**DBAS 1001**

**Introduction to Database Management**

**Assignment # 4**

**\*\*NOTE FOR FALL SEMESTER 2015 DBAS 1001, THE SCOPE OF THE “YOUR WORK” SECTION IS #1, 2, 4, 6\*\***

**Background:**

**Creating a Database in MS Access using the Table Design Wizard and Relationship View** –

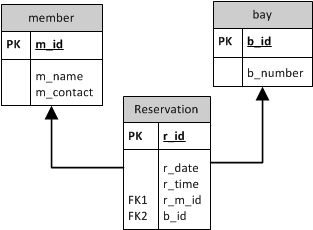
* Create the database file
  + Start MS Access
  + Select “create a blank database”
  + Set the save path, including filename.accdb
  + Use the “Create” button
  + Shut down the default “table1” table view
* Create the database tables
  + Navigate to the “Create” tab
  + Select the table design wizard
  + Enter the fieldnames, including datatypes and notes
  + Nominate the PK field by right clicking the grey area to the left of the PK fieldname and selecting the Primary Key symbol
  + Close the table design view
  + Respond “OK” to the table Save prompt dialog box
  + Supply a table name to the table name dialog box
* Create the referential integrity relationships
  + Navigate to the “Database Tools” tab
  + Select the Relationship View
  + Import the created tables to the Relationship View with the “Show Table” dialog box
  + Left click and drag the Primary Key fieldname from the parent table, drop it onto the Foreign Key fieldname in the child table
  + In the “Edit Relationship” dialog box, ensure the fieldnames are correct, then select the checkbox for “Enforce Referential Integrity”
  + Select the “Create” key

**Creating a Database in MS Access using CREATE queries –**

* Create the database file
  + Start MS Access
  + Select “create a blank database”
  + Set the save path, including filename.accdb
  + Use the “Create” button
  + Shut down the default “table1” table view
* Design the CREATE queries
  + Navigate to the “Create” tab
  + Select the Query Design wizard
  + Shut down the “Show Tables” dialog
  + Switch to the **SQL** view
  + Code the CREATE statement
  + Close the Query Design view
  + Respond “OK” to the Query Save prompt dialog box
  + Supply a query name to the Query name dialog box
* Run the CREATE queries
  + Double click on the query name in the Object Navigator
  + Respond “OK” to the “you are about to run a data definition query” dialog box

**CREATE TABLE statement in MS Access SQL compliant syntax-**

Using this ERD as an example,



here are the CREATE statements that, individually saved as queries, would create the above as three database tables:

CREATE TABLE member (

m\_id INTEGER,

m\_name TEXT,

m\_contact TEXT,

CONSTRAINT member\_m\_id\_PK PRIMARY KEY (m\_id)

);

CREATE TABLE bay (

b\_id INTEGER,

b\_name TEXT,

CONSTRAINT bay\_b\_id\_PK PRIMARY KEY (b\_id)

);

CREATE TABLE reservation (

r\_id INTEGER,

r\_date DATE,

r\_time DATE,

r\_m\_id INTEGER,

r\_b\_id INTEGER,

CONSTRAINT reservation\_r\_id\_PK PRIMARY KEY (r\_id),

CONSTRAINT reservation\_r\_m\_id\_FK FOREIGN KEY (r\_m\_id)

REFERENCES member (m\_id),

CONSTRAINT reservation\_r\_b\_id\_FK FOREIGN KEY (r\_b\_id)

REFERENCES bay (b\_id),

);

**A Testing Plan for Database Creation**

The test cases included in your testing plan must check the limits of every object and method included in your database design, for example, are all of the tables present, are all of the fields present, are PK and FK constraints in place and working. Following is an example of a testing plan comprehensive enough to verify the creation of a database that meets the specifications of the ERD and Data Dictionary included in this assignment.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Iteration # | Test | Expected | Actual | Action Required |
|  | Double-click the .accdb file from the desktop | The Access database opens |  |  |
|  | Open the Access Relationship View | The Relationship View matches the supplied ERD |  |  |
|  | INSERT a valid row to a parent table | INSERTed row viewable from the table view |  |  |
|  | INSERT a row with a duplicate PRIMARY KEY value to a parent table | Data Integrity Error |  |  |
|  | INSERT a valid row to a child table | INSERTed row viewable from the table view |  |  |
|  | INSERT a row containing non pre-existing parent key values to a child table | Referential Integrity Error |  |  |

**Creating a Connection in Oracle SQL Developer:**

* Start->run SQL Developer
* The left hand side of the IDE is the connection navigator. To make a new one, click the green plus sign
* The edit connection dialog comes up.
* Enter a name for the new connection
* Enter a valid database username/password for the new connection
* Accept the default “default” connection role through basic connection
* Use TCP via port 1521 (defaults)
* Connect to the SID called XE
* Test the connection and save it.

**The DESCRIBE statement:**

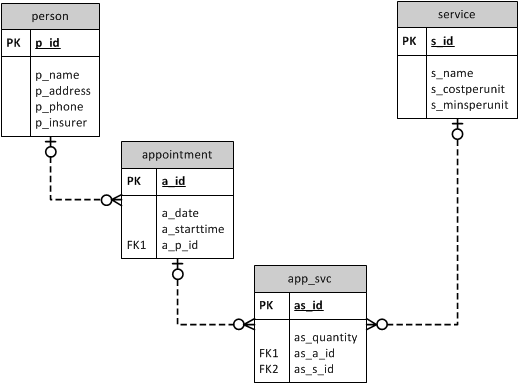
* An SQL+ command that gives the field names, datatypes, and presence/absence of a NOT NULL constraint of the named table.
* There is no semicolon execution symbol at the end as it is not SQL – it is actually a proprietary environment command unique to Oracle programming platforms.
* Usage example:

SQL> DESCRIBE member

**Your Work:**

1. Use the MS Access 2010 Table Design Wizard and Relationship View to create a database that meets the specifications of the supplied ERD and data dictionary.
2. Use MS Access 2010 CREATE TABLE SQL queries to create a second database that also meets the supplied specifications.
3. Use Oracle SQL Developer to make a client-server connection to the Oracle 10G XE database instance on your DBAS 1001 VMWare image. Use SQL Developer to code a .SQL script that will create database tables based on the supplied ERD and Data Dictionary.
4. Live demo how database # 1 and database # 2 meet the specs by carrying out the sample test plan above, referencing the supplied ERD.
5. Live demo the execution of the database creation script from # 3 above. Use the DESCRIBE statement in SQL Developer to demonstrate the structure of the CREATEd tables from # 3 above.
6. As supporting documentation, at the start of your demo session, supply a memo with the following contents:
   1. Existing System: Describe in one sentence the system supported by the supplied ERD and Data Dictionary;
   2. Statement of Requirement: The “Your Work” section from this assignment;
   3. Analysis: Supply, appropriately labeled, the ERD, the Data Dictionary, a screen shot of database # 1’s Relationship View with the Object Navigator visible, screen shots of the contents of the three CREATE queries from Database # 2 with the Object navigator visible, the database creation script from # 3 above, and the testing plan; and
   4. Recommendation: Recommend supply of the demos as satisfaction of the stated requirement.

**The supplied ERD and Data Dictionary:**



|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Object Name | Object Type | Datatype | Methods | Notes |
| person | table | N/A | PK | The scenario dictates a need to track information on persons. Persons must be uniquely identified. |
| p\_id | field | INTEGER | PK | Required to uniquely identify persons. |
| p\_name | field | VARCHAR2(20) |  | The client requires tracking of persons names. The length spec for the field is 20 to accommodate typical names. |
| p\_address | field | VARCHAR2(40) |  | Address required for billing purposes. Length spec based on average. |
| p\_phone | field | CHAR(10) |  | Phone required. Fixed 10 to accommodate area code and prevent math. |
| appointment | table | N/A | PK,FK | Stores info re patient appointments. They must be uniquely identifiable. |
| a\_id | field | INTEGER |  | Required to uniquely identify appointments |
| a\_date | field | DATE |  | The date of the dental appointment with a patient. Date information will include day. month and year (MM/DD/YYYY) |
| a\_starttime | field | DATE |  | The starting time of a patient appointment must be recorded. Date information will include hours and minutes (HH:MM) |
| a\_p\_id | field | INTEGER | FK |  |
| service | table | N/A | PK | Scenario requires tracking of the services offered at the clinic. Unique identification required. |
| s\_id | field | INTEGER | PK | surrogate key to uniquely identify a service. |
| s\_name | field | VARCHAR2(10) |  | The name of the service. Length spec based on average. |
| s\_costperunit | field | INTEGER |  | The dollar cost of one unit of the service. |
| s\_minsperunit | field | INTEGER |  | The minutes, in fifteen minute increments, to perform one unit of the service. |
| app\_svc | table | N/A | PK, FK | The scenario requires tracking of the services provided during appointments. An app\_svc record must be unique and must refer to an existing appointment and an existing service. |
| as\_id | field | INTEGER | PK | Required to uniquely identify app\_svc records. |
| as\_quantity | field | INTEGER |  | The number of units of the service provided during the appointment |
| as\_a\_id | field | INTEGER | FK | A field is required to uniquely identify which appointment(a\_id) is connected to this app\_svc(as\_id). INTEGER datatype to match appointment(a\_id). |
| as\_s\_id | field | INTEGER | FK | A field is required to uniquely identify which service(s\_id) is connected to this app\_svc(as\_id). INTEGER datatype to match service(s\_id). |

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ASSIGNMENT FOUR MARKING RUBRIC

|  |  |  |  |
| --- | --- | --- | --- |
| MARKING POINTS | 0 | 1 | 2 |
| Memo Format | Not used | incomplete | Complete |
| Professionalism | Illegible spelling; poor paragraph structure; poor grammar: affecting user acceptance of the finished work | Errors exist that do not affect user acceptance of finished work | Finished work has a level of professionalism acceptable to standards as negotiated with the client or his/her representative |
| Existing system details | Not present | incomplete | As applicable, enough details regarding existing system to form conclusions regarding requirements |
| Requirements | Not stated | Incomplete or inaccurate | Clear, measurable requirements for deliverables, including stage of development required i.e. design, prototype, implementation, testing |
|  | 0 | 1..11 | 12 |
| Analysis | Not present | Incomplete or inaccurate | All required elements present, in order, correctly labeled |
|  | 0 | 1..19 | 20 |
| Recommendation | Not present | -1 point for each omission from the specs and -5 points for not matching analysis | Demo includes all elements of the test plan for each of database #1 and #2, the script execution and DESCRIBE statements for database #3 |
| Totals | 0 | 1..39 | 40 |