

Section 8

Filtering

By the end of this Section you should be able to:

Filter Lists

Use the AutoFilter

Use Custom Criteria with AutoFilter

Use the Advanced Filter

Filter using Complex Criteria

Extract Filtered Data

Exercise 54 - Filtering Lists

Guidelines:

Filtering is a quick way to find records in a list that match search criteria. Only the data that matches is displayed.

There are two ways to filter a list: the **AutoFilter** (for a simple filter - the rows that do not match are hidden) and the **Advanced Filter** (for more complex filtering - either filtered in place or separate). When a list is filtered, the worksheet is placed in **Filter Mode**.

Filtering does not affect the integrity of the original data. The display may change to show only selected records or a new list of selected records may be created, but the original data remains unaffected.

In **Filter Mode**, the labels at the top of the list contain drop down arrows. If one of these arrows is clicked, a list of all items in the column is revealed. The filter to be applied can then be selected from the list.

AutoFilter produces a subset of a list with the click of a button. Click on any of the arrows to display a drop down list of unique items in that column. Click on any item and the matching records (rows) will be displayed with the other rows hidden.


AutoFilter always selects from the whole list. **AutoFilter** can be applied to selected columns in a list by selecting them before entering **Filter Mode**.

The default view is to show all rows (**All**), until an alternative selection is made from the list. Other options include:

(**Top 10...**), to show rows that fall within upper or lower limits specified by the user, e.g. top 20% of sales.

(**Custom**), where two criteria can be applied and data can be compared.

Actions:

1. Open the workbook **Absences**.
2. Enter **Filter Mode** by clicking on a cell in the list and then displaying the **Data** tab and clicking the **Filter** button, in the **Sort & Filter** group. 
3. All the **Smiths** can be found, using the **Surname** drop down list. Click on the drop down list in cell **A3** and click **Select All** to clear all check marks, scroll down and check the box to the left of **Smith**. Click **OK**. Only the **Smiths** are displayed.

continued over

Exercise 54 - Continued

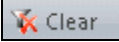
	A	B	C	D
1	Staff Absences			
2				
3	Surname	Initial	Department	Abse
9	Smith	F	Finance	1
10	Smith	John	Production	4
18	Smith	James	Production	2
26	Smith	C	Training	4
27				

Note: A filtered list can be printed as it appears as on the screen.

4. To redisplay the full list using the **Surname** drop down list, click **(Select All)** at the top of the list. Click **OK**.
5. Exit **Filter Mode** by clicking on the **Filter** button again.
6. With **Absences** left open, open the workbook **Survey**.
7. Click in the list, then enter **Filter Mode** (by clicking the **Filter** button).
8. To display all the males from Sunderland who have replied, display **M** only from **Sex**, **Sunderland** from **Town** and **1** from **Reply**.

First_Name	Sex	DOB	Age	Town	Reply
Peter	M	17/07/1971	37	Sunderland	1
Paul	M	31/01/1969	39	Sunderland	1
Wilfred	M	16/05/1955	53	Sunderland	1

Note: The drop down arrows are displayed as  if a filter has been applied.


9. To redisplay the whole list, instead of selecting **All** from the three lists, click on the **Clear** button, .
10. Exit **Filter Mode**.
11. Close the workbook **Survey** without saving.
12. Leave the workbook **Absences** open.

Exercise 55 - Advanced Filter

Guidelines:

To search a list for more complex criteria, e.g. matching information from two fields rather than one, then **Advanced Filter** is used. The **Criteria** are set up in a separate range of cells, normally to the top or right of the list or in a separate window. Once the criteria range has been set up, then the list can be filtered.

Actions:

1. Open the workbook **Absences**, if not already open.
2. To create a criteria range, some rows need to be inserted. Highlight **3 to 6** in the row headings by clicking and dragging.
3. Display the **Home** tab and then click the drop **Insert** button, , to insert new rows.

*Note: Alternatively right click inside the range 3 to 6 when highlighted and select **Insert**.*

4. Highlight the range **A7:D7** (the field names) and copy to **A3**.
5. To setup a search for all the staff in Administration with less than 5 days absence, on row **4** enter **Administration** under **Department** and **<5** under **Absent**.


	A	B	C	D	E
1	Staff Absences				
2					
3	Surname	Initial	Department	Absent	
4			Administration	<5	
5					
6					
7	Surname	Initial	Department	Absent	
8	Chapman	I	Finance	17	
9	Waldram	B	Computer Services	2	
10	Parr	N	Training	1	
11	Myers	A	Computer Services	0	
12	Westgarth	S	Catering	0	
13	Smith	F	Finance	1	
14	Smith	John	Production	4	

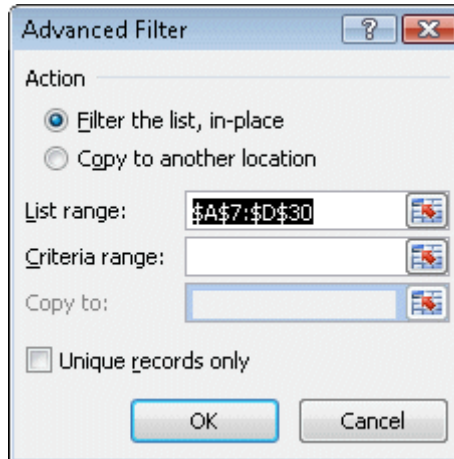
Criteria Range A3:D4

Note: The criteria range must be at least one column and two rows. The first row contains any field names in any order. The other rows contain the required information to match.

continued over


Exercise 55 - Continued

- The criteria range is now setup for the filtering to take place. Select a cell in the main list and display the **Data** tab, then click on the **Advanced** button, .



- The **List range** has been defined correctly, if not select the range **A7:D30** from the worksheet.
- Click in the **Criteria Range** box and select the range **A3:D4** (it could have been **C3:D4**, but using the larger range means that other filtering can be done without redefining the criteria range). Leave the other options as they are and click **OK** to filter the list in place.

	A	B	C	D	E
1	Staff Absences				
2					
3	Surname	Initial	Department	Absent	
4			Administration	<5	
5					
6					
7	Surname	Initial	Department	Absent	
16	Leigh	C	Administration	3	
23	Borland	J	Administration	0	
26	Wood	R	Administration	3	
31					

- Return to the full list in filter mode by clicking .
- This is an example of an **'and'** filter, try another by clearing row **4** and entering new search criteria. Repeat the instructions from step 6 onwards to complete the advanced filter.
- Display the full list of data.
- Save the workbook as **Absences2** and close it.

Exercise 56 - Extracting Filtered Data

Guidelines:


A **Criteria Range** can be arranged to combine two searches by placing information on the same row (combination 'and') or on two rows (combination 'or'). If the same name is required for an 'and' combination the field name must be duplicated.

Extracting means copying records that match the criteria to another part of the worksheet. All the field names need not be used, so that specific information for a specific purpose can be extracted to form another list.

Actions:

1. Open the workbook **Invoice List**.
2. Copy row **5** to row **1** to setup the **Criteria Range**.
3. To find invoice numbers less than 170 and amounts of more than £1000 excluding Vat., enter **<170** below **Invoice** and **>1000** below **Amount**.

	A	B	C	D	E	F	G
1	Invoice	Date	Co. No.	Company	Amount	VAT	Total
2	<170				>1000		
3							

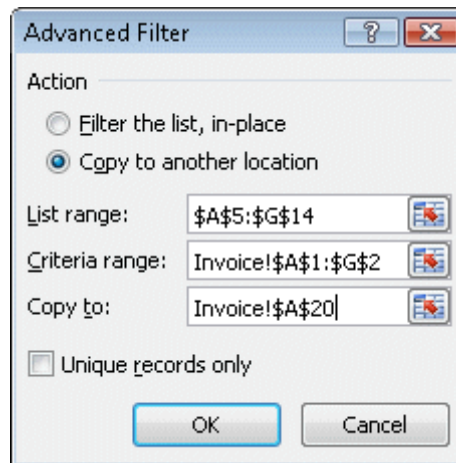
4. Select a cell in the list and click on the  **Advanced** button from **Sort & Filter** group on the **Data** tab.
5. Click in the **Criteria Range** box and select the range **A1:G2** on the worksheet. Click **OK** to filter the list. There should only be one record. Click on the **Clear** button.
6. To find the invoices dated before 1st Jan 92 or totals over 750, an 'or' search is needed, clear Row **2** of data and replace with **<1/1/92** under **Date** and **>750** under **Total**, but in row **3**.
7. Using **Advanced Filter** set the **Criteria Range** as **A1:G3** (to include the extra row) display the matching records (there should be **6**). Re-display all the data.
8. Delete the data from rows **2** and **3**.
9. A more difficult search would involve, for example, **Amounts** between £300 and £500. This is an **and** search (on the same line) but the field name has to be given twice. Copy **Amount** from **E1** to **F1**.
10. Enter the figures as below:

Amount	Amount
>300	<500

continued over

Exercise 56 - Continued

11. Set the criteria range as **E1:F2** and find the matching records. (**AutoFilter** can do this and is easier).
12. Select **Clear** to show all of the data again. Copy **F5** to **F1** to change **Amount** back to **VAT** and delete the data in row **2**.
13. In cell **G2** enter **<1000** to find all the small amounts owed.
14. Select a cell in the list and then click on the **Advanced** button.
15. Set the **Criteria range** as **A1:G2**.
16. Select the **Copy to another location** option.
17. Click in the **Copy to** box and select the cell **A20**.



18. Click **OK**. The matching records are placed in a range starting **A20**. This list contains only the selected records. The original list is unaffected.
19. Delete the range **A20:G25**.
20. Only a part of the full list is to be filtered and extracted: **Invoice**, **Company** and **Total**. Copy the three field names one at a time to the range **A20:C20**.
21. Select a cell in the list then click on **Advanced**, then **Copy to another location** and in the **Copy to** box add the range **A20:C20**.
22. Click **OK** to extract the matching records. All the matching records are placed under the field names.
23. Close the workbook without saving.

Exercise 57 - Revision: Filtering

Assessment

Use a filter maintaining data integrity. Produce evidence of filtered results.

1. Open the workbook **Kitchen**.
2. Display the **Order Details** sheet.
3. Click on any cell in the range **A8:F40**.
4. Start a **Filter**.
5. Delete any data in the **Quantity** column.

Note: Clearing out unwanted data from one customer to the next is to be automated later using a macro.

6. Enter sample data into the **Quantity** column. The **Price** and **Total Price** columns are automatically calculated as are the totals at the bottom of column **F**.
7. Enter your name details and postcode in row **4**. The **Reference No** is displayed.
8. Choose a **Type** of material for the kitchen (from **2** to **6**) in cell **C5**.
9. Filter the list in place by clicking the **Total Price** drop down arrow. Remove the check from **Blanks**. Click **OK**. Only the items ordered are displayed (**objective 2i**).
10. Print a copy of the filtered **Order Details** worksheet (**objective 5i - 3**).
11. Re-display the full list of items, either click (**Select All**) from the **Total Price** drop down list or by clicking the **Clear** button from the **Sort and Filter** group on the **Data** tab of the **Ribbon**. The data integrity is maintained - none of the data is lost using the filter (**objective 2i**).

*Note: Completing this section of the guide has allowed the following elements of the **Evidence Checklist** to be completed. In your checklist, the ticks must be replaced by the page numbers of your portfolio where the relevant evidence is located. This task may have to be delayed until the portfolio is complete and page numbers have been applied.*

2	use formulae and functions in spreadsheets	Page Number	
...			<input type="checkbox"/>
2i	use a filter maintaining data integrity	✓	<input type="checkbox"/>

continued over

Exercise 57 - Continued

5	save and print spreadsheet(s) and graphs/charts	Page Number	
...			<input type="checkbox"/>
5i	produce hard copies to show: <ol style="list-style-type: none"> 1. evidence macro 2. pivot table 3. filtered results 4. auditing evidence 5. comment and notes 6. testing of spreadsheet data including testing extremes and normal/expected data 	✓	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

12. Save the workbook and close it.