

Assignment

by Shannon Wallace

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INFORMATION ENGINEERING



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Introduction

Creating a database that is fully functional using SQL. The fields are going to be formatted and the database is going to have foreign keys, relationships, tables, and fields. The database is going to have macros in the database so it opens up a menu form that can easily be navigated to find what specific data the user is looking for and they can just pull out the information. Customers will be allowed to place orders for copies of books. Staff place orders with suppliers which are publishers and collectable book dealers.

Design

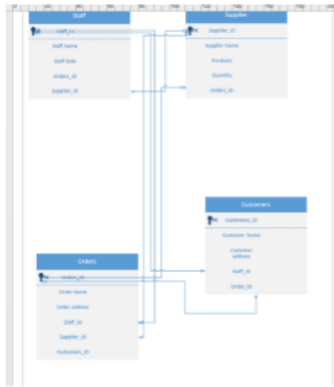
I have labelled the titles to the topics – navigation pane. This should allow you to easily navigate around the word document.

- ✓ ERD - Planning
- ✓ Tables create with SQL – SQL
- ✓ Relationships with SQL -SQL CREATING TABLE
- ✓ Add records with SQL- SQL ADDING RECORDS
- ✓ Menu created and opens – Main Menu
- ✓ Forms created – QUERIES/FORMS/REPORTS
- ✓ Reports created – QUERIES/FORMS/REPORTS
- ✓ Query produced from single table - QUERIES/FORMS/REPORTS
- ✓ Produce calculation- Calculations in a report
- ✓ Subform - Subform
- ✓ Producing reports from a macro query – QUERIES/FORMS/REPORTS
- ✓ Add/delete information from any table -Adding and deleting records from table
- ✓ View book, stock, order, and customer details – Main Menu

Planning

Planning the database. I made multiple diagrams to try and simplify my database and try to make it more sense and the relationship between them.

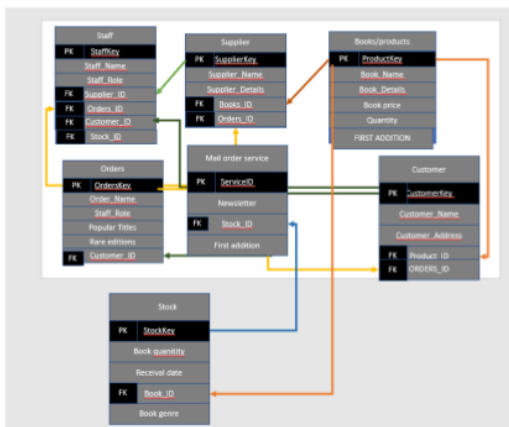
The diagram below shows how I am going to set up my database. This was the first diagram. I had to some figuring because it was not correctly set up.



The second diagram (the Visio ran out of license I tried reactivating it and will not work I did the first diagram when it was working before)

I had to make a lot of changes because you need to start a table with no relations and then start connecting them. The screenshots below show the progress of the FK being limited because it was not needed. I needed to create a few DFD

to show what it was going to be like before I started doing the SQL due to errors of relationship in the future. I used the green boxes diagram due to it was compatible and allow me to easily change.



SQL

I created tables using SQL. The tables are correctly linked but just not the right format for certain things such as price of a book, etc. I have 7 tables and a lot of relationships in them. The tables below show the SQL code, and how I did it.

SQL CREATING TABLE

The tables below show the SQL code I used. The SQL code has primary keys, and foreign keys. The order of the tables they had to be put in a certain way, so it allows the relationship to work correctly without having an error.

Create Table Stock
Create table Stock(Stock_ID Text(15) constraint Staff_ID_pk primary Key, Boo_Quantity Text(20), Receival_Date Text(20), Book_Genre Text(20), Productss_ID Text(25) constraint fk_Product_ID References Product (Product_ID));

Create Table Product
Create table Product(Product_ID Text(15) constraint Product_ID_pk primary Key, Book_Name Text(20), Book_Genre Text(20), Book_Price Integer, Quantity Integer, First_addition Text(20));

Create Table Customer
Create table Customer(Customer_ID Text(15) constraint Customer_ID_pk primary Key, Customer_Name Text(20), Customer_Address Text(20), Product_ID Text(25) constraint fk_products_ID References product (product_ID));

Create Table Order
Create table Order(Order_ID Text(15) constraint Order_ID_pk primary Key, Order_Name Text(20), Popular_Titles Text(20), Rare_editions Text(20), Customer_ID Text(25) constraint fk_Customer_ID References Customer (Customer_ID));

Create Table Service

Create table Service(Service_ID Text(15) constraint Service_ID_pk primary Key, Newsletter Text(20), First_Addition Text(20), Stock_ID Text(25) constraint fk_Stock_ID References Stock (Stock_ID));

Create Table Supplier

Create table Supplier(Supplier_ID Text(15) constraint Supplier_ID_pk primary Key, Supplier_Name Text(20), Supplier_Details Text(20), Product_ID Text(25) constraint fk_productss_ID References product (product_ID), Orders_ID Text(25) constraint fk_order_ID References order (order_ID));

Create Table Staff

Create table staff(Staff_ID Text(15) constraint Staff_ID_pk primary Key, Staff_Name Text(20), Staff_Role Text(20), Supplier_ID Text(25) constraint fk_supplier_ID References supplier (supplier_ID), Orders_ID Text(25) constraint fk_orders_ID References order (order_ID), Customer_ID Text(25) constraint fk_Customers_ID References Customer (Customer_ID), Stock_ID Text(25) constraint fk_stocks_ID References stock (stock_ID));
--

SQL adding records

I also added one record using SQL to different tables. The tables below show the code I used. The SQL table names had to be correct for the data to be inputted.

Data added to Product
INSERT INTO Product (Product_ID, Book_Name, Book_Genre, Book_Price, Quantity, First_Addition) VALUES (1, 'Elizabeth caught a rabbit', 'Thriller', '3', '7', 'rare');
Data added to stock
INSERT INTO stock (Stock_ID, Book_Quantity, Receival_Date, Book_Genre) VALUES (1, '7', 'soon', 'thriller');
Data added to product
INSERT INTO Product (Product_ID, Book_Name, Book_Genre, Book_Price, Quantity, First_Addition) VALUES (2, 'rabbit', 'comedy', '2.99', '10', 'rare');

The screenshots below show evidence of me adding records using SQL, the code, and the actual table displays it. I only decided to add one record because I wanted to manually add and delete row

to show you that it works. As you can tell I insert 3 records using SQL. Two in the same table, and then one in another table.

The first screenshot shows the 'All Access Objects' window with the 'Queries' tab selected. The 'Query Type' window displays the SQL code: `INSERT INTO stock ( Stock_ID, Book_Quantity, Receival_Date, Book_Genre, First_Addition ) VALUES (1, 7, 'soon', 'thriller');`

The second screenshot shows the 'Query Setup' window for the 'QRYINTOPRODUCT' query. The SQL code is: `INSERT INTO Product ( Product_ID, Book_Name, Book_Genre, Book_Price, Quantity, First_Addition ) VALUES (2, 'rabbit', 'comedy', '2.99', '10', 'rare');`

The third screenshot shows the 'Records' window for the 'Product' table. The data is as follows:

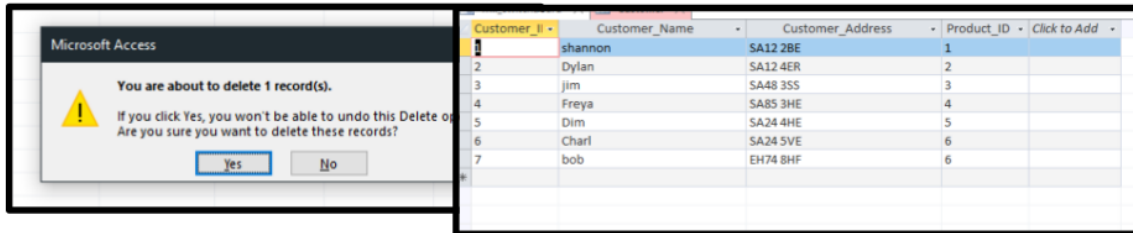
Product_ID	Book_Name	Book_Genre	Book_Price	Quantity	First_addition	Click to Add
1	Elizabeth caug	Thriller	3.00	7	rare	
2	rabbit	comedy	3.00	10	rare	

The fourth screenshot shows the 'Records' window for the 'Stock' table. The data is as follows:

Stock_ID	Book_Quant	Receival_Da	Book_Genre	Productss_II	Click to Add
1	7	soon	thriller		

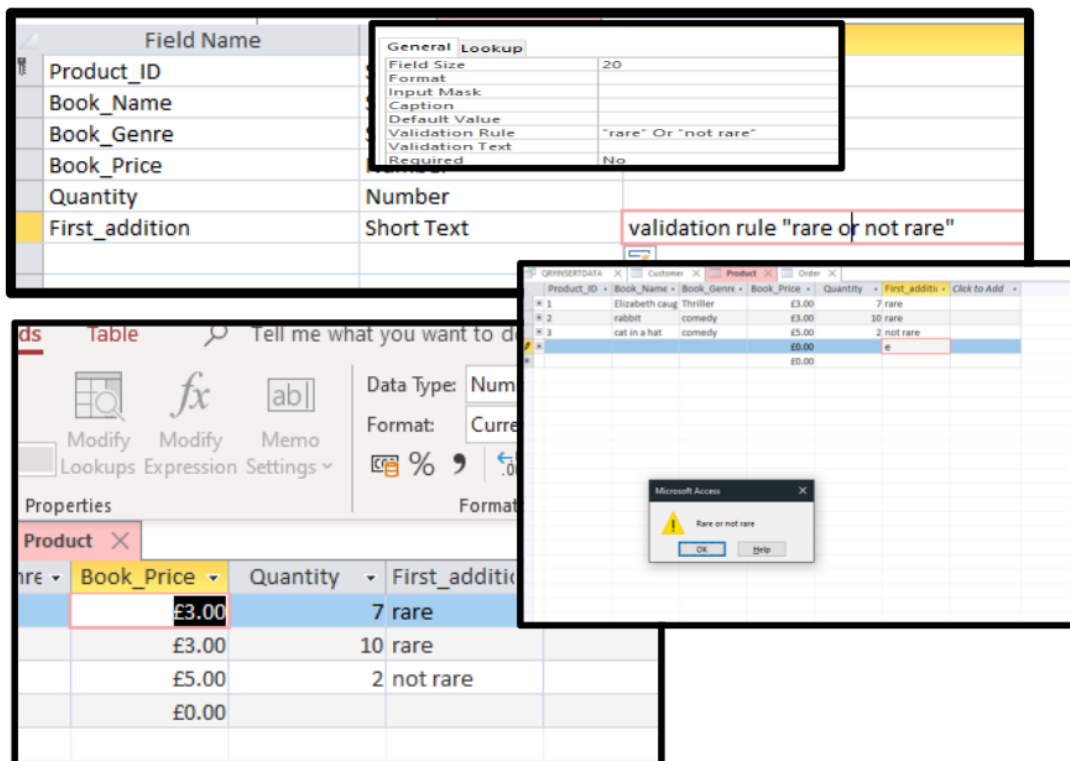
Adding and deleting records from table

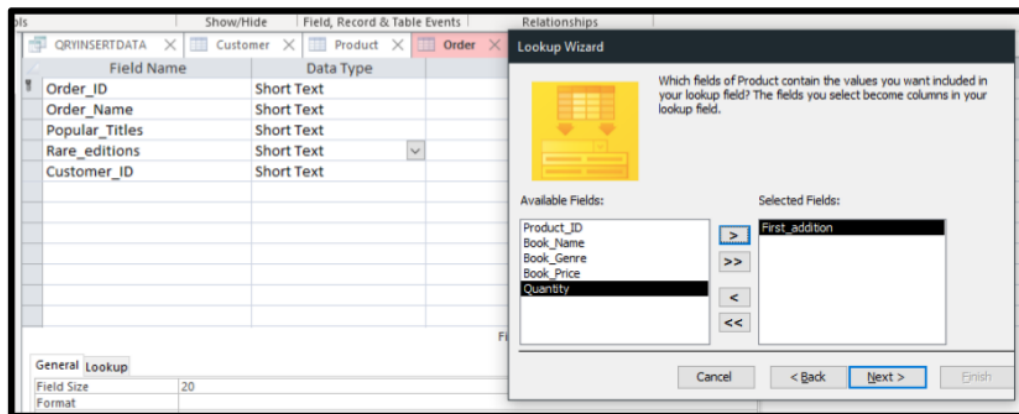
I manually typed this information in. I can also delete records. The screenshots below show the evidence of data being added to the table and the data being removed from the table.



General – input, validation, etc

I added a validation rule onto the table. Validation rules prevent inappropriate data from entering. I wanted it to be limited to two choices. I started changing the format of the certain types of data such as, date will have a format now. Prices will have a sign and not be just a number, etc. As you can tell from the images below the validation rule is there, and the 3 is not just that its £3.00.





I added a look-up table and cross references with other data instead of repeating data. This allowed me to enter the data by clicking down arrow and there are options which makes it easier and prevent irrelevant information from going into the database.

I added a postcode input mask. It prevents people from entering invalid information. This helps improve productivity. It should display people information, and then the customer address which is a postcode.

Field Properties

General	
Field Size	20
Format	
Input Mask	LL0/\ 0LL
Caption	
Default Value	
Validation Rule	

Table filled with information

Customer Table

Customer_ID	Customer_Name	Customer_Address	Product_Name	Order
1	Dylan	sa1/ 2bu	cat in a hat	1
2	Shannon	sa1/ 8re	rabbit	2
3	ben	sa4/ 8ra	Elizabeth caught a	3
4	jay	sa2/ 3er	disney plus	4
5	elizabeth	sa9/ 2ea	disney plus	5

Order

Order_ID	Order_Name	Popular_Titles	Rare_editio	Customer_ID
1	1	Cat in a hat	not rare	1
2	2	rabbit	rare	2
3	3	Elizabeth caught a r	rare	3

Product

Product_ID	Book_Name	Book_Genre	Book_Price	Quantity	First_additi	Click to Add
1	Elizabeth caug	Thriller	£3.00	7	rare	
2	rabbit	comedy	£3.00	10	rare	
3	cat in a hat	comedy	£5.00	2	not rare	
4	disney plus	Horror	£2.00	5	rare	
5	roger	thriller	£2.00	3	rare	
*			£0.00			

Mail service

Service_ID	Newsletter	First_Additi	Stock_ID	Click to Add
1	Newletter mo	rare		
*				

Staff

Staff_ID	Staff_Name	Staff_Role	Supplier_ID	Orders_ID	Customer_ID	Stock_ID
1	Jimmy	Cashier	1	2	3	1
2	Donny	Manager	2	1	4	1
3	Leia	Customer Sup	1	3	2	1
*						

Stock

Stock_ID	Book_Quantity	Receival_Da	Book_Genre	Productss_ID	Click to Add
1	7	28/12/2020	thriller	1	
2	150	20/10/2020	comedy	2	
*					

Supplier

Supplier_ID	Supplier_Ne	Supplier_Details	Product_ID	Orders_ID	Click to Add
1	Deliverbook	Deliver to shop	1	2	
2	delivery	deliver to shop	1	3	
*					

Starting Queries/Tables

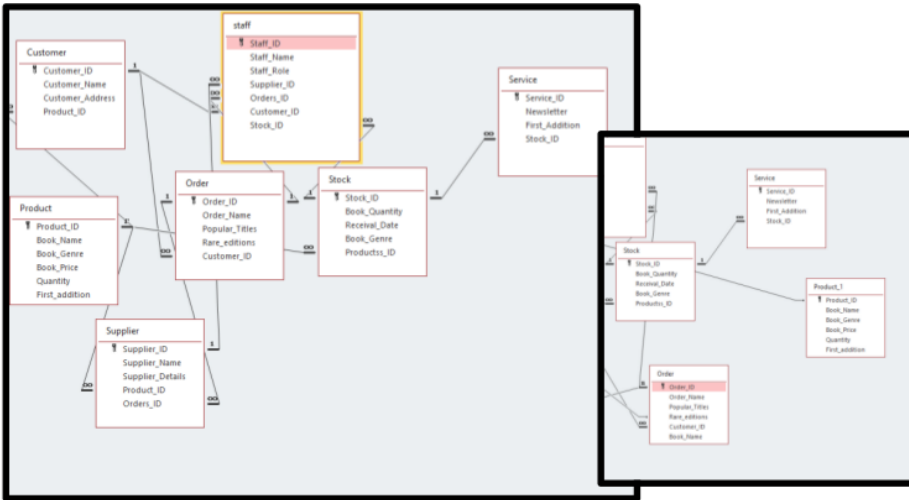
I used queries for SQL. As you can tell it is named correctly, and the tables are set up. The screenshot below shows that. These are the first queries I have done to start up my database. The queries are named correctly, and the tables are named correctly.

Tables	
Customer	
Order	
Product	
Service	
staff	
Stock	
Supplier	
Queries	
Orders	
QRYtblBooksProducts	
QRYtblcustomer	
QRYtblservice	
QRYtblstaff	
QRYtblstock	
QRYtblsupplier	

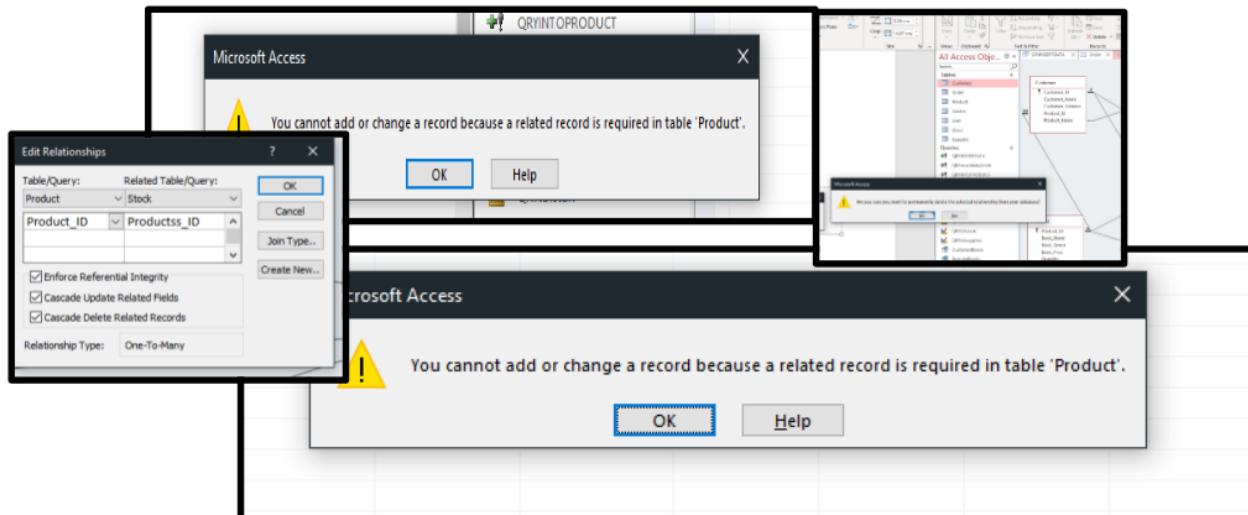
Relationship of data

The relationship of the data is important when creating a database. It allows you to keep certain data up to date, and it improves productivity by not repeating the data. When creating the database I had to make sure that the relationships were configured probably otherwise you could run into further issues when doing certain things with the database.

The screenshot below shows the relationships of my tables I created using SQL.



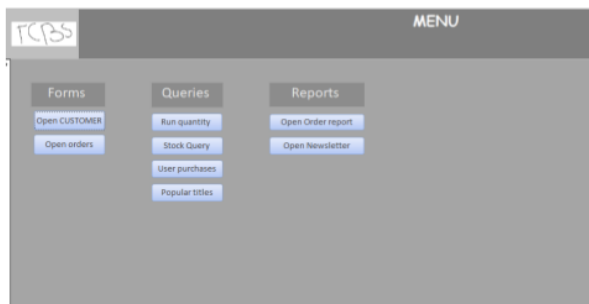
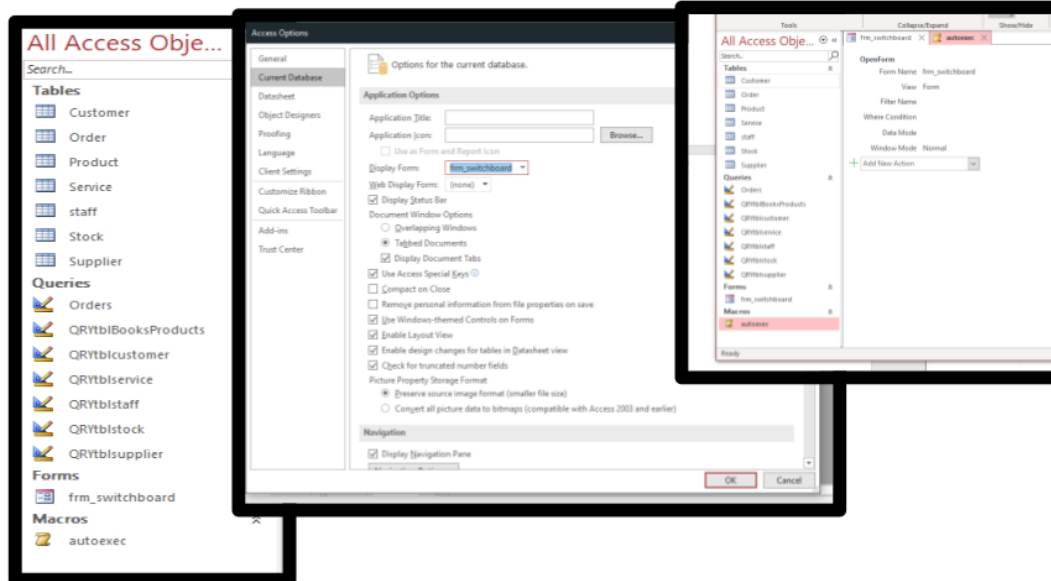
When adding lookup wizard more tables got added. It shows that it is configured probably. I can delete the relationships and configure if it should update automatically. The screenshot below shows evidence of entering irrelevant information, relationship working, keeping it updated and deleting a relationship.



Main Menu

There are two ways to do a main menu on access. I will be doing it two ways. The first way I did it was with the macro. It opens a form as soon as it boots up. For the macro to work you must name it autoexec. Another way to do this is going through options on the access database. The main menu is a form, and it allows you to navigate throughout the database at ease.

The screenshots below show how I did them both.



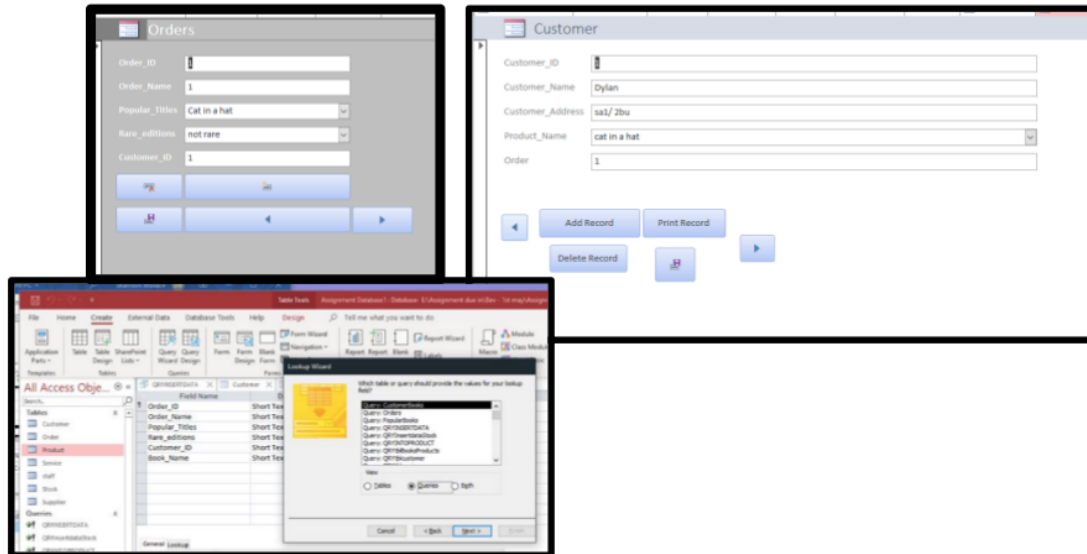
The screenshot to the left shows my main menu. I have organised it by forms, queries, and reports.

When clicking a form – there is a button that allows you to navigate back to the main menu.

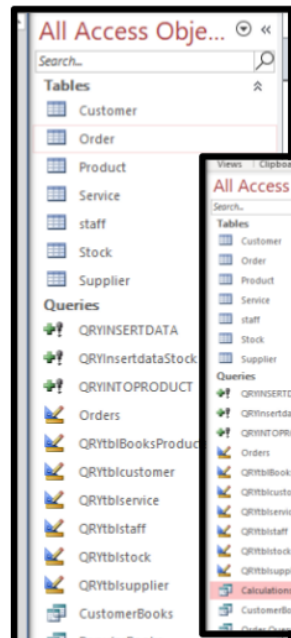
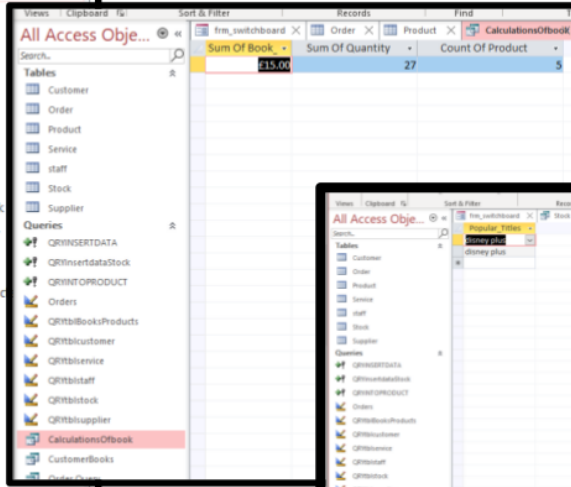
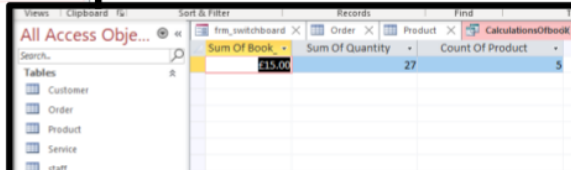
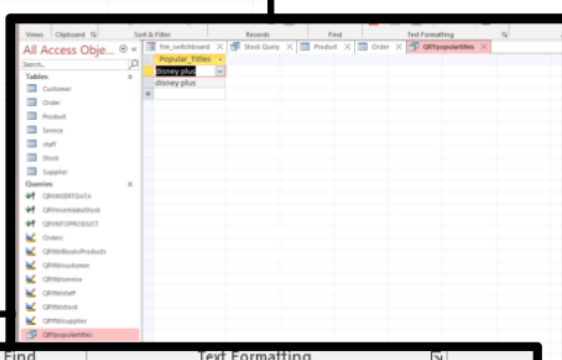
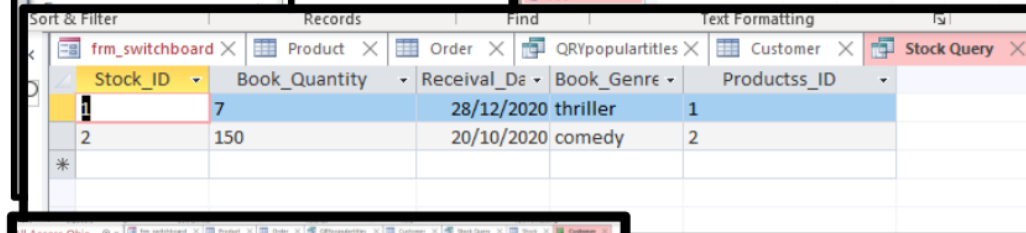
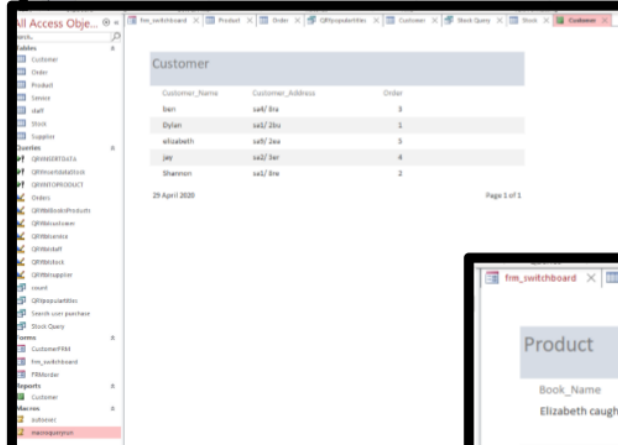
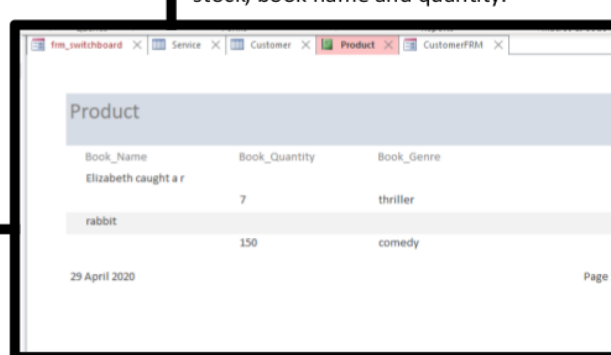
I also added a logo to the main menu.

Queries/Forms/Reports

The screenshot below shows a form of orders. The form has buttons on there so you can add a record, delete a record, and save a record. This automatically gets put into the table. I also have a customer form. You can add, delete, and save a record and as well as print a record. The arrows allow you to go to next record and allows you to go back a record. The buttons are there so you do not have to use the table to input information. I decided that orders, and customers were important, so I used them as an example. I created a query and I then used to use an look-up wizard which helps me put information into the tables.



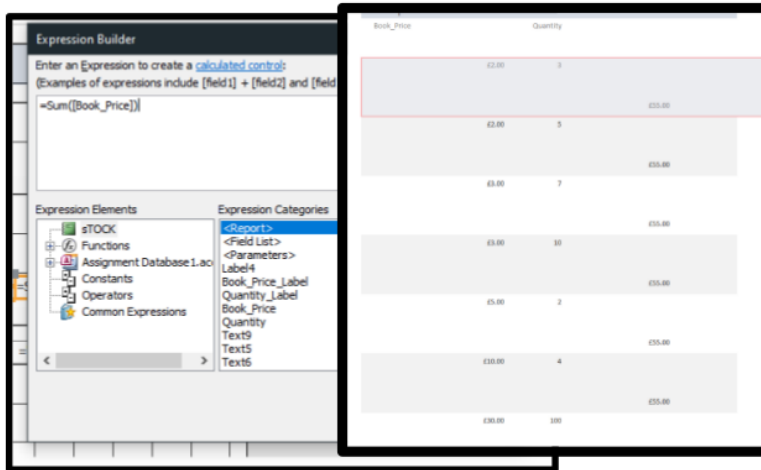
I have added queries. I have done them by customers books, and popular books. This allow the company to know what books are popular at a time. I also have a query that does the calculations of books. It allows you to know how much all the books is together, and the quantity and how many products. It allows you to know how much of that product it is in store. Another query on popular books. Which shows that below. Another query I have is that you search for a book name and it shows the customer order. The last query I have is stock it shows the stock, and the book quantity. I have 4 queries

I made a macro that runs the report for you. Its with the customer name and address and order. The report below shows the newsletter. The newsletter should show customer stock, book name and quantity.

Calculations in a report

When creating a report, I wanted the calculations to be in a report. I wanted it to work out how much it would cost for the stock. The screenshot below shows the “expression builder” with a code in it. The code allows you to workout the calculations automatically without having to do anything or manually do it.



Subform

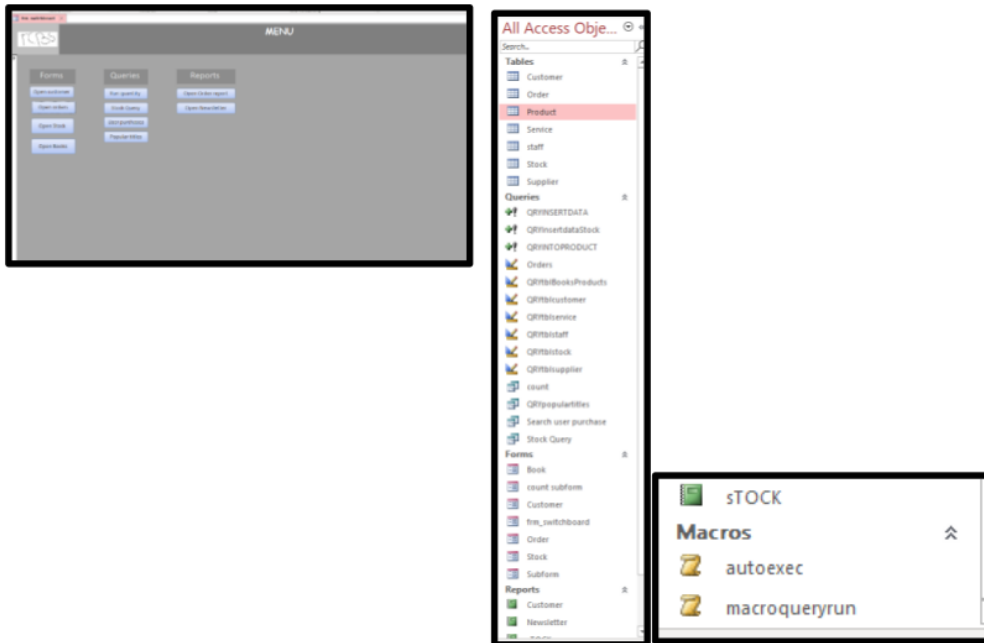
There is a form and then inside of it there is another form. It is two forms in one form. It displays the quantity. Instead of making multiple forms you can put relevant data together in one form.



Conclusion – after more editing

I have added more forms, queries, and reports to fill out the main menu and that I think is appropriate. The screenshot below shows the forms, queries, and reports.

The other screenshots show the tables, queries, forms, reports and macros which is used for the database.



Assignment

GRADEMARK REPORT

FINAL GRADE

71 / 100

GENERAL COMMENTS

Instructor

Generic Assessment Criteria Shannon Wallace 71%	Marks available	Marks awarded
1. Engagement with Literature Skills		
2. Knowledge and Understanding Skills		
<i>Suitable development methods employed and justified. Using the above scenario,Functionality</i> Very thoughtful overall design which you have documented well in your report.	25	18
3. Cognitive and Intellectual Skills		

<i>Provide evidence that the tables will link together in a relational database environment. For this section you should also provide evidence of the design techniques that you have used to develop the database system</i> <i>Understanding of design and SQL</i> You have used SQL very well and provided evidence of your table builds through this mechanism. All your table contain suitably planned fields within your record design PK FK links and relational integrity work well. Good use of PK FK constraints to build the relationship.	20	16
4. Practical Application Skills		

Successful demonstration of software implementation. You are required to implement a database to meet the requirements, attribute field to enhance the design) Forms, Queries, Reports, Relationships, Macros You have explored the functionality of Access and produced an excellent solution with a clear main menu. Some useful reports and some use of eth macro system. Even a suitable logo. You have expressed your build in a clear report.	45	30
5. Transferable Skills for Life and Professional Practice		
All work suitable presented and referenced. Very good report, good layout and thoughtful reflective comments on your build and some of the problems you faced when designing.	10	7

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