* The results of the queries must be displayed in a report.

Reports

* A Reporting System for your database

Prescience

Present your thoughts on managing this Database

In the role of DBA of the database system you have created, report on the Database management issues you will have to deal with, and comment on how your Data Design and Access Implementation can contribute to the management of these issues. Where possible give specific examples.

1. Compare and contrast the two testing strategies, *Black Box* and *White Box* testing. Select one and thoroughly test your database for reliability and consistency (include data that will be rejected).

**Note:**

The scenario is fairly comprehensive but is incomplete; therefore you must state all assumptions that have been made. The database should be designed to allow for a range of complex queries to be performed, efficiently.

Use where applicable/necessary

* Use of subforms to display one-to-many relationships
* Drop-down lists
* Required fields
* Default values – be aware when fields are given any type of numerical data type it always defaults to zero
* Input masks
* Calculated fields
* User-friendly messages if invalid data entered or required data missing

**Assessment:**

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|  | **(80%+)** | **(70%+)** | **(60-69%)** | **(50-59%)** | **(40-49%)** | **(≤39%)** | **(≤20%)** |
| **Implementation**  Practical presentation demonstrating the implementation of the database designed | Outstanding implementation of database. Working database with no errors .Data input validation; input masks should be seen in the implemented design. | Excellent implementation of database. Working database with no errors .Data input validation; input masks should be seen in the implemented design. | Good implementation of database. Working database with no errors .Data input validation; input masks should be seen in the implemented design. | Average implementation of database. Working database with no errors .Data input validation; input masks should be seen in the implemented design. | Adequate implementation of database . Working database with less errors .Data input validation; input masks should be seen in the implemented design... | Poor implementation of database. Working database with errors .Database with no input or data validation | Failure to Implement Database or workable database with fewer functionality |
| **Development Process**  Demonstrate by presentation the accurate use of complex Queries SQL, forms, reports and testing of database. | Excellent use of complex SQL queries, form design and reports. Use of test data to test the database. | Good use of complex SQL queries (queries used from more than two tables), form design and reports. Use of test data to test the database. | Fairly good use of complex SQL queries, (queries used for two tables) form design and reports. Use of test data to test the database | Average use of complex SQL queries, form design and reports. Use of test data to test the database | Satisfactory use of complex SQL queries, form design and reports. Use of test data to test the database | Unsatisfactory use of complex SQL queries, form design and reports. Use of test data to test the database. | Very poor use of complex SQL queries, form design and reports. Use of test data to test the database. |
| **Presentation**  Explanation of role of database administrator and database management issues and testing strategies | Outstanding explanation of testing strategies, database administrator role and database management issues. | Excellent explanation of testing strategies, database administrator role and database management issues. | Good explanation of testing strategies, database administrator role and database management issues. | Average explanation of testing strategies, database administrator role and database management issues. | Satisfactory explanation of testing strategies, database administrator role and database management issues... | Poor explanation of testing strategies, database administrator role and database management issues. | Little or no explanation of testing strategies, database administrator role and database management issues. |