

DATABASE REPORT

by Said Ahmed

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REPORT ON DATABASE FOR LOCAL DENTAL AND ORTHODONTIC SURGERY

ASSIGNMENT 1

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1 INTRODUCTION

The aim of this report is to represent and create systems with specifications and use correctly in the development of a database plan model for The Smile Factory deal with a local dental and orthodontic surgery also to create a database solution that includes problem solving techniques for the creation of a prototype application.

2 INITIAL DESIGNS

For the aim of assignment that should be completed by successful creating tables, to use and show appropriate relationships among tables, table should be with suitable data, good forms design created, good reports created, appropriate menus created with the produced query from a single table. So this database included nine forms, eight tables, three queries and four macros.

2.1 FORMS

The following forms created in this database:

- Appointment
- Dentist
- Nurse
- Dental Hygienists
- Patient
- Treatment
- Invoice
- Patient information
- Menu

Below is the screen shot with the entity for the input data of the database design for the Smile factory surgery

THE SMILE FACTORY DATABASE

FORMS

Appointment

Dental_Hygienists

Dentist

Invoice

Nurse

Patient

Treatment

Patient Information

REPORTS

Appointment Availability

Invoice Bill

Patient Treatment History

MACROS

Appointment Availability

Invoice Bill

Patient Treatment history

Appointment Form

QUERIES

Appointment Availability

Invoice Bill

Patient Treatment History

Close Menu

Appointment

Close Form

Appointment_ID

AP1

Appointment_Time

09:30 AM

Appointment_Date

14/05/2018

Patient_ID

3

Dentist_ID

A1

Dental_Hygienists_ID

B1

Nurse_ID

04

Navigation icons

Delete

Add

Print icon

Dental_Hygienists

Close Form

Dental_Hygienist_ID

B1

Dental_Hygienists_First_Name

Roberto

Dental_Hygienists_Last_Name

Firmno

Dental_Hygienists_Address

456 New street, Cardiff

Dental_Hygienists_Postcode

CF11 1BZ

Dental_Hygienists_ShiftWork

Morning

Dental_Hygienists_Surgeries_Time

09:00 AM

Dental_Hygienists_Surgeries_Date

14/05/2018

Dental_Hygienists_Contact

07543 67894

Navigation icons

Delete

Add

Print icon

Dentist

Close Form

Dentist_ID

A1

Dentist_First_Name

Nick

Dentist_Last_Name

Gerrard

Dentist_Address

98 Westside street, Cardiff

Dentist_Postcode

CF34 9UK

Dentist_ShiftWork

Morning

Dentist_Time

09:00 AM

Dentist_Surgeries_Date

14/05/2018

Dentist_Contact

07895 896768

Navigation icons

Delete

Add

Print icon

Invoice

Close Form

Invoice_ID

PAY1

Patient_Bill

£80.45

Patient_ID

2

Navigation icons

Delete

Add

Print icon

Nurse

Close Form

Nurse_ID
Nurse_First_Name
Nurse_Last_Name
Nurse_Address
Nurse_Postcode
Nurse_ShiftWork
Nurse_Surgeries_Time
Nurse_Surgeries_Date
Nurse_Contact

01
Emy
Marco
346 Good street, Newport
NF15 4ER
Morning
09:00 AM
18/05/2018
07895 564389

Delete
Add

Patient

Close Form

Patient_ID
Patient_First_Name
Patient_Last_Name
Patient_DOB
Patient_Gender
Patient_Address
Patient_Postcode
Patient_Class
Patient_Contact_Number

John
Paul
01/06/2015
Male
1 Line street,Cardiff
CF24 3LA
NHS
07564 223456

Delete
Add

Treatment

Close Form

Treatment_ID
Treatment_Type

Braces

Delete
Add

Patient_Information

Close Form

Patient_ID
Invoice_ID
Date_of_Bill_Date
Date_of_Bill_Time
Appointment_ID
Treatment_ID

PAY2
10/05/2018
12:00 PM
AP2
T3

Delete
Add

2.2 TABLES

The created table lists are below:

- Appointment
- Dentist
- Invoice
- Nurse
- Patient
- Treatment

- Dental Hygienists
- Patient Information

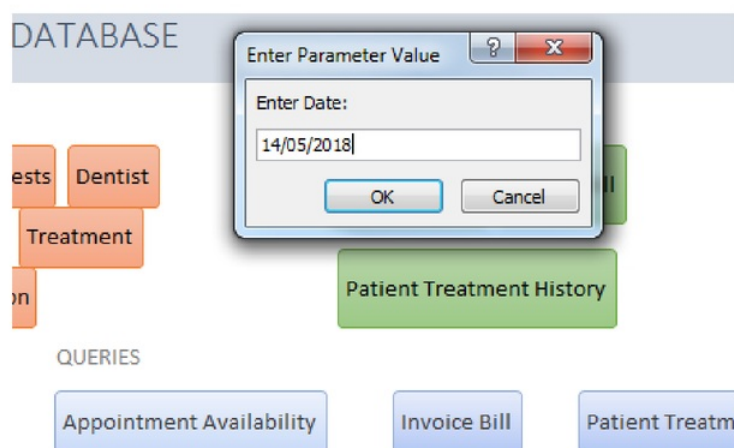
Tables

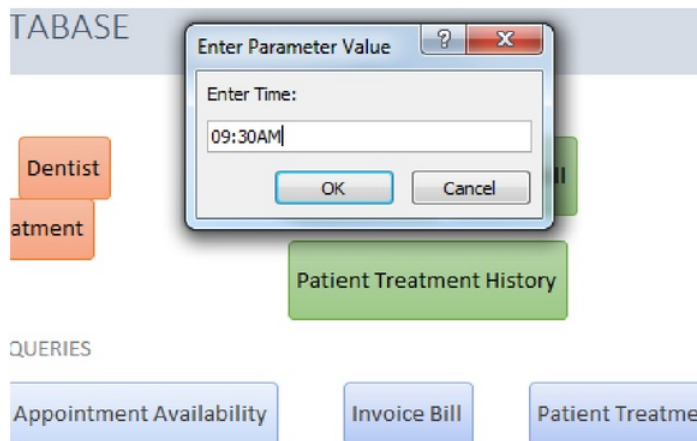
-  Appointment
-  Dental_Hygie...
-  Dentist
-  Invoice
-  Nurse
-  Patient
-  Patient_Infor...
-  Treatment

2.3 QUERIES

For the queries the database consists the following:

- Appointment Availability
- Invoice bill
- Patient Treatment History





When open queries for the Appointment availability it will appear small box need to enter a parameter value with the enter date than another box with the enter time.

The below table will show the queries crated

Appointment	Appointment	Appointment	Dentist_ID	Dental_Hygi	Nurse_ID
AP1	09:30 AM	14/05/2018	A1	B1	04
AP5	03:00 PM	14/05/2018	A4	B2	06
*					

2.4 MACROS

That automatically expand the particular information or link, some of macros created are:

- Appointment macros for the form
- Open Appointment from report
- Open Invoice bill from report
- Open Patient Treatment also from report

Appointment Availability					
11 May 2018					
05:52:51					
Appointment_ID	Appointment_Time	Appointment_Date	Dentist_ID	Dental_Hygienists_ID	Nurse_ID
AP1	09:30 AM	14/05/2018	A1	B1	04
AP5	03:00 PM	14/05/2018	A4	B2	06
2					

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Also for the Micro the procedure to open it will be the same as the queries, that above is opened from a report.

2.5 REPORT

This use to show and summarize information created and inputted, has three reports created:

- Appointment Availability
- Invoice bill
- Patient treatment history

Appointment Availability					
11 May 2018					
05:55:37					
Appointment_ID	Appointment_Time	Appointment_Date	Dentist_ID	Dental_Hygienists_ID	Nurse_ID
AP1	09:30 AM	14/05/2018	A1	B1	04
AP5	03:00 PM	14/05/2018	A4	B2	06
2					

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Also in a report will be similar step to open, showed up the date box and time box first.

3 USE OF SQL

Structure Query Languages is an identical coding language that for dealing interactive database also carrying out various operations on the data. SQL is frequently used by the person who manages and run database together with the developer script data in a script and data analysts that looking to set up and run analytical query. For this database that will be create relationships using SQL, add

records to tables using SQL, produce report from a query and create relationship key using SQL [1]

Below is the SQL code queries used to create each table in this database:

■■■■■ APPOINTMENT DESIGN VIEW

```
Create table Appointment (Appointment_ID Text(15) constraint Appointment_ID_pk primary key,  
  
Appointment_Time Text(15),  
  
Appointment_Date Date,  
  
Patient_ID Text(15),  
  
Dentist_ID Text(15),  
  
Dental_Hygienists_ID Text(16),  
  
Nurse_ID Text(15),  
  
CONSTRAINT ax_fk FOREIGN KEY (Patient_ID) REFERENCES Patient (Patient_ID),  
  
CONSTRAINT bx_fk FOREIGN KEY (Dentist_ID) REFERENCES Dentist (Dentist_ID),  
  
CONSTRAINT cx_fk FOREIGN KEY (Dental_Hygienists_ID) REFERENCES Dental_Hygienists  
(Dental_Hygienist_ID),  
  
CONSTRAINT dx_fk FOREIGN KEY (Nurse_ID) REFERENCES Nurse(Nurse_ID));
```

■■■■■ DENTAL HYGIENISTS DESIGN VIEW

```
Create table Dental_Hygienists(  
  
Dental_Hygienist_ID Text(16) Constraint Dental_Hygienists_ID_pk primary key,  
  
Dental_Hygienists_First_Name Text(15),  
  
Dental_Hygienists_Last_Name Text(15),  
  
Dental_Hygienists_Address Text(50),  
  
Dental_Hygienists_Postcode Text(15),  
  
Dental_Hygienists_ShiftWork Text(15),  
  
Dental_Hygienists_Surgeries_Time Text(20),  
  
Dental_Hygienists_Surgeries_Date Date,  
  
Dental_Hygienists_Contact Text(25));
```

██████ DENTIST DESIGN VIEW

```
Create table Dentist (Dentist_ID Text(15) constraint Dentist_ID_pk primary key,  
  
Dentist_First_Name Text(15),  
  
Dentist_Last_Name Text (15),  
  
Dentist_Address Text(50),  
  
Dentist_Postcode Text(15),  
  
Dentist_ShiftWork Text(15),  
  
Dentist_Time Text(15),  
  
Dentist_Surgeries_Date Date,  
  
Dentist_Contact Text(25));
```

██████ INVOICE DESIGN VIEW

```
CREATE TABLE Invoice (Invoice_ID TEXT(10) CONSTRAINT Invoice_ID_pk PRIMARY KEY,  
  
Patient_Bill Float,  
  
Patient_ID TEXT(15) CONSTRAINT fk_Patient_ID REFERENCES Patient  
(Patient_ID));
```

██████ NURSE DESIGN VIEW

```
Create table Nurse (Nurse_ID Text(15) constraint Nurse_ID_pk primary key,  
  
Nurse_First_Name Text(15),  
  
Nurse_Last_Name Text (15),  
  
Nurse_Address Text(50),  
  
Nurse_Postcode Text(15),  
  
Nurse_ShiftWork Text(15),  
  
Nurse_Surgeries_Time Text(20),  
  
Nurse_Surgeries_Date Date,  
  
Nurse_Contact Text(25));
```

██████ PATIENT INFORMATION DESIGN VIEW

```
CREATE TABLE Patient_Information(
```

```

Patient_ID TEXT(15),
Invoice_ID TEXT(15),
Date_of_Bill_Date Date,
Date_of_Bill_Time TEXT(15),
Appointment_ID TEXT(15),
Treatment_ID TEXT(15),
CONSTRAINT ez_pk PRIMARY KEY (Patient_ID, Invoice_ID, Appointment_ID, Treatment_ID),
CONSTRAINT fz_fk FOREIGN KEY (Patient_ID) REFERENCES Patient (Patient_ID),
CONSTRAINT gz_fk FOREIGN KEY (Invoice_ID) REFERENCES Invoice (Invoice_ID),
CONSTRAINT hz_fk FOREIGN KEY (Appointment_ID) REFERENCES Appointment
(Appointment_ID),
CONSTRAINT iz_fk FOREIGN KEY (Treatment_ID) REFERENCES Treatment (Treatment_ID));

```

PATIENT DESIGN VIEW

```

Create Table Patient(
Patient_ID Text(20) constraint Patient_ID_pk primary key,
Patient_First_Name Text(15),
Patient_Last_Name Text(15),
Patient_DOB Date,
Patient_Gender Text(15),
Patient_Address Text(50),
Patient_Postcode Text(15),
Patient_Class Text(15),
Patient_Contact_Number Text(15));

```

TREATMENT DESIGN VIEW

```

Create Table Treatment(Treatment_ID Text(15) Constraint Treatment_ID_pk primary key,
Treatment_Type TEXT(50));

```

4 CALCULATION ON REPORT

Microsoft access actually does a good report calculation for the database crated as long the good design system followed. As can see this report calculations,

Invoice Bill					
11 May 2018					
06:43:01					
Patient_ID	Patient_Information	Invoice_ID	Date_of_Bill_Date	Date_of_Bill_Time	Invoice.Invoice_ID
1	PAY2		10/05/2018	12:00 PM	PAY2
1	PAY3		12/05/2018	04:30 PM	PAY3
					£220.00

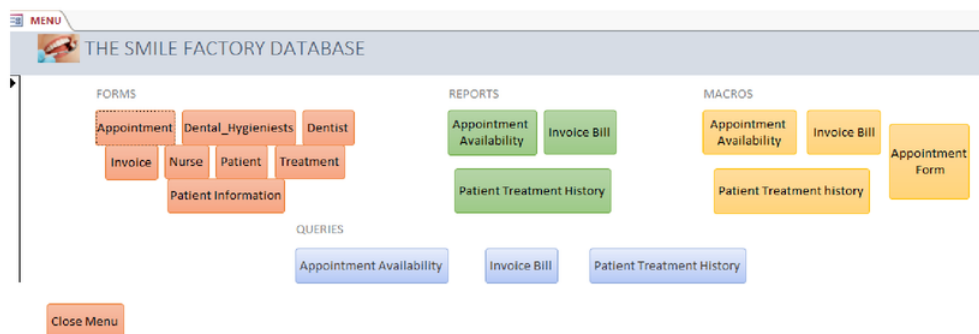
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5 USER DOCUMENTATION FOR THE DATABASE

For this Database the user should follow the program step by step in order can operate well in a good function and should give the ability to the user to delete and add data from different table, should able to view a patient appointments and changes it, also should has to query the system and be able to print out the reports.

The following is the step by step on how the user can operate this database:

- Click the icon of The Smile Factory Database SQL
- After the database open it will take the user straight to the main menu

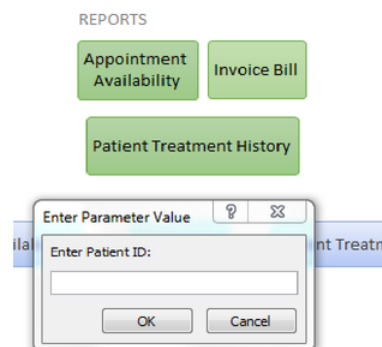


- The main menu will give the user many option to choose, either if want to open a forms, reports, macros, queries or close the menu and quit the database.
- The user can choose any link an click on it, that will take straight to the part want to see, as we can see below the Patient form

- For this database form it gives the user option either to go next  or go previous data 
- If want to put a data and add should click add icon  and save it by this icon 
- Or else want to delete the data should click this icon 
- Give option to print the form and have with a hard copy by click the printer button at the top of the form 
- Otherwise finished all the need to perform can click the close form icon  and can take straight to the main menu.

The above steps only for a Form, if need to perform a report so the following steps is good to follow

- On a main Menu click Invoice bill report, then the following small box will showed up for the entering parameter value



- The box will ask to enter Patient ID, after enter click ok
- It will take through the report, for this one the Patient id number one is entered, it showed the data for Patient Id 1

Invoice Bill					
11 May 2018					
08:29:39					
Patient_ID	Patient_Information.Invoice_ID	Date_of_Bill_Date	Date_of_Bill_Time	Invoice.Invoice_ID	Patient_Bill
1	PAY2	10/05/2018	12:00 PM	PAY2	£100.00
1	PAY3	12/05/2018	04:30 PM	PAY3	£120.00
					£220.00

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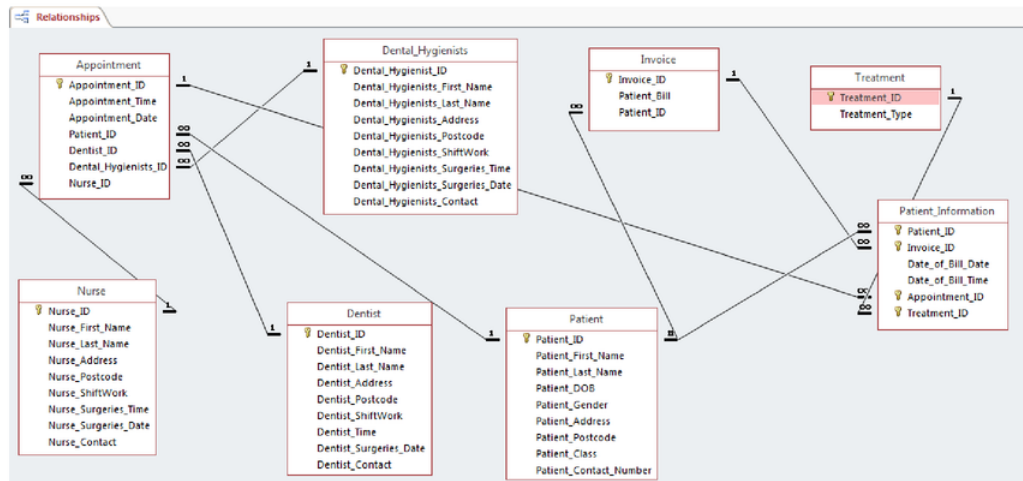
So can see how many pay the Patient did, when and what time also the total bill Patient paid for the services.

For the queries, can go through the same steps open a report but must choose a query first and no other link. When the query open it will display the exactly data created for the meaningful of database, as showed below but doesn't show a total calculation like when showed on a report

Patient_ID	Patient_Info	Date_of_Bill_Date	Date_of_Bil	Invoice.Invoice_ID	Patient_Bill
1	PAY2	10/05/2018	12:00 PM	PAY2	£100.00
1	PAY3	12/05/2018	04:30 PM	PAY3	£120.00

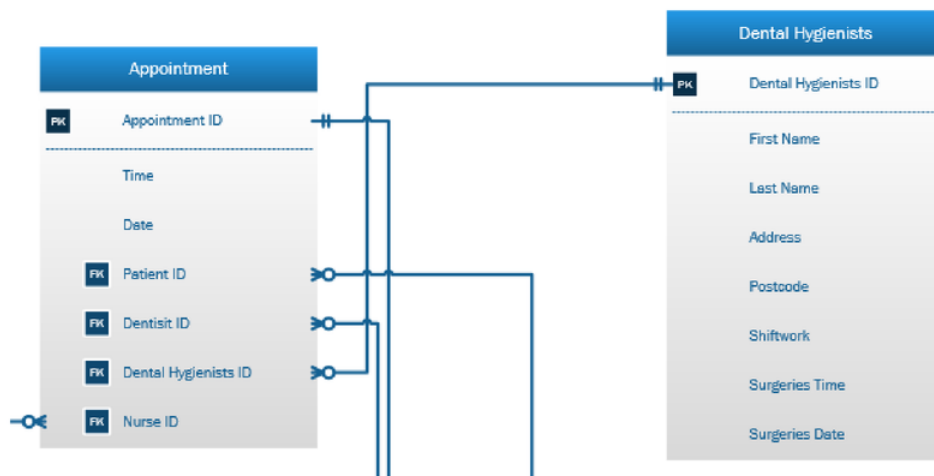
7 DATABASE RELATIONSHIPS

The relationships from this database worked fine and were connect perfect for each table according of its primary key and foreign key attributes. Most of them were zero to many and one and only one relationships. The screen shot below for the relationships

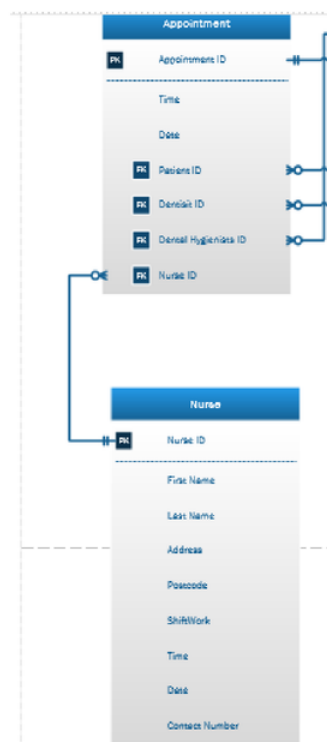


8 ENTITY RELATIONSHIP DIAGRAM

An entity relationship diagram (ERD) displays the relationships of entity groups that stored in a database or can say entity relationship diagram is show the logical structure of databases. [2]. The following are the explanation ERD documentation for the Smile factory that done on Visio

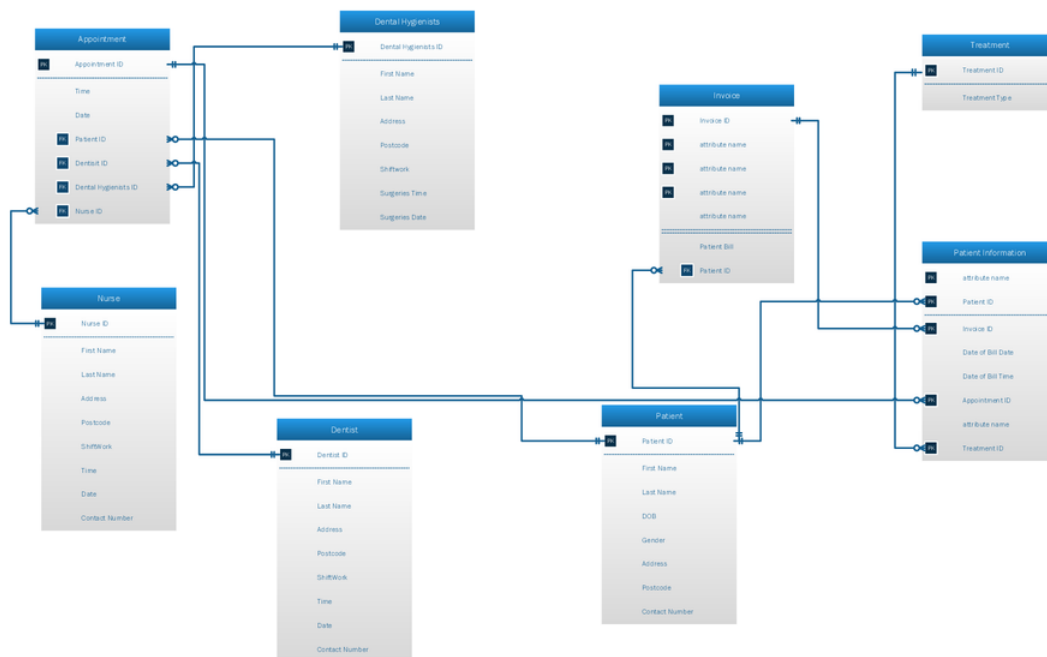


The Appointment table has zero or many relationship to the Dental Hygienists this means Dental Hygienists will have more appointment or none while Dental Hygienists only one relationship for the appointment.



Also for this one between Appointment and Nurse Table had only one and zero or many relationship, this meant Nurse will have one or more appointment to be booked.

So for the other tables of this entity relationship diagram only used two relationships, either zero or many or one and only relationship. As seen from the below diagram done through Visio



9 CONCLUSION

This report has explained about on how The Smile factory surgery database designed for the part one of entity relationships diagram explained tables created, fields, key, relationships and the table connect each other perfectly by using Microsoft Visio. In part 2 explained the design of the tables, forms, queries, macros, reports, and relationships also it provides screen shot of different parts from the design. Explained step by step the user documentation for part 2 on a database,

output from the invoice bill report, the relationships diagram and evidence of code script for SQL.

10 REFERENCES

[1] M. Rouse, "SQL (Structured Query Language)," [Online]. Available:
<https://searchsqlserver.techtarget.com/definition/SQL>.

[2] "Entity Relationship Diagram," [Online]. Available:
<https://www.smartdraw.com/entity-relationship-diagram/>.

DATABASE REPORT

GRADEMARK REPORT

FINAL GRADE

79/100

GENERAL COMMENTS

Instructor

The system has a great opening menu with good use of colour codes for buttons and functions.

You better suitable schema and is evidence of SQL is correctly to build the relationships within the access environment. Good use of composite keys to control how the data is related. All you reports work well. Good use of lookup tables to enhance the end-user experience. Your forms or follow a consistent design and you used additional macro buttons well. This is very good assignment submission well done.

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