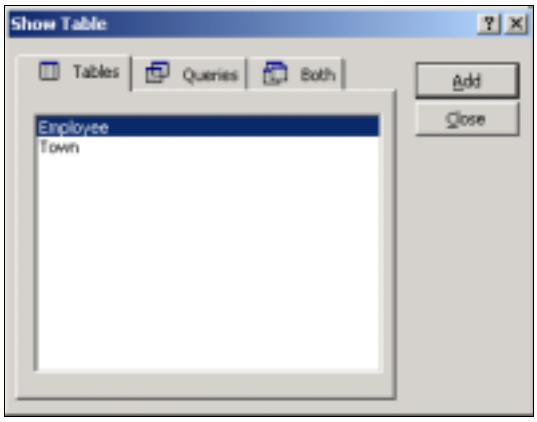
Queries Requiring Two Tables

Significant in the *PayMaster* database is the use of a separate table to list the towns employees reside (live.) By using a separate table for commonly entered data, the Relational Database minimises the potential for errors when entering data.

To perform a search/query that requires information from more than one table we simply need to include the separate tables in our query.

For example: If we are to ask the database for the average wage of people from Veitongo then we need data from both the table "Employee" as well as the table "Town". From the table Town we get the town "Veitongo" and match it to the Pay Rate for each employee.



1 Start a New Query by going to the "Queries" object, and clicking on New.

2 Specify that we want to use Design View for our New Query.

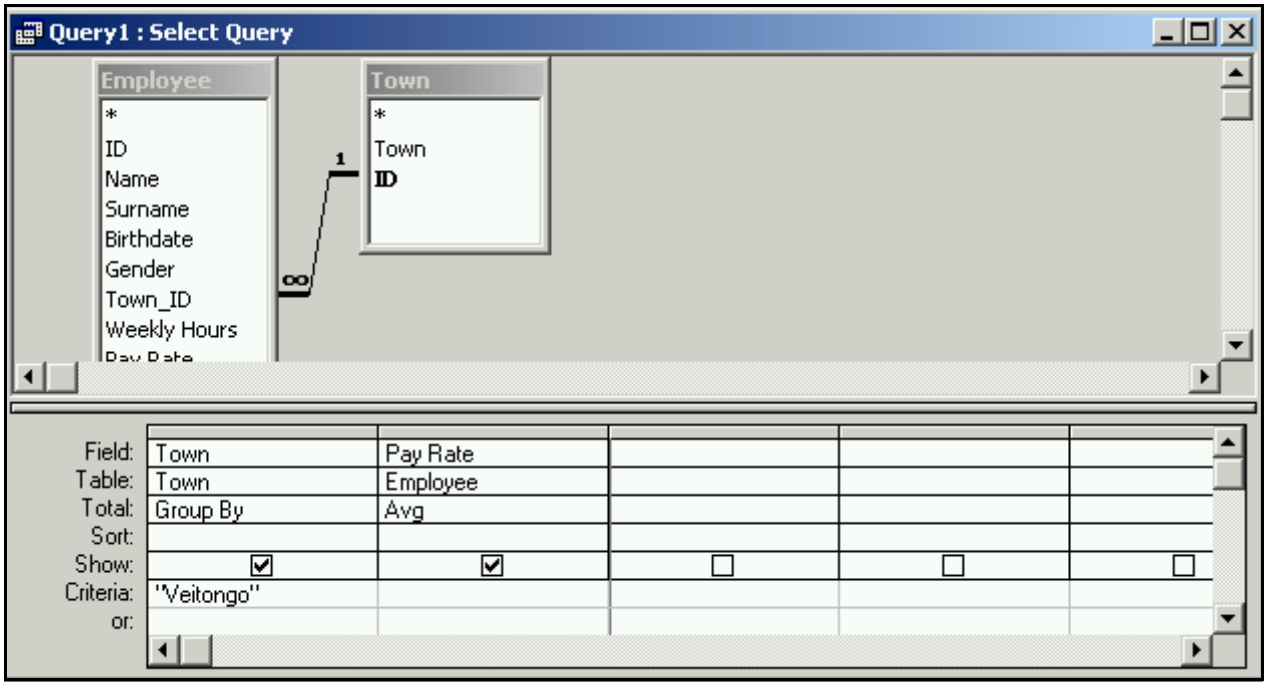
3 When the *Show Table* dialog shows up, **add** both the [*Employee*] table **and** the [*Town*] table before closing the dialog.

4 Our query requires the [Town] and [Pay Rate] so we double-click on these fields so they show up on the bottom pane.

5 We only need Veitongo in the Criteria for the [Town] field, we type in Veitongo.

6 To get the average [Pay Rate] we would use the Totals (go to the Totals Tool item, or the menu **View | Totals** and specify in the drop-down list box that we want the Average (avg).

7 A check of the results with DataSheet view should reveal a number such as



listed below.

2.22655172234979

Making a Calculation

What we have calculated above is the average of [Pay Rate] which is good, but we actually need to find the average wage.

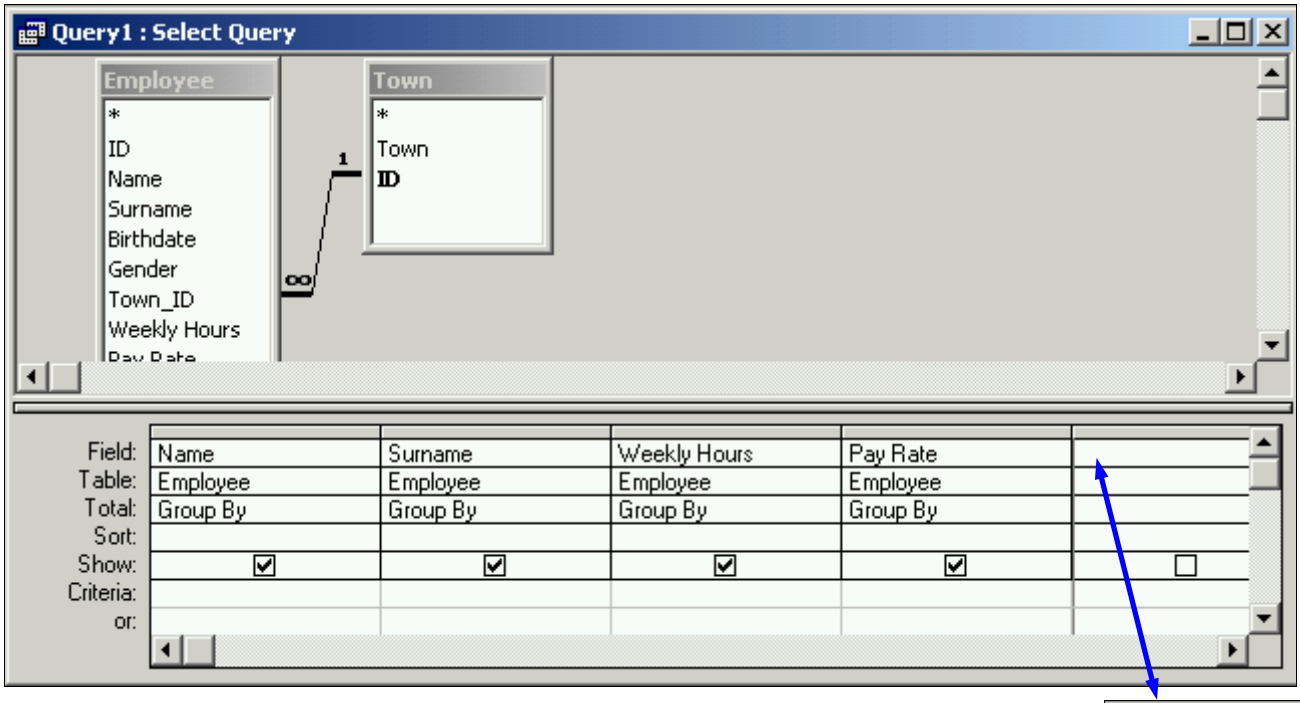
The wage is found by multiplying the [Pay Rate] and the [Weekly Hours]

We can find the average after we have made the calculation.

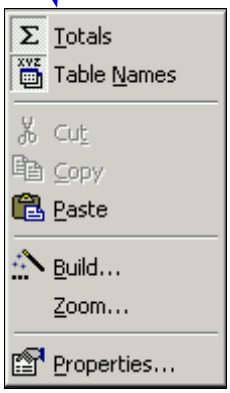
1 So let's open up a new query, have both tables specified for the query (just as we have made for the previous query.)

2 Specify you want a column each for [Name], [Surname], [Weekly Hours], and [Pay Rate]

3 On the fifth column, where no field has been currently selected click on the



first cell, right-click on the field-row. You will get the menu shown to the *right*, and we need to take a look at the **Zoom …** command so select that command. (You can also get to Zoom by pressing the Shift+F2 key-combination.)



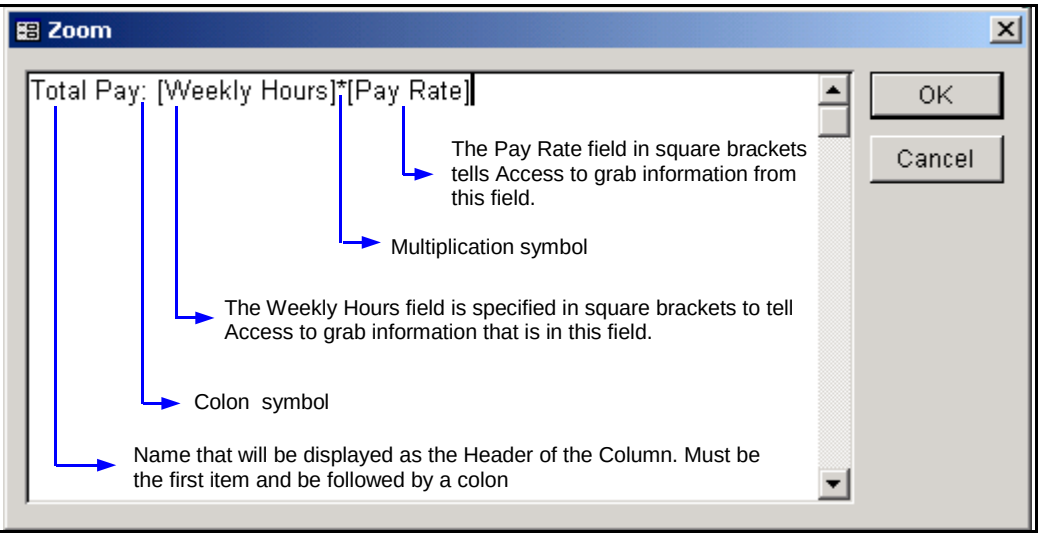
4 You have a dialog box for entering a formula. Enter the Formula: **Total Pay : [Weekly Hours] * [Pay Rate]**

5 Select OK to accept the formula

6 Click on the DataSheet View to see what our query gives us.

Special Notes on Formula Entry:

- The new field name, column header (eg. Total Pay) must be followed directly by a colon.
- When we use fields inside a calculation we use square brackets [ ] to let Access know that these are special variables referring to fields in the table.
- Make sure that you have typed the field names in correctly, and that you are using square brackets.



Finalising Our Query

Remember what we actually want is the Average wage for people from Veitongo. Now we know how to look for only people in Veitongo, and we know how to calculate the wage, let's find the average wage for Veitongo.

Query1 : Select Query

Name	Surname	Weekly Hours	Pay Rate	Total Pay
Tamale	Andres	0	2.86	0
Penitini	Anitoni	18	3.76	67.679999828
Ana	Bloomfield	38	4.71	178.98000145
Luseane	Bourke	18	4.92	88.560001373
Viliami	Finau	3	0.78	2.3399999142
Victoria	Guttenbeil	19	2.46	46.740000725
Davina	Hurrel	37	0.5	18.5
Vaisima	Kauhalaniua	32	0.5	16
Kilisitina	Lavakei'aho	19	1.99	37.810000181
Kalolaine	Lavulo	16	3.88	62.080001831
Tutanga	Lavulo	35	4.14	144.89999533
Lainolo	Leveni	1	0.19	0.1899999976
Ana	Liava'a	27	1.7	45.900001287

Record: 1 of 322

1 Create a new query with both tables (since we need information from both tables)

2 Specify you want a column each for [Name], [Surname], [Weekly Hours], [Pay Rate], and [Town] *(note we are including Town in this query)*

3 In the column for [Town] specify the criteria *Veitongo*

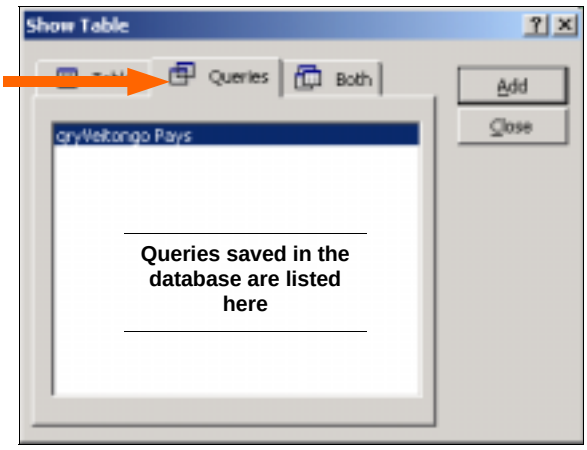
4 For the sixth place set our formula for calculating the wages

5 Check with the *Datasheet* view that you have collected only Total Wages for Veitongo

6 Save the Query as **qryVeitongo Pays** *(this is important for the next part)*

7 Start a New Query, select Design View and the Show Table dialog box shows up.

Select the Queries Tab to show saved queries



8 We need to calculate the average of the Total Pay which is not in any of the tables, but in the query we just saved. Select the Queries Tab, and we should see on the list the saved query "**qryVeitongo Pays**."

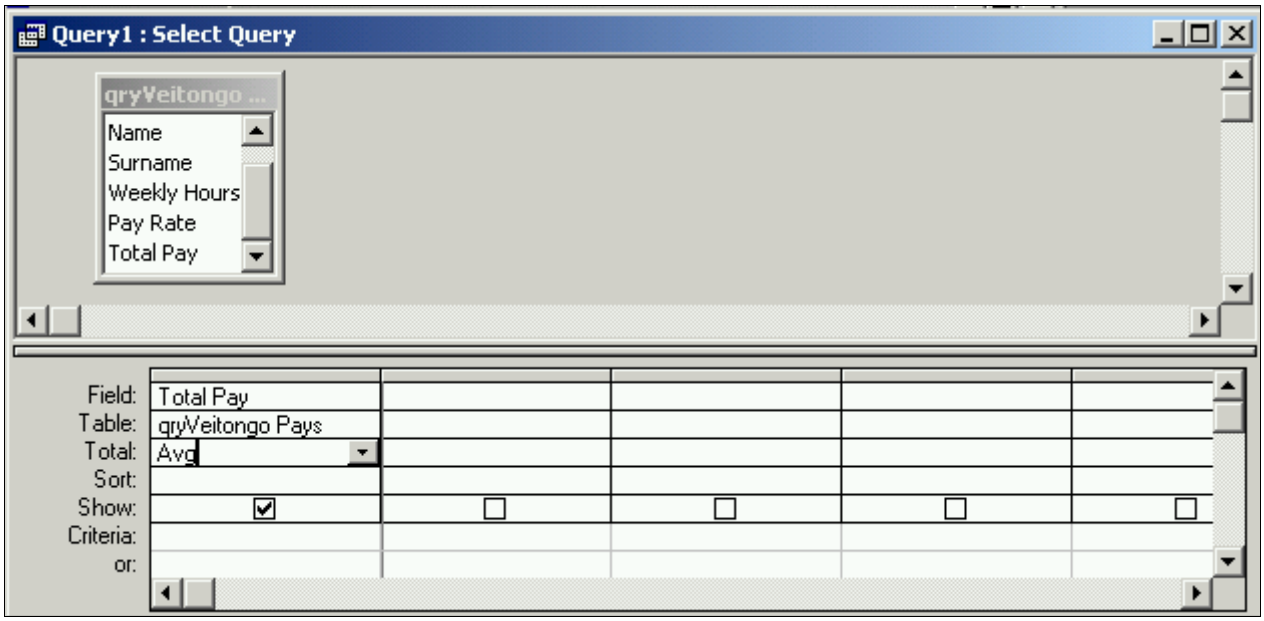
9 Select **qryVeitongo Pays**, **add** it and then select **close** to close the dialog box

10 We only need one field, the [Total Pays] so we double-click on that

11 We need to the average of Total Pays, so we need to open the Totals option by clicking on the Totals tool, or selecting View | Totals from the menu.

12 With the Totals row showing, we select the average function (AVG)

13 Use the Datasheet view to verify that your average wage for Veitongo is



46.293792932

Total Queries

Sometimes you aren't interested in each and every row in your table. You'd rather see totals of different groups of data. For example, you might want the total contract amount for all clubs in a particular state. Or you might want to know the average of all sales for each month in the last year. To get these answers, you need a *total query*. To calculate totals within any query, click the Totals button on the toolbar in Design view to open the Total row in the design grid.

Simple Queries, Compound Queries

It is a common mistake to get ***Or*** and ***And*** mixed up when typing a compound criteria for a single field.

You may think to yourself, "I want all the Females in Veitongo and Ma'ufanga," and then type: *Veitongo And Ma'ufanga* in the Criteria row for the Town field.

When you do this, you're asking Access to find rows where *(Town = "Veitongo")* ***And*** *(Town = "Ma'ufanga")*. Since a field in a record can't have more than one value at a time (it can't contain both the values "Veitongo" and "Ma'ufanga" in the same record), there won't be any records in the output.

To look for all the rows for these two towns, you need to ask Access to search for *(Town = "Veitongo")* ***Or*** *(Town = "Ma'ufanga")*. In other words, type *Veitongo Or Ma'ufanga* in the Criteria row under the Town field.

The criterias we have used so far have been 'simple' because it has only required one particular solution.

If you want to test for any of several values, enter the values in the Criteria row, separated by the word *Or*.

For example, specifying *Veitongo Or Ma'ufanga* searches for records for Veitongo or Ma'ufanga. You can also test for any of several values by entering each value in a separate Criteria or Or row for the field you want to test. For example, you can enter *OR* in the Criteria row, *Veitongo* in the next row (the first Or row), and so on but you have to be careful if you're also specifying criteria in other fields, as explained in the side-box.

AND vs. OR

When you enter criteria for several fields, all of the tests in a single Criteria row or Or row must be true for a record to be displayed. That is, Access performs a logical AND operation between multiple criteria in the same row.

So if you enter *Veitongo* in the Criteria row for [Town] and *<100* in the Criteria row for Total Pay, the record must be for the Town of Veitongo ***and*** must have a pay of greater than 100 in order to be selected.

If you enter *Veitongo Or Ma'ufanga* in the Criteria row for [Town] and *<=80 And >=50* in the Criteria row for [Total Pay], the record must be for the Town of Veitongo or Ma'ufanga, ***and*** the Total Pay must be between 50 and 80 inclusive.

Working the above samples out

1 Select the **qryVeitongo Pays** and **Edit | Copy**

2 Select **Edit | Paste** this makes a copy of the original query for us to work with. In the Paste As dialog box type in the query name as **Compound Quest**

3 Open the query **Compound Quest** by double-clicking on it.

4 Go to design view by either using the **View | Design** menu or by clicking on the Design icon

Example 1

So if you enter *Veitongo* in the Criteria row for [Town] and *<100* in the Criteria row for Total Pay, the record must be for the Town of Veitongo ***and*** must have a pay of greater than 100 in order to be selected.

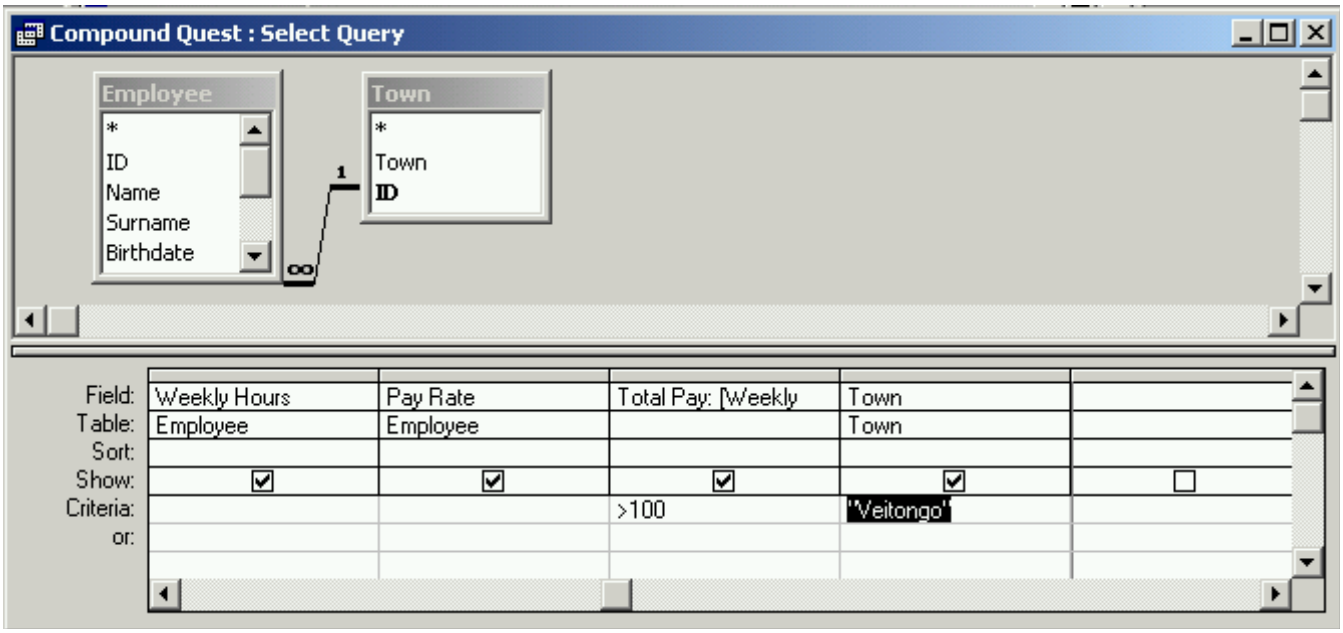
1 In the Criteria row for Town enter Veitongo

2 On the same row, under the Total Pay column enter <100

3 Check the results in the Datasheet view, the listed people should all be from Veitongo **and** have a pay greater than 100.

Example 2

If you enter *Veitongo Or Ma'ufanga* in the Criteria row for [Town] and *<=80 And >=50* in the



Criteria row for [Total Pay], the record must be for the Town of Veitongo or Ma'ufanga, ***and*** the Total Pay must be between 50 and 80 inclusive.

1 Go to Design View

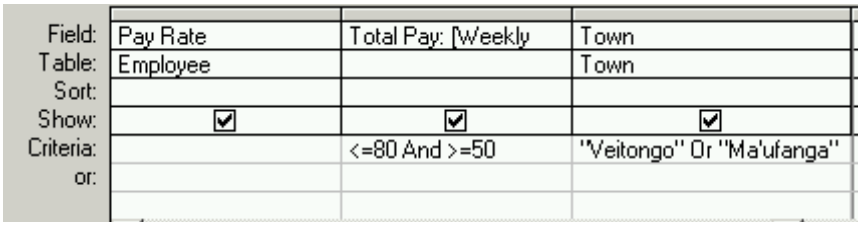
2 In the Criteria row for Town type **Veitongo Or Ma'ufanga**

3 On the same row and under the Total Pay column, type **<=80 And >= 50**

4 Check the results in the Datasheet view, the listed people should be either from Veitongo or Ma'ufanga **and** have a pay between 50 and 80 inclusive.

Example 3

When you do this, you're asking Access to find rows where *(Town = "Veitongo")* ***And***



(Town = "Ma'ufanga"). Since a field in a record can't have more than one value at a time (it can't contain both the values "Veitongo" and "Ma'ufanga" in the same record), there won't be any records in the output.

To look for all the rows for these two towns, you need to ask Access to search for *(Town = "Veitongo")* ***Or*** *(Town = "Ma'ufanga")*. In other words, type *Veitongo Or Ma'ufanga* in the Criteria row under the Town field.

1 Go to Design View

2 In the Criteria row for Town type **Veitongo And Ma'ufanga**

3 On the same row and under the Total Pay column, type **<=80 And >= 50**

4 Check the results in the Datasheet view. Is anyone living in Veitongo and Ma'ufanga.

SOURCES AND REFERENCES:

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