MICROSOFT ACCESS – EARLY START

This guide furthers the introduction to using Microsoft Access to Create and Edit a database. Unit 7 of "Database Exercises" is used in this introduction to practice the creation, editing of a database.

To complete these exercises start Microsoft Access by selecting the menu:

Start | Programs | Microsoft Access

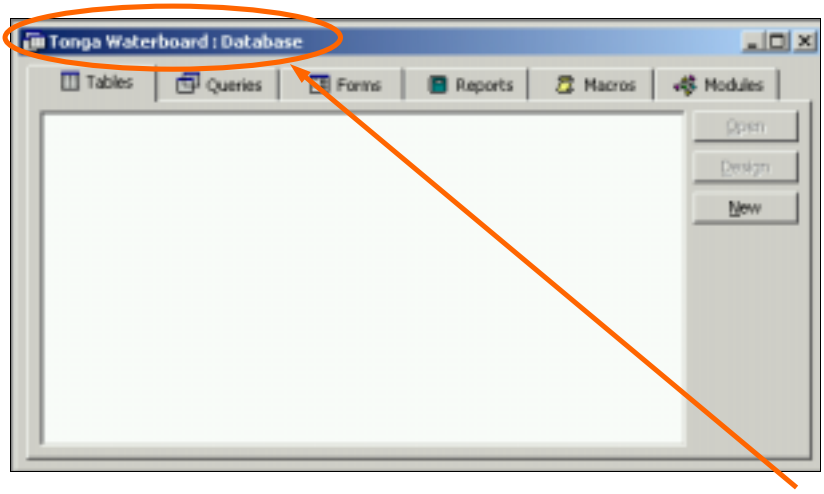
Creating a New Database

When you create a new database in Microsoft Access, the program will automatically request you to enter the name of the file for the database.

To create a new database in Microsoft Access, select the menu:

File | New Database ...

And double click on "Blank Database"



Microsoft Access will then show a dialogue box for naming the Database File, and to specify the folder where the file is to be located. For our exercise use the following information.

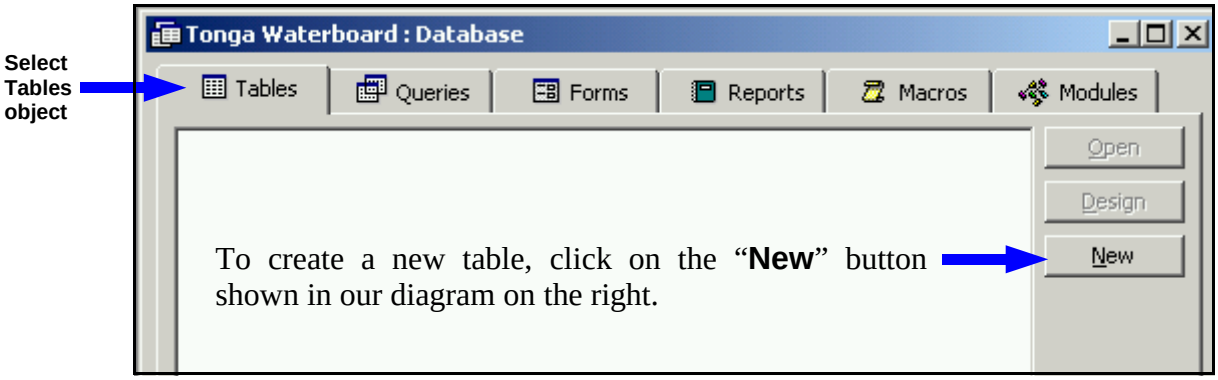
File Name: **Tonga Waterboard**
Save In: *(use your personal folder on the Server)*

We now have a new, blank, database where we can create and enter data. The heading on the database should read

Tonga Waterboard : Database

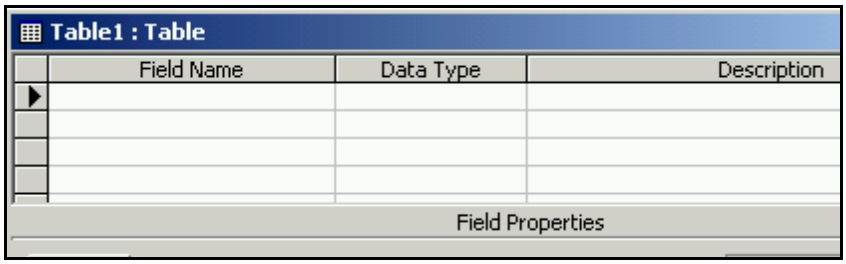
Creating a TABLE in the New Database

Tables are needed, since this is where all data is stored in a relational database. To create a new table we first select the Tables object list, to make sure our next action will take effect on a Table object.



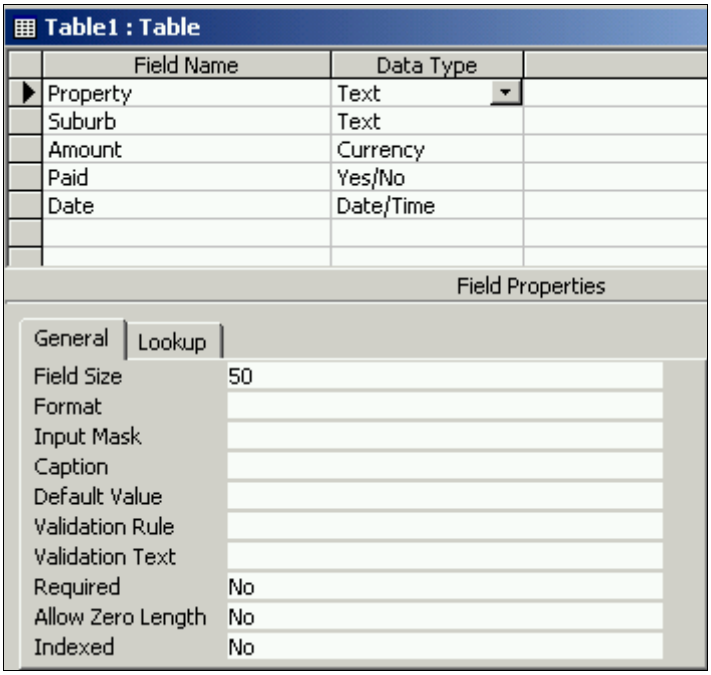
Design View – After selecting New, we are asked how we would like to create the new table, either in Datasheet | Design | Table | Import | Link. For our exercise we will select to create the Table through **Design View**.

Design View gives us three columns where we can specify the details of our Table. *(Note that the Table is called "Table1" because we have not yet specified a different name for the table.)*



From our exercise notes we have our Field Names that we will enter in the Field Name column (Owner, Property, Suburb, Amount, Paid, and Date.)

For each record (row) we have a data-type and if we wish we can also specify a description of what that row will contain.



Below the Record details is a "pane" with more information about the currently selected field (shown in the diagram with the black triangle on the row header.)

Note that Field Size for the Field Name **Property** is **50** of the data-type **Text**. This means that you can enter 50 characters (which includes letters, symbols, numbers, and blank spaces.) Obviously you can change this Field Size if you wish to use a different number.

Dates and Times. We will make a change to the default settings for Date/Time to make sure we know exactly which Date/Time the computer is going to Display.

a Select the Date record by clicking on any item in that row.

b In the Field Properties, one property will be called **Format**. Select the drop-down listbox with Format.

c Select "Long Date" as the Format

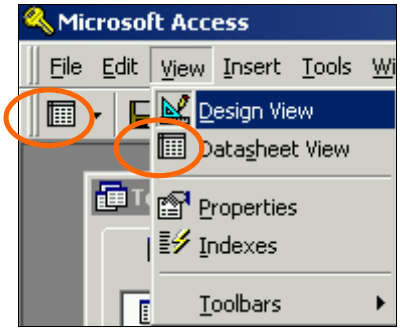
After we have entered the Table Definitions, we save the table by selecting the menu **File | Save** or by clicking on the Toolbar Disk icon.

Name this table : **Customers**

Primary Key. Microsoft Access will warn you there is no 'primary key,' and would you like Access to create a primary key. "*Yes,*" let Access create a primary key. This feature is not used in our small database file, but leaving it in will help us get used to having a 'primary key.'

Entering Data into the new TABLE

Now we have our new database, and we have a new table in the database it is time to enter some data into the table.



We cannot enter data while we are designing the table, so we need to change to a view that supports entering data. To change our view of the table we can select the menu **View** which lists **Design** and **Datasheet** as the two views of the object.

Select the menu: **View | Datasheet**

We can now enter the data from the exercise.

Datasheet view gives us a spreadsheet like set of rows and columns for entering our data.

We can leave the field labelled "ID" alone, as this will be automatically entered by Microsoft Access, and enter your data into the other fields. Use the mouse (or


Customers : Table

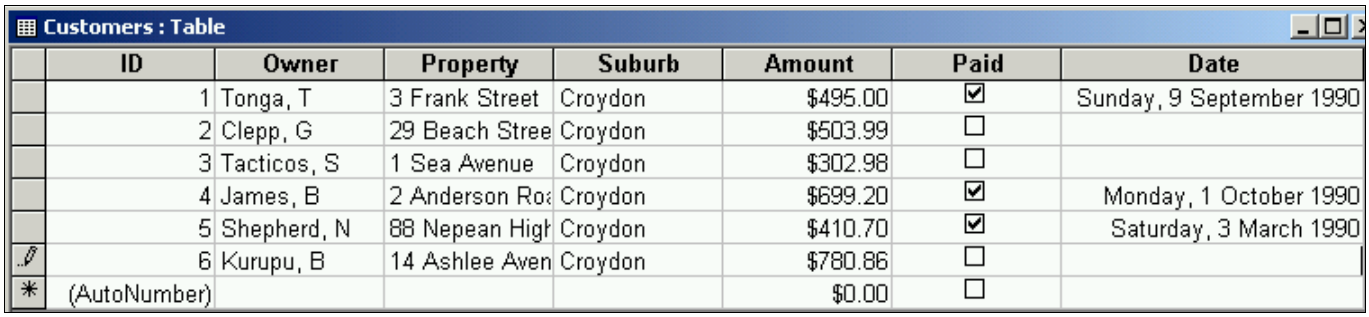
ID	Owner	Property	Suburb	Amount	Paid	Date
(AutoNumber)				$0.00	☐	

tab key) to move the cursor onto the **Owner** field and click on it to start entering your data.

BE CAREFUL. It is very important that data is entered correctly (it must be exactly as you have been given.)

Tab Key – To move from one field to another use the Tab key.
When you have reached the last field in the record, hit the Tab key and Access will start a new record (row) for you.

After you have entered your data, double-check that you have entered everything correctly by visually comparing the printed requirements and what you see on


Customers : Table

	ID	Owner	Property	Suburb	Amount	Paid	Date
	1	Tonga, T	3 Frank Street	Croydon	$495.00	☑	Sunday, 9 September 1990
	2	Clepp, G	29 Beach Stree	Croydon	$503.99	☐	
	3	Tacticos, S	1 Sea Avenue	Croydon	$302.98	☐	
	4	James, B	2 Anderson Roa	Croydon	$699.20	☑	Monday, 1 October 1990
	5	Shepherd, N	88 Nepean High	Croydon	$410.70	☑	Saturday, 3 March 1990
✎	6	Kurupu, B	14 Ashlee Aven	Croydon	$780.86	☐	
*	(AutoNumber)				$0.00	☐	

screen. Make any corrections necessary.

Printing

To print a copy of your database table, we just select the **File | Print**, or we can

The pencil symbol indicates a record that is currently being edited.

The asterisk (*) symbol indicates where Access is ready to begin a new record.

check what the print out will look like by using the **File | Print Preview**

File | Print Preview will show that the above table will require two pages to print. Close Print Preview and use **File | Page Setup** —> Page —> Orientation. Landscape so the document will print on a single page

Adding and Editing Records

To *edit existing data* in the table records we open the table for editing and make changes to the data as we would in a spreadsheet.

To edit/change data in a column, click on the data-item and type in the changes.

To delete a record, click a data-item in the column and select the delete record button. Or you can right-click on the row-header and select the delete record menu.

To enter *new data* we only need to open the table for editing and add a new record (by going to the last record and hitting the tab key until a new record is created.)

To modify the table definitions we open the table in design view (as we originally opened the table when first defining the columns) and add the new field, definitions that we need.

For example:

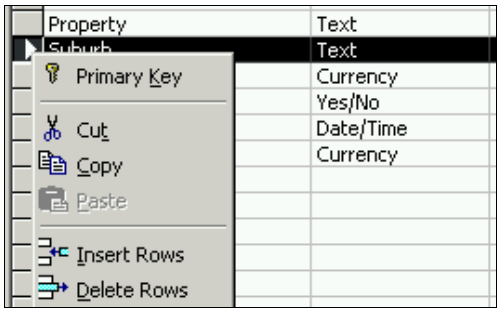
We need to modify the table structure to include the field ARREARS.

We select our table “Customers” and select Design View
We add a new field row, and use the Field Name “ARREARS”, and use a “Currency” data-type and “Save” the changes.

We return to Datasheet view to make the data changes. Where 14 Ashlee Avenue exists we enter the $650.90 in the ARREARS column.

For Example:

We need to delete the field Suburb.

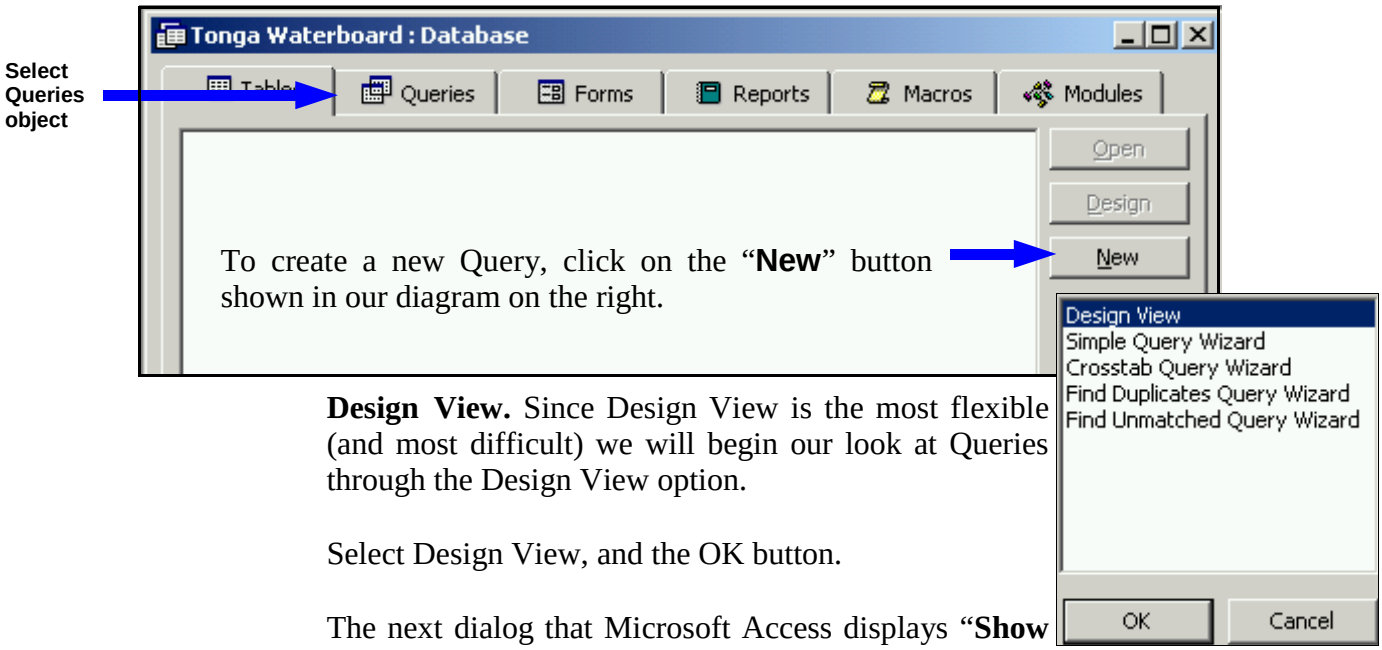


We select our table “Customers” and select Design View
We right click on the row with the Field Name “Suburb” and pick the “Delete Rows” menu command.

ID	Owner	Property	Amount	Paid	Date	Arrears
1	Tonga, T	3 Frank Street	$495.00	☑	Sunday, 9 September 1990	
2	Clepp, G	29 Beach Stree	$503.99	☑	Friday, 5 October 1990	
4	James, B	2 Anderson Roa	$699.20	☑	Monday, 1 October 1990	
5	Shepherd, N	88 Nepean High	$410.70	☑	Saturday, 3 March 1990	
6	Kurupu, B	14 Ashlee Aven	$880.85	☐		$650.90

Looking for Things (The Query)

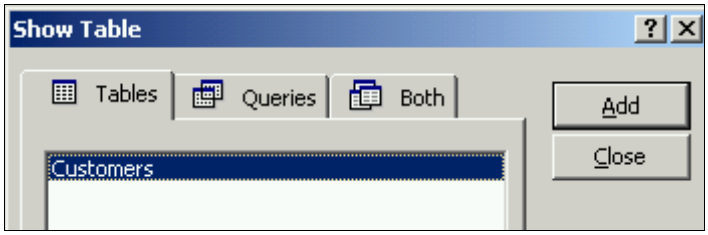
To start a new query, search, we first select the Queries object on the tab selection and then click on the New button. This follows the same process we used for creating a table.



Design View. Since Design View is the most flexible (and most difficult) we will begin our look at Queries through the Design View option.

Select Design View, and the OK button.

The next dialog that Microsoft Access displays "**Show Table**" is asking which of the Tables and Queries in the Database do you wish to perform your Query.

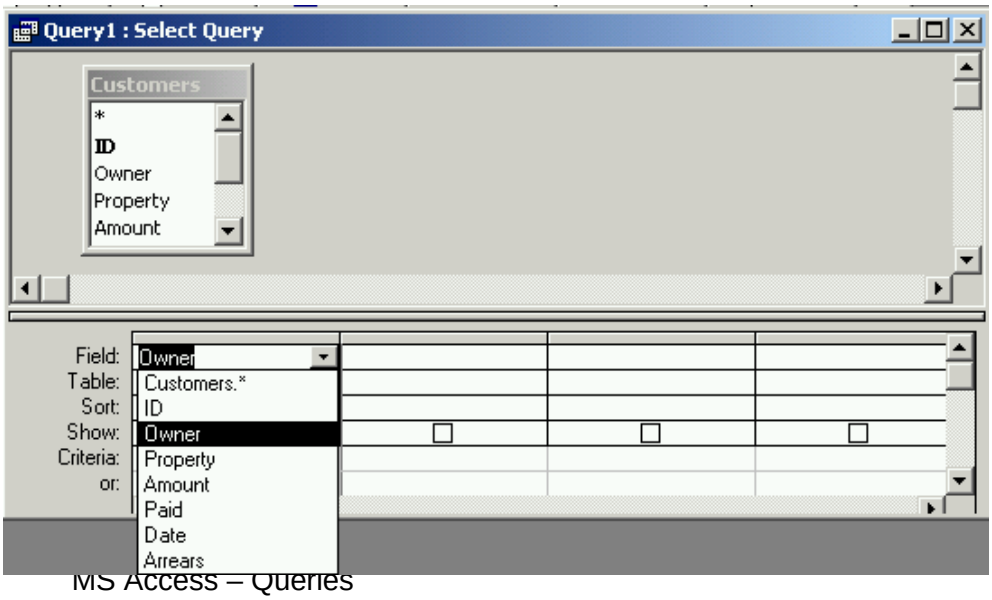


For our exercise we will select the Customers Table and click on the Add button.

Close the Show Table dialog box by clicking on the Close button.

Building the Query

Our first exercise is to list all the owners, their addresses and the amount for each property.



1. In the first column of the bottom pane (query grid,) you can now click on the "Field:" drop-down list and select the "Owner" field since we need that field.

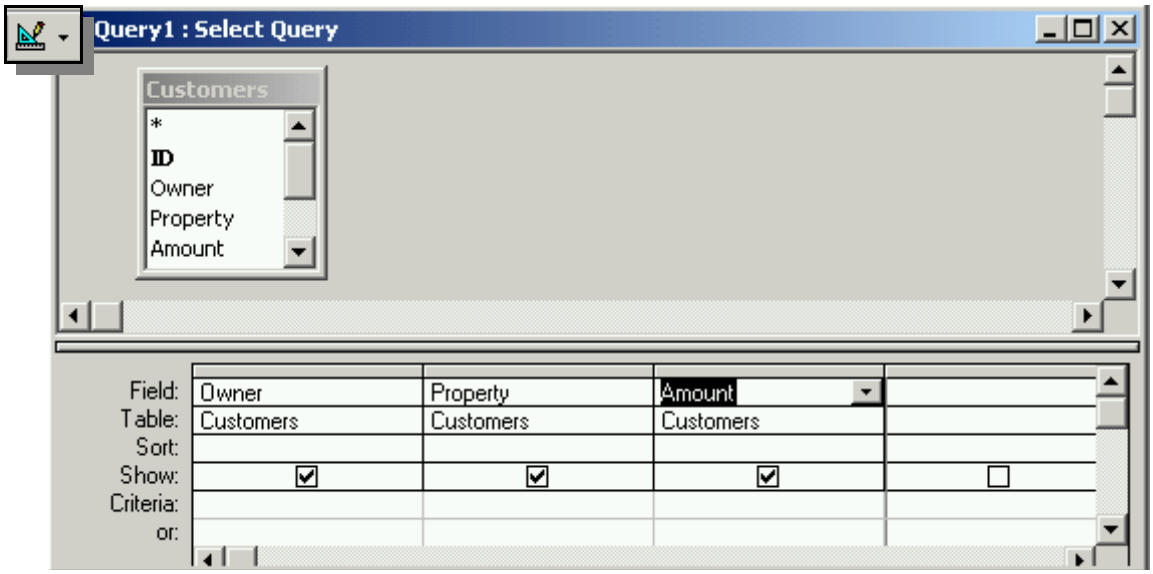
Since we are only using one table there is no confusion from which table the Owner field will come from.

(2) On the 2nd column we can select the drop-down

list for the Property field (notice that the question has specified address, which in our case is the same as the Property field.)

(3) On the 3rd column we select the drop-down list for the Amount field.

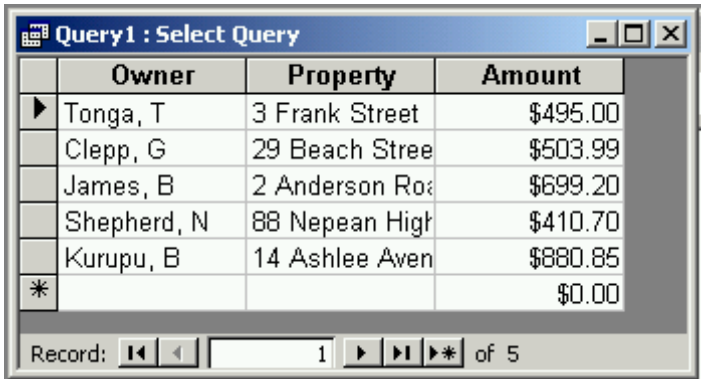
For those who want to try other mouse methods, you can achieve the same as the above by



dragging the Field Name from the table in the top pane onto the Field: row in the lower pane (query grid.) Another method is to double-click on the Field Name in the Customers table.

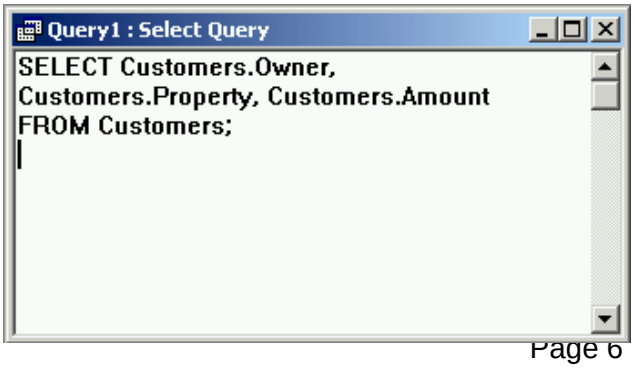
Looking at the Query we've Built

To look at the results of the query we've created above, click on the Datasheet View Button either from the View menu or on the Toolbar.
To return to the Design View for modifying the query, click on the Design View



Button.

To view the SQL View of this query, click on the View Menu and select the SQL View button or use the View Menu and select the SQL View command.
The SQL View provides a program coding description of the



Query we have made. (SQL stands for Structured Query Language.)

```
SELECT Customers.Owner, Customers.Property, Customers.Amount
FROM Customers;
```

Save the Query as Query 11 (since that is the exercise number for the query.)

Further Questions of the Database

Query 12: We are asked to list the Property, Amount, Paid, and Arrears column.

This is the same type of Query as Query 11 except we now use Property in column 1, Amount in column 2, Paid in column 3, and Arrears in column 4.

Your SQL View should be similar to the SQL listed here.

```
SELECT Customers.Property, Customers.Amount, Customers.Paid, Customers.
        Arrears
FROM Customers;
```

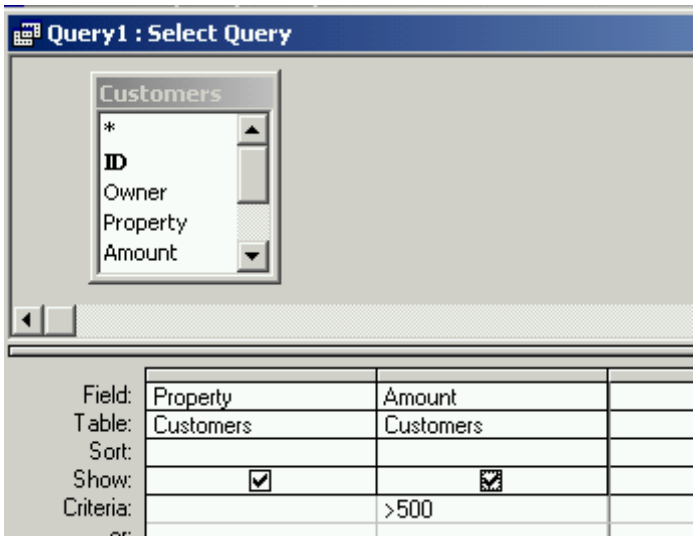
Save your Query as Query 12 for later reference.

Query 13: We are asked to search for properties (list) where rates payable are higher than $500.00

(1) We begin the query in the same manner except a calculation needs to be created. Let's begin.

(2) We create a query where the [Property] (address) is in the first column since that is information that needs to be listed, and in the 2nd column we have the rates [Amount].

(3) We only want to list Properties where the rate is greater than $500.00 so we need to specify a criteria in the Criteria for the Amount Column of **> 500.00**
The above diagram indicates that we will "Show" the Field in our List, you can turn this off by turning off the tick mark.



Top Pane: List of tables to use in a query.

Bottom Pane (query grid) details of the query.

Review your results by looking at the DataSheet View. Did your query list the records you expected ? Are the records displayed only those we know have a rate greater than $500.00 ?

Go to the SQL View to compare that you should have something similar to that listed below for your SQL Query.

```
SELECT Customers.Property
FROM Customers
WHERE (((Customers.Amount)>500));
```

If you did not turn-off viewing the Amount column then you should have an SQL Query similar to the one below.

```
SELECT Customers.Property, Customers.Amount
FROM Customers
WHERE (((Customers.Amount)>500));
```

Query 14: We are asked to list the number of properties which have rates owing.

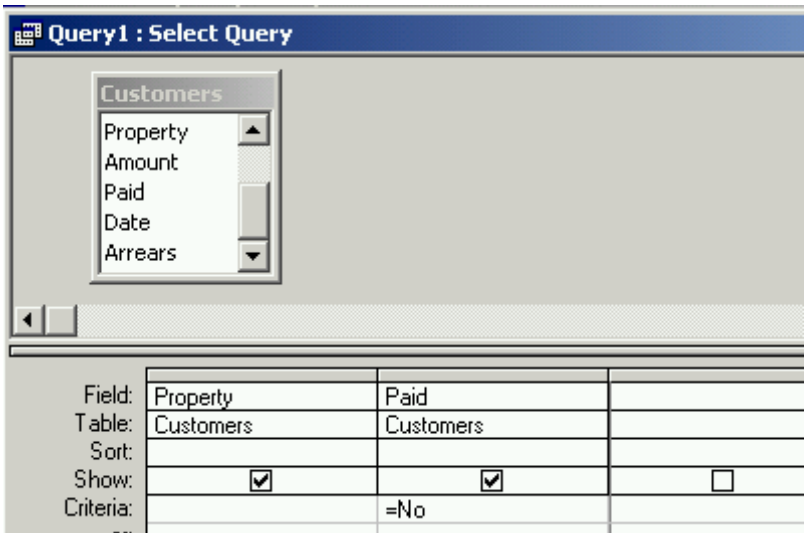
We can interpret this (from our data) that this is a list of the number of records where the rates have not been paid.

We begin the query in the same manner as Query 13 except our Criteria is on the Paid field instead of the Amount field.

(1) We create a query to list the Properties (address) in the first column since that is information that needs to be listed, and in the 2nd column we have the Paid field since we need to investigate whether Rates (Amount) have been paid.

(2) We only want to list Properties where the rate has not been paid so we need to specify a criteria in the Criteria for the Paid Column of = **No**

Review your results by looking at the DataSheet View. Did your query list the



records you expected ? Are the records displayed only those we know who have not paid ?

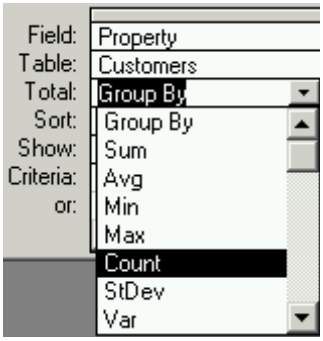
Go to the SQL View to compare that you should have something similar to that listed below for your SQL Query

```
SELECT Customers.Property, Customers.Paid
FROM Customers
WHERE (((Customers.Paid)=No));
```

We now have a list of the records which have not paid, but what we have been asked to provide is the "number" of properties. To provide this answer we need to be able to "count" the number of records which we do by using the Totals facility in the Query window.

(1) To show the Totals we can use the **View | Totals** menu option or the Totals tool on the tool bar.

Totals: A new Row shows up on the bottom pane, which defaults to "Group By"

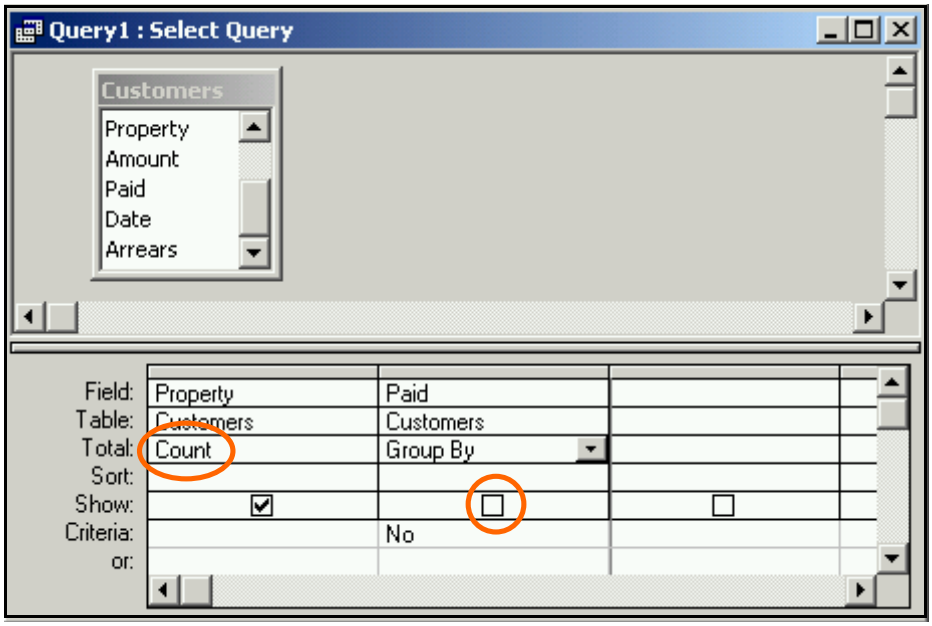


To Count the Number of Properties the Query will list, we change the Total Row in the Properties Column to "Count" by clicking on the drop-down listbox and select "Count"

The Total command Count will literally count the number of records that should be displayed. The column will now display the number of records instead of the records themselves.

The Query should now look like the following diagram.
Go to the SQL View to compare that you should have something similar to that listed below for your SQL Query

```
SELECT Count(Customers.Property) AS CountOfProperty
```




```
FROM Customers
GROUP BY Customers.Paid
HAVING (((Customers.Paid)=No));
```

Query 15: We are asked to find the average property rate

We begin the query in the same manner as Query 14, the only record we are interested in looking at is the Property Rate (Amount).

(1) We create a query to list the Properties Rate (Amount) in the first column since that is information that needs to be listed, and from which we need to find the average.

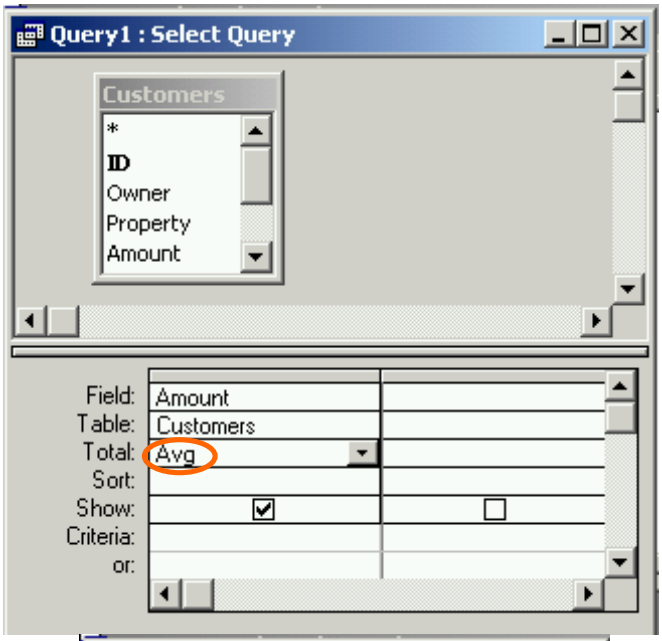
The above query will give us a list of Amounts, but we need the average of the field values, not a list of the field values.

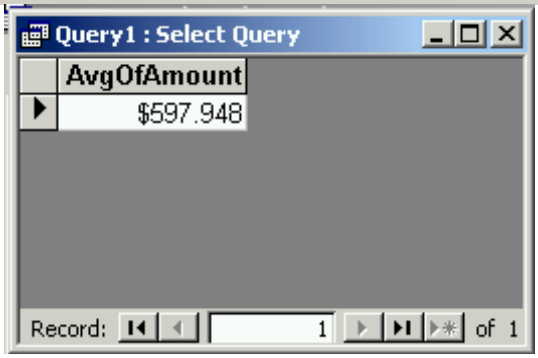
To provide this answer we need to use the Totals facility in the Query window.

(2) Show the Totals by using the **View | Totals** menu option or the Totals tool on the tool bar.

(3) On the Total row for Column 1 (Amount) select AVG (short for average) and the query should look like the Design diagram below and the Datasheet View should look like the Datasheet diagram.
Review your results by looking at the DataSheet View. Did your query list the value for average that you can calculate with a spreadsheet or calculator ?

Go to the SQL View to compare that you should have something similar to that listed below for your SQL Query





```
SELECT Avg(Customers.Amount) AS AvgOfAmount
FROM Customers;
```

Query 16: We are asked to list the Property (address) owned by T Tonga

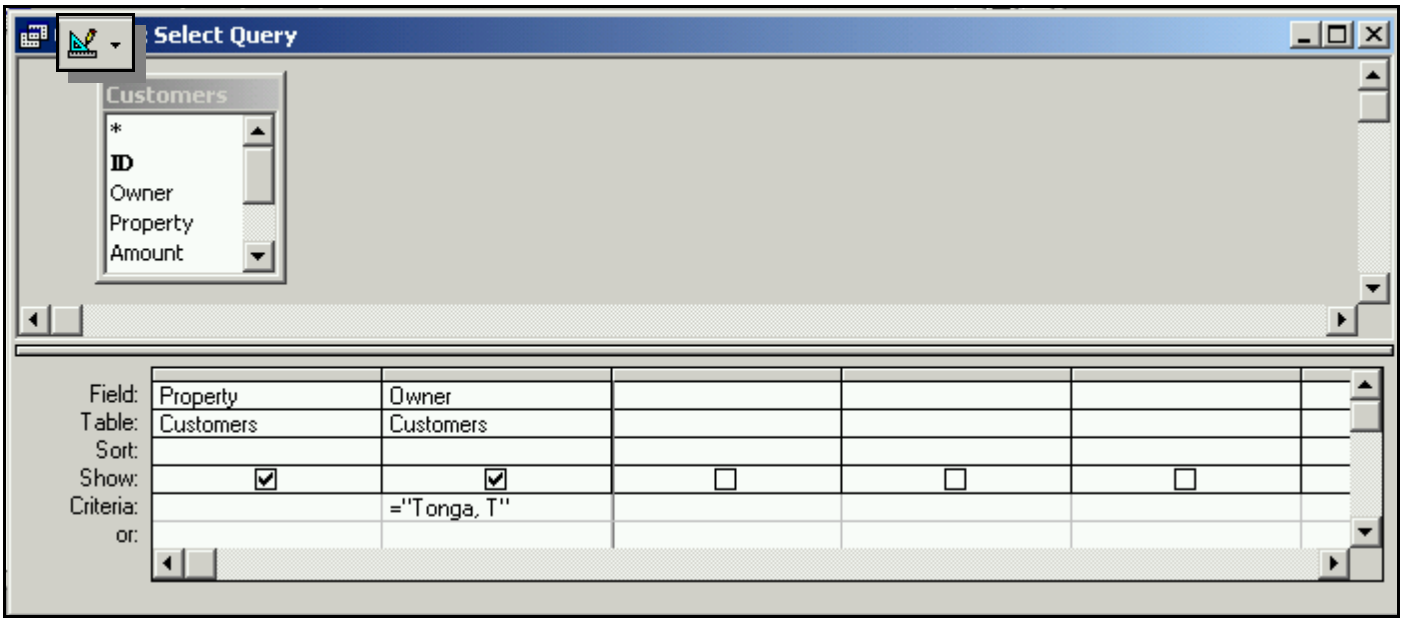
This is a similar query to Query 13, and the 1st part of Query 14.

One thing to notice about the requirement is that it asks for property owned by T Tonga, but we have listed our information in our database as Last-name, "comma," and then initial.

(1) Our query will have in the 1st column the Property, and in the 2nd column the Owner since this is a field we need to set a criteria.

(2) For our criteria we can specify = "Tonga, T"
Tonga, T is a criteria text that combines the last-name, comma, and first initial so we put them all within quotation marks (enclose) when we set the criteria. Whenever we are placing text in a criteria you must use quotation marks to enclose the text.

(3) Review your results by looking at the DataSheet View. Did your query list



the property owned by Tonga, T ?

Go to the SQL View to compare that you should have something similar to that listed below for your SQL Query

```
SELECT Customers.Property, Customers.Owner
 FROM Customers
WHERE (((Customers.Owner)="Tonga, T"));
```

Review Exercises

Using the database "PayMaster.mdb" and the table "Employee" use queries to perform the following.

1 Find and list the number of people with the first name Sione

2 Have the computer display a count of the number of people with the first name Sione.

3 Find the average Pay Rate for people with the first name Sione

4 Find the average Pay Rate for people with the Last name Epenisa

5 Find the average hours worked by all workers

6 Using a Total query, find the biggest pay rate currently listed.

Building a Report

Report 17. Produce a report for the Water Board with the "Rates Payable" for each of the properties. Set the Title for the Report as "**Rates Payable 1990**"

SOURCES AND REFERENCES:

Bowden, Greg Guided Database Activities Using Microsoft Access (Cambridge, Cambridge University Press, 1998)

http://www.tongatapu.net.to/compstud/ - Computer Studies Course Notes
http://www.tongatapu.net.to - **Tonga** on the **'NET**

http://www.tongatapu.net.to is available on all networked computers at Queen Salote College.