

CHAPTER THREE RECORD SELECTION

In this chapter, we will cover the following subjects:

- Use the Crystal Reports™ **Select Expert**.
- Add or modifying the selection criteria.
- Learn the difference between saved and refreshed data and when to apply each.
- Use the record selection expert to apply two or more selection criteria.

1.0 SELECTION CONCEPTS

When the boss tells you he wants data about the company's employees, he usually has something specific in mind. He may want employees from a specific division, hired after a certain date and earning more than \$30,000 per year. Through record selection, you can obtain the specific information your boss wants.

1.1 The purpose of selection criteria is to narrow the focus of the query. To obtain only those records in which the user is currently interested rather than every record in the database.

1.2 One report can be tailored to suit the needs of various users.

2.0 HOW TO USE THE SELECT EXPERT

2.1 There are three methods to activate the **Select Expert**.

2.1.1 Click on the **Select Expert** button on the **Tool Bar**.



2.1.2 Choose **Reports/Select Expert** from the **Menu Bar**.

2.1.2 Click on an existing field, and then right click for the **Shortcut Menu**. Choose **Select Expert** from the shortcut menu.

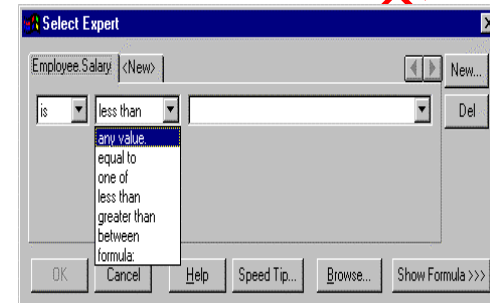
2.2 **Select Expert**

Use the **Select Expert** to create the selection by choosing the field and criteria for selection



Steps to take to use the select expert:

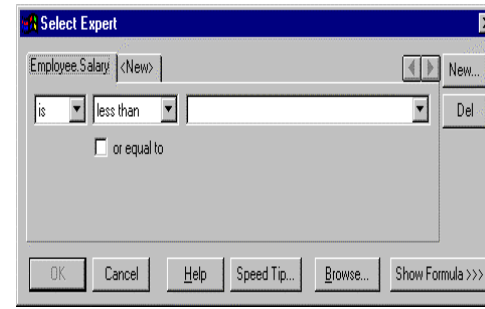
Click **New...** to open the **Choose Field** window. Select the desired field and click **OK** to close the window.



From the Drop Down Box displaying "any value", click the arrow and select the criteria method.

Record selection options include:

Any Value	This is the default value.
Equal To	Selects records that exactly match a specific value. i.e. Sales = \$30,000
One Of	Selects records that are one of a list of values. i.e. CA, FL, MA
Less Than	Selects records that are less than a specific value. i.e. All sales less than \$30,000
Greater Than	Selects records that are greater than a specific value. i.e. All sales greater than \$30,000
Between	Selects records that have a value between specific values. i.e. All sales between \$20,000 and \$50,000
Starting With	Selects records that begin with a specific value. i.e. Only select customers with the last name starting with "A"
Like	Permits the use of the wild cards, "?" and "*". Wild cards are pattern matching characters used in searching. When this option is chosen, you will note that the two wildcard options appear on the Select Expert window. The "?" is for one character i.e. Smith"?" will look for all names that are Smith, plus one more character The "*" is for more than one character i.e. Sm "*" will look for all name that begin with Sm. Another way to use "*" is to place it in the center of your search. S*th will look for all names that begin with S and end in th.
Formula	Selects records that match a user created formula.
InthePeriod	This is a selection type which only applies to date fields and selects records that fall within a specified period of time. The third drop down box has all the date ranges from which to choose.



Once any selection is made, you can go back to the first drop down box and negate the criteria by choosing **is not**.

In addition, if you want to use a criteria with an **or equal to** statement, simply check the box, i.e. less than or equal to \$50,000.

In the third drop down box, enter the values to be used by the criteria. Click on the down arrow to display and select from current field values.

The values in this box consist of only the first 100 rows of the database. It is, therefore, possible that not all the available values will appear in this box.

Click **OK** when finished.

3.0 SAVED VS REFRESHED DATA

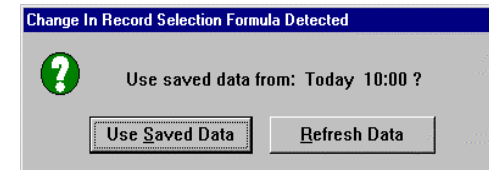
What happens if the data returned is not what you want?

3.1 Go back to the design window and correct the query.

3.2 When you are finished, preview the report again.

3.3 Clicking on the **Preview** tab, **File/Print Preview Sample**, or **File/Print**

Preview opens an alert window.



As a rule of thumb, refresh data. Whenever you change a selection criteria, you will be looking at the data in a different way so you will want all the data available searched – not just the data that is currently in the report.

CHAPTER EXERCISE

- Open the EmpList.rpt.

- b) Highlight the Salary field and then right click to open the **Shortcut Menu**.
- c) Choose the **Select Expert** from the **Shortcut Menu**.
- d) Select **between** in the second pull down box and enter 25000 to 50000 for the salary values to use.
- e) Preview the report.
- f) Select refresh data to refresh your report.

4.0 SELECTING ON TWO OR MORE FIELDS

Additional criteria can be set at any time during the report creation.

STEPS TO TAKE

1. Open the **Select Expert**.
2. Click on the **New** button.
3. Choose the desired field.
4. Enter the criteria.
5. Click **OK**.
6. Preview the report.

CHAPTER EXERCISE

Using the EmpList.rpt:

Find all employees who hold the position of Sales Representative. Preview and save the report. Don't forget to refresh the data.

CHAPTER FOUR

SORTING, GROUPING, AND SUMMARIZING

Imagine yourself seated in a classroom of students (you may even be in that situation right now!). Take a look around. Ask yourself; "Why am I sitting where I am? Would I be more comfortable sitting elsewhere?" If you had been more comfortable elsewhere you would have sat there!

The fact is you sat down in this group of people where you did, because you felt most *natural* in that spot. Databases work the same way. Data is entered into the database by a data entry person—usually in no particular order. It is for this reason that when we take an initial look at a database, we see data in its *natural order*.

It is important to recognize this term; *natural order* because even though data in the database may have been entered in a certain way, it is most often not the way we want to see the data on a report.

Continue to imagine yourself seated within this group of people in your class. Now the instructor asks you all to stand up. Additionally, the instructor asks for all the male students to stand on one side of the room and for the female students to stand on the other side of the room (thereby segregating the people in the class).

If we try to use the class as a metaphorical database, we can see that the students in the class represent rows in your database. Further, these rows are not represented in *natural order*. In fact the rows are represented in *groups*.

There are two groups; female and male. In fact, the data has been grouped by one factor—gender. If the class is a sample database, then we would assume that the database has a column within it representing the gender of each student. In our report, we have used this column to indicate our desire to see two groups of data from one database.

Next, the instructor asks each group of students to arrange themselves according to height. If we then look at the members of each group starting with the shortest and working our way up to the tallest, we can say that we have *sorted* our data. Data *sorting* is nothing more than arranging data according to the values found in one or more of the columns in our database on which we are reporting. If we look at the students from shortest to tallest we can say that we are looking at our data in ascending order. On the other hand, if we look at our students from tallest to shortest we can say that we are looking at data in descending order.

Next, the instructor asks for all people with brown eyes to sit down (regardless of which group they may be in). By doing this the instructor has set up another condition for this report—the instructor has created *record selection criteria*.

By adding *record selection criteria*, the instructor has decided which data needs to be seen based on data in a specific column in the database. While this example illustrates eye color, in reality data may be numeric, date based or even text, such as state abbreviations, etc. Once the report author decided which data is to be included on the report (or excluded), it is simply a matter of knowing which column the data on which to be discriminated is contained.

Finally, the class instructor looks to the male group and says; "all the guys that did \$5.00 each in sales yesterday." Additionally, the instructor looks to the female group and says "all the ladies that did \$10.00 in sales yesterday."

If there are five men and five ladies, each group will have a *count* of five. The male group will have a *sub-total* of \$25.00 in sales for yesterday while the ladies will have a *sub-total* of \$50.00 in sales for yesterday. The report's *grand total* will be \$75.00.

If the above is true then we can say that the:

- Count is a summary function that counts the number of records within a group.
- Sub-total is a summary function that adds the values of a specific field for the records within a group.
- Grand-total adds up the values of all of the sub-totals for every group in the report.

This chapter covers the following topics:

- Sorting records
- Grouping records
- Inserting summaries and grand totals

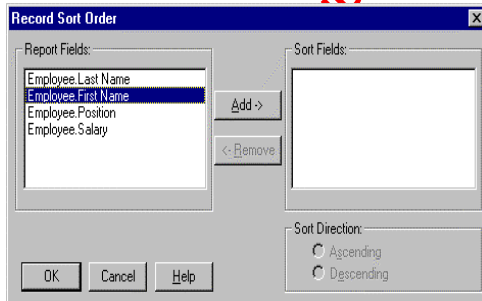
1.0 RECORD SORT ORDER

1.1 Choosing the **Report/Sort Records** from the **Menu Bar** or the **Sort Icon** on the **Tool Bar** accesses the **Sort Records Expert**.

1.2 All records on the report will be displayed on the **Record Sort Order**



window.



The **Record Sort Order** window has two sides: **Report Fields** and **Sort Fields**.

The **Report Fields** lists all fields which are currently on the report and are, therefore, eligible for sorting.

The **Sort Fields** window lists fields that are being sorted on.

After field selection is made, **Sort Direction** may be selected.

STEPS TO TAKE IN SORTING

1. Open the **Record Sort Order** window through clicking **Report/Sort Records** from the **Menu Bar** or selecting the **Sort Order** icon from the **Tool Bar**.
2. Select the desired field(s) and click the **Add->** button or double click on the desired field(s).
3. Choose the sort order - **Ascending** or **Descending**.
4. Click **OK** to accept.

CHAPTER EXERCISE

g) Create a new report using the Customer table and the following fields:

- Customer Name
- City
- Region
- Last Year's Sales

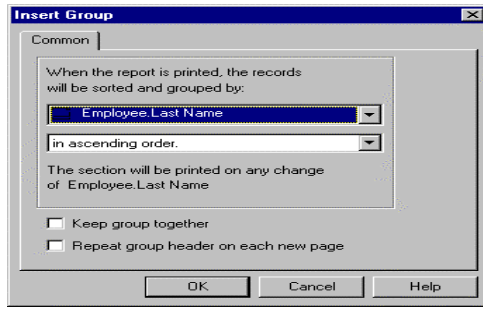
h) Regions should be California, Florida, Iowa, and Maine with Last Year's Sales over \$20,000.

i) Sort by City and Last Year's Sales.

j) Preview and save the report as CustSales.rpt

2.0 GROUPING RECORDS

There are times when simply getting a list in a sorter order is not enough. The data needs to be broken down into groups. In Crystal Reports™ there is **only one way** to **create a group** and that is by selecting the **Insert/Group** option from the **Menu Bar**.



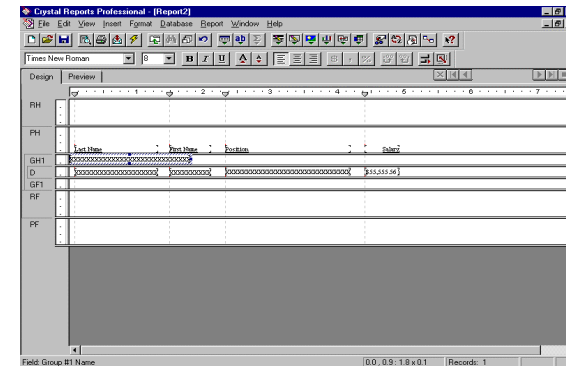
The **Insert Group** window opens.



The top drop down box lists the fields available for grouping. The first fields are the fields on the report annotated by the table name followed by the field name (tablename.fieldname). The last part of the list contains all fields associated with the report by table name.

Each time a new group is added, two new areas of the report are created: the **Group Header** and **Group Footer**.

2.1 If you have more than one group, the **Group #1** will be the **main** group



GROUP HEADER

Acts the same as any header except it appears at the beginning of each group. There is an option on the **File/Options** menu that will place the group field name in the header.

GROUP FOOTER

Acts the same as any footer, except that it appears once at the end of each group. Summary information such as subtotals and counts appear here.

and each group after that will be subordinate to it.

2.2 If changes have to be made to groups, it is best to do that from the design view. It is faster and the groups are easier to determine.

2.2.1 **Delete:** In the gray area (to the side) of the report, click the mouse to open the **Shortcut Menu**. Choose **Delete Group** from the menu.

2.2.2 **Changes:** Open the **Shortcut Menu** and choose **Change Group**. Make your changes and close the box.

STEPS TO TAKE – CREATING A GROUP

1. Select **I**n**sert/G**roup from the **Menu Bar**.
2. Select the field on which to group from the top drop down box.
3. Select the sort order from the second drop down box.
4. Select the **Keep Group Together** and **Repeat Group Header on each new page** options, if desired.
5. Click **OK** to close the window and create the group.

CHAPTER EXERCISE

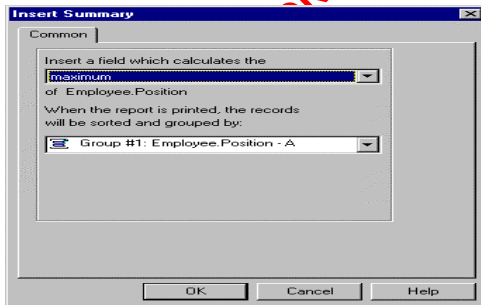
- k) Open the CustSales.rpt.

- l) Create a group by Region and sort in ascending order.
- m) Remove the Region field and heading from the report and reposition fields, if necessary.
- n) Preview and save the report.

3.0 SUMMARIES AND GRAND TOTALS

After the data has been sorted and grouped, it may be necessary to add summary fields. These fields may include subtotals, totals and counts. Numeric fields are the only fields that can be subtotaled.

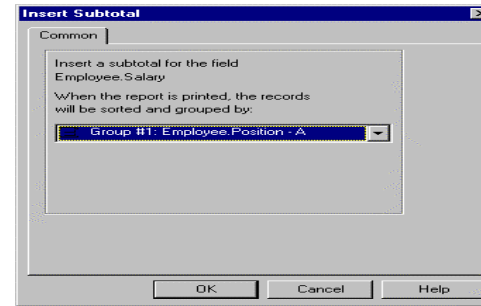
- 3.1 Right click on the field to be summarized and choose **Insert/Summary** or **Insert/Subtotal** from the shortcut menu or select the **Summary** icon from the **Tool Bar**.



The **Insert Summary** window contains two drop down boxes.

The top box lists four options for the calculation: maximum, minimum, count or distinct count.

The bottom box allows the user to choose where the summary will appear.



Subtotals can only be calculated on numeric fields.

Select the sort and group by field from the drop down box.

Click **OK** to close the window.

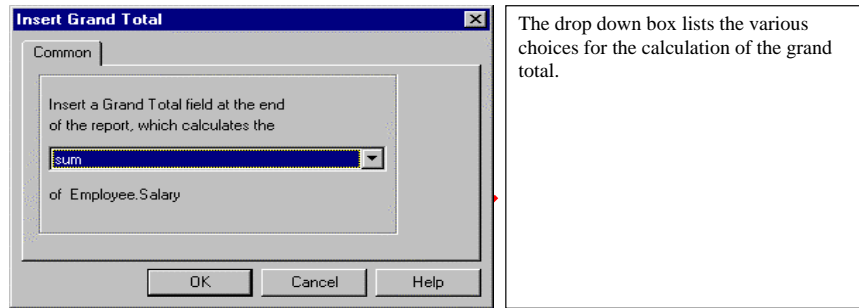
STEPS TO BE TAKEN – INSERTING A SUMMARY

- 1) Select the field to be summarized and open the **Shortcut Menu** then choose **Insert Summary** or **Insert Subtotal**, or select **Insert/Subtotal**, **Insert/Summary** from the **Menu Bar** or select **Insert Summary** from the **Tool Bar**.
- 2) Select the desired groupings, sorts and sort orders as necessary.
- 3) Click **OK** to close the window.

3.2 Inserting a Grand Total

The report total is separate from group subtotals, but is achieved in the same manner as the subtotal. The grand total appears once at the end of the report and is an optional feature.

3.2.1 Access this feature by selecting **I**nsert/**G**rand **T**otal from the **Menu Bar**.



STEPS TO BE TAKEN – INSERTING A GRAND TOTAL

1. Select the field to be totaled.
2. Choose **I**nsert **G**rand **T**otal from the **Shortcut Menu** or **I**nsert/**G**rand **T**otal from the **Menu Bar**.
3. Select the appropriate option from the drop down box.
4. Click on **OK** to accept.

CHAPTER EXERCISE

- a) Open the CustSales.rpt.
- o) Subtotal Last Year's Sales by Region.
- p) Count the Customers in each Region.
- q) Total Last Year's Sales for the report.
- r) Create a text object to describe each subtotal and grand total.
- s) Preview and save the report.