Title	A01 Term Assignment - Database Logical Design
Purpose	To design and implement a database suitable for supporting an online real estate agent.
References	All course notes and MySQL Manual
Method:	Follow the database logical design process as described in lecture notes.
Expected Outcome	A fully documented logical database design, implemented in MySQL. A database containing test data in all tables. A set of example SQL and stored procedures to test the DB design.
Instructions	You have been asked to design a database suitable for a hotel called 'SD Arms' **All work must be your own. Do not share your design with others** **YOU MUST ATTEND LAB AT REGULAR CLASS TIME ON DECEMBER 9th AND 10th 2020 TO DEMONSTRATE YOUR DELIVERED SOLUTION – FAILURE TO ATTEND WILL RESULT IN REDUCTION IN GRADE**
Business Analysis:	SD Arms wishes to establish a database in order to support • A web-based application for customer use (eg bookings etc). • A desktop application – for hotel staff use (eg making room or restaurant table reservations, adding items to customer bills etc) The web-based application will support the following features as a minimum: • Customers may register using an email address as their personal ID along with other details. • Customers may securely login and log out • Customers may search for available rooms various criteria – eg room type, facilities etc. • Customers may make reservations for selected available rooms. • Customers may cancel reservations. • Customers may view their current bill. (for room occupancy and bar/restaurant) The desktop-based application will support the following features as a minimum: • Restaurant staff can add items to resident customer's bills when ordered in the restaurant • Bar staff can add items to resident customer's bills when ordered in the bar • Reception staff can view customer's bills, accept payments etc.

	Business Rules The following rules have been established relating to the business. This is not an exhaustive list - you will have to use your own judgement to expand on it : • Guests make room reservations via the SD Arms website • Each room reservation is identified by a unique number. • Twin rooms sleep 1 or 2 people in single beds • Double rooms have a double and single bed, sleep maximum of 3. • Family rooms sleep two adults and 2 children. A baby cot may also be reserved. (the hotel owns 4) • This is a room rate hotel – fixed price per night 125 per family room, 100 per double room and 89 per twin room. • Guests provide a credit card number when making a reservation. All charges (room/restaurant etc) are made using the reservation number. • Each room reservation has a unique number/code. A reservation will consist of a list of guest(s), room(s) and from/to dates • The Arms Restaurant may be booked by guests and the general public by phoning reception. Tables are numbered and can be combined to accommodate larger groups. • The Arms Restaurant normally accommodates 2 'sittings' – an 'Early Bird' (5pm – 7pm) and Evening Dinner (8pm-11pm) • The Arms Grill does not take reservations • Guests may charge restaurant and bar charges to their room reservation. • All charges are totalled on checkout to the customer's credit card account. • Room numbers are in the form 3 digits formulated by the floor number plus two other digits. (eg the rooms on 1st floor are numbered 101,102…..109 and on the second 201,202…209 etc)
Test Data:	**Create your own test data to test your database design**. All tables should contain at least 10 records except for 'lookup tables'. Lookup tables such as room types should contain a reasonable selection of records to enable testing of the DB design. You will need to use your own judgement and common sense to complete this assignment. It would be worth exploring some hotel websites to see the kind of data that this database should contain.
Tasks:	1. Work alone 2. Design a database which will support the business described above. Use MySQL Workbench as your design tool to create the EER model. 3. Use your judgement to decide what data attributes are necessary in each table in the database. 4. Draw a FD diagram for each proposed table and hence show conformance to 3rd normal form. Split the tables if necessary. Show any table splitting work if required. 5. Implement the database in MySQL as K00999999_SD_ARMS (using your ID number instead of K00999999. 6. SQL STORED PROCEDURE EXAMPLES – Write some sample (at least 5) SQL queries to prove your DB Design:- for example: o To register a new user o To view room details by type

	○ To view rooms available on a specific date ○ To verify customer login details ○ To book a room/make a reservation for a specific date or set of dates. Note that all stored procedures must contain appropriate logic checks before data is committed to storage. For example a new user can not be added if one already exists with that user ID (email) or a bid cannot be accepted if there is already a greater bid on that property. 7. Create a backup the database.- Backup must include - Structure, Data and sample Queries
Deliverable:	In a WORD document provide: • Your name and ID • The WORD Document should contain the following sections: 1.0 EER MODEL • Screen shot of the EER diagram • Explanation of the purpose of EACH table and each table's attributes. 2.0 NORMALISATION • FD diagram of each table showing conformance to 3NF 3.0 RELATIONAL NOTATION • A relational notation description of the K00999999_SD_Arms database. 4.0 IMPLEMENTATION AND TEST • Test Data Used in each Table • Copies of each stored procedure and examples of each procedure call and result. Upload 3 files to Moodle ** NOTE DO NOT ZIP ***: • Upload the WORD document • Upload the Workbench EER model • Upload a self contained full MySQL backup (data,structure & stored procedures) of your final database
Grade Value:	This assignment is graded with a weighting of 50% of Module Grade
NOTE	**All work must be your own. Do not share your design with others**