

# Gathering Information from an Inventory System in Excel

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## What is an inventory system?

What purpose does an inventory system serve? Firstly, an inventory system caters to keep track of a business's products, items, or services i.e. in other words, inventory. Today, in most businesses, this is done using a computer system. An inventory system should ideally keep track of your current remaining items, movement of items (fast against slow moving items), and when to reorder items should it fall below the minimum quantity level (taking into consideration the lead time or time taken for new items to arrive upon ordering).

The above will provide an insight to the senior management in terms of decision making as to the best-selling items, how quickly best-selling items are moving, the slow moving items (items that are not selling as quickly as the management expects), what to do with current slow moving items, and a host of other decision making information.

## A simple inventory system

For small businesses and even home use, a simple inventory system could be set up using tools such as Microsoft Excel. Let us look at the data below of an inventory system.

	A	B	C	D	E	F	G	H	I
1	Item Type	Item Category	Item Description	Unit Measure	Per Ctn Packaging	Current Balance	Reorder Level	Reorder Qty	Item Status
2	RI	Dry Stores	Chilli Sachet	Carton	1,000	255	100	1,000	OK
3	RI	Dry Stores	Cocoa Biscuit (pkt)	Tin	150	126	150	150	Re-order
4	RI	Dry Stores	Evaporated Milk	Carton	48	32	24	48	OK
5	RI	Mineral / Juices	Mango Juice	Carton	12	6	12	24	Re-order
6	RI	Mineral / Juices	Orange Juice	Carton	12	9	12	48	Re-order
7	RI	Soft Drink	Diet Coke	Carton	24	35	48	96	Re-order
8	RI	Soft Drink	Soya Bean	Carton	24	60	48	72	OK
9	RI	Amenities	Garbage Bag	Bundle	100	125	50	200	OK
10	RI	Amenities	Toilet Roll	Bundle	10	12	10	20	OK
11	DI	AK Items	Hot / Cold Towel	Carton	40	64	40	80	OK
12	DI	AK Items	Snack Box	Piece	100	86	100	300	Re-order
13	DI	AK Items	Sugar Sachet	Carton	500	258	300	1,000	Re-order

The above data shows that there are two Item Types (in column A) i.e. RI and DI. For each Item Type, there are different Item Categories (column B). Of course, for each Item Category, you will have different Item Descriptions.

Column D indicates the unit of measurement for each item. In other words, for every carton of an item e.g. Chilli Sachet (cell C2), there will be 1000 pieces (cell E2) per carton. This is the unit of measurement as indicated in column E.

The current Running Balance in column F shows the current balance available in the warehouse at any point of time. As more of an item is sold, the Running Balance will be reduced.

The Reorder Level in column G states that at any point in time, the company (or warehouse) should have a minimum quantity as stated in column G. This is also known as “buffer stock”. For most businesses, one cannot allow for all items to be sold before a new order is placed. There should always be buffer stock or minimum items that the warehouse should carry at all times. Should the current Running Balance be lower than the Reorder Level, a new should be placed.

Column H indicates the amount that should be reordered if the running balance falls below the Reorder Level (buffer stock or minimum quantity). As all items may take time for delivery, the management should take into consideration the lead time or time taken for items to be delivered based on ordered date.

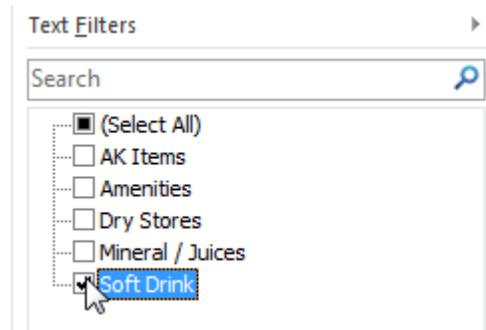
The last column I indicates the current status of any item. For example, if the current Running Balance of an item falls below the Reorder Level, then this will trigger the user and alert him/her to place an order for the specific item. The message “Re-order” will be displayed in red to alert the user the current item is running short.

## Analyzing data within an inventory system

Here comes the decision making part. What type of analysis can you perform using Microsoft Excel? For example, if the management wants of all Soft Drink category in column B, the built-in feature of Excel called Filter can be applied.

	A	B	C	D	E	F	G	H	I
1	Item Type	Item Category	Item Description	Unit Measu	Per Ctn Packagin	Current Balanc	Reorder Leve	Reorder Qty	Item Status
2	RI	Dry Stores	Chilli Sachet	Carton	1,000	255	100	1,000	OK
3	RI	Dry Stores	Cocoa Biscuit (pkt)	Tin	150	126	150	150	Re-order

When the Filter is applied, all header cells in the first row will have a drop down arrow as above. The drop down arrow simply indicates that the user has the option of clicking on it to narrow or refine the search further.

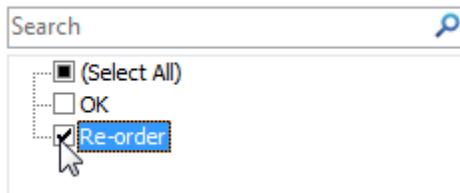


As in the question posed earlier, to get a listing of all Soft Drink items, one could click on the Item Category drop down arrow and only select Soft Drink as highlighted. This will display only two rows of the specified Item Category as below.

	A	B	C	D	E	F	G	H	I
1	Item Type	Item Category	Item Description	Unit Measu	Per Ctn Packagin	Current Balanc	Reorder Leve	Reorder Qty	Item Status
7	RI	Soft Drink	Diet Coke	Carton	24	35	48	96	Re-order
8	RI	Soft Drink	Soya Bean	Carton	24	60	48	72	OK
14									

Notice that the other rows of data are all hidden in Microsoft Excel. If you observe, the row number jumps from 1 to 7 and 8, and jumps again to 14. The rows in-between are hidden when Filter is applied based on selected criteria. This allows the decision making process to be faster.

Similarly, if the management requires a printout of all items that needs to be reordered, the Filter can once again be applied.



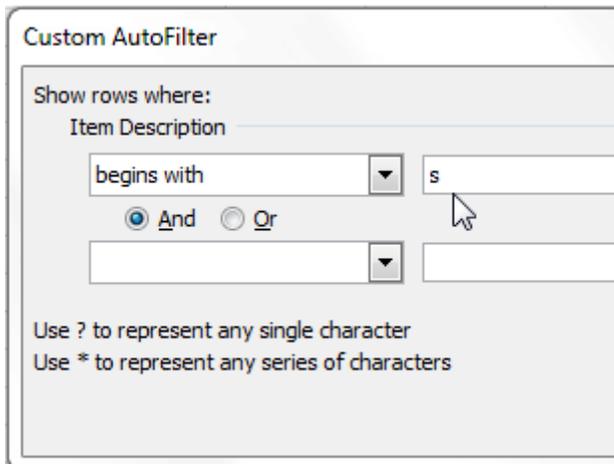
Clicking on the column I Item Status drop down arrow and selecting only the “Re-order” check box as displayed above displays all items that require reordering.

	A	B	C	D	E	F	G	H	I
1	Item Type	Item Category	Item Description	Unit Measu	Per Ctn Packagin	Current Balanc	Reorder Leve	Reorder Qty	Item Status
3	RI	Dry Stores	Cocoa Biscuit (pkt)	Tin	150	126	150	150	Re-order
5	RI	Mineral / Juices	Mango Juice	Carton	12	6	12	24	Re-order
6	RI	Mineral / Juices	Orange Juice	Carton	12	9	12	48	Re-order
7	RI	Soft Drink	Diet Coke	Carton	24	35	48	96	Re-order
12	DI	AK Items	Snack Box	Piece	100	86	100	300	Re-order
13	DI	AK Items	Sugar Sachet	Carton	500	258	300	1,000	Re-order

All six items with the red font “Re-order” are displayed.

Going further into the analysis of the above items, one has the option of being very specific in terms of search. Let us assume we want a display of all Item Description that begins with the letter “s”. How will this be achieved?

Again, the Filter can be applied in such a way to select all Item Descriptions beginning with the letter “s” using the Custom AutoFilter approach by typing in the letter “s” in the text box provided as below.



As can be seen, Excel summarizes the above data to only display selected criteria i.e. all items beginning with the letter “s” as highlighted.

	A	B	C	D	E	F	G	H	I
1	Item Type	Item Category	Item Description	Unit	Per Ctn Packagin	Current Balanc	Reorder Leve	Reorder Qty	Item Status
8	RI	Soft Drink	Soya Bean	Carton	24	60	48	72	OK
12	DI	AK Items	Snack Box	Piece	100	86	100	300	Re-order
13	DI	AK Items	Sugar Sachet	Carton	500	258	300	1,000	Re-order

Excel can also probe into the data more thoroughly. For example, how do we get a listing of all items where the second character is the letter “o”? Once again, the Filter can be used to get a more detailed search as below

	A	B	C	D	E	F	G	H	I
1	Item Type	Item Category	Item Description	Unit	Per Ctn Packagin	Current Balanc	Reorder Leve	Reorder Qty	Item Status
3	RI	Dry Stores	Cocoa Biscuit (pkt)	Tin	150	126	150	150	Re-order
8	RI	Soft Drink	Soya Bean	Carton	24	60	48	72	OK
10	RI	Amenities	Toilet Roll	Bundle	10	12	10	20	OK
11	DI	AK Items	Hot / Cold Towel	Carton	40	64	40	80	OK

## Performing calculations within summarized data

Once you have performed a summarized search like above, how do we perform calculations based on the data listed? For example, what is the total Current Balance of the above four items where the second letter is “o”?

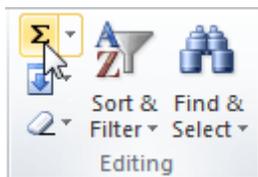
The standard approach for performing addition or sum is using the SUM function in Excel.

	A	B	C	D	E	F	G	H	I
1	Item Type	Item Category	Item Description	Unit	Per Ctn Packagin	Current Balanc	Reorder Leve	Reorder Qty	Item Status
3	RI	Dry Stores	Cocoa Biscuit (pkt)	Tin	150	126	150	150	Re-order
8	RI	Soft Drink	Soya Bean	Carton	24	60	48	72	OK
10	RI	Amenities	Toilet Roll	Bundle	10	12	10	20	OK
11	DI	AK Items	Hot / Cold Towel	Carton	40	64	40	80	OK
14									
15						=SUM(F3:F11)			

However, if the SUM function above is applied, Excel calculates the total as 469 as displayed below.

E	F	G
Per Ctn Packagin	Current Balanc	Reorder Level
150	126	150
24	60	48
10	12	10
40	64	40
	469	

Simple mental calculation will tell the reader that this answer is incorrect. This is a very common (and sometimes dangerous) mistake to make. Please note that whenever one uses the Filter, to get a total sum of rows (with hidden rows in-between), one should apply the AutoSum command button within the Home tab and Editing group as pointed to below.



By applying the AutoSum function, this gives a Subtotal (not Total) based on the rows selected with the correct answer of 269.

F15		fx =SUBTOTAL(9,F2:F14)					
	A	B	C	D	E	F	G
	Item Type	Item Category	Item Description	Unit Measu	Per Ctn Packagin	Current Balanc	Reorder Level
1							
3	RI	Dry Stores	Cocoa Biscuit (pkt)	Tin	150	126	150
8	RI	Soft Drink	Soya Bean	Carton	24	60	48
10	RI	Amenities	Toilet Roll	Bundle	10	12	10
11	DI	AK Items	Hot / Cold Towel	Carton	40	64	40
14							
15						262	

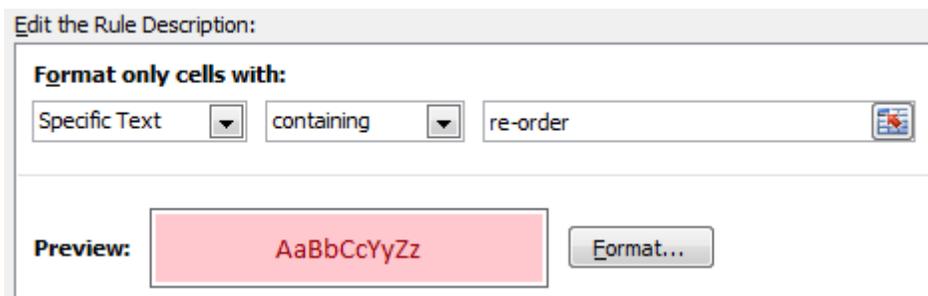
If you observe the Formula Bar above, the formula displayed is SUBTOTAL, not SUM. How did we initially get the value 469? When the SUM function is applied, Excel also considers all rows between the hidden rows and performs the summation of all the hidden and unhidden rows. However, when one applies the AutoSum function, especially for summarized data within Filter, Excel ignores the hidden rows and only adds the Current Balance of rows that can be viewed on the screen. This is the main difference.

## Highlighting specific values or text

Observe column I. The word “Re-order” is in red. How did we achieve this? Firstly, to get the text data displayed in column I, the IF function was used as indicated below. This compares to see if the value of the Running Balance is less than or equal to the Reorder Level, then the text “Re-order” is displayed in column I; otherwise the text “OK” is displayed.

F	G	H	I	J	K
<b>Current Balanc</b>	<b>Reorder Leve</b>	<b>Reorder Qty</b>	<b>Item Status</b>		
255	<b>=IF(F2&lt;=G2, "Re-order", "OK")</b>				
126	150	150	Re-order		
32	24	48	OK		

Moving on, to change the color of the text “Re-order” to red, the built-in feature of Excel, Conditional Formatting, was used.



The above examples and analysis are only a glimpse of what can be achieved utilizing Excel. Excel is one of the better tools to perform analysis of raw data. Many are users of Excel, but not many are exploiting Excel. As illustrated in the inventory system example above, once you are able to perform analysis, you can gather useful information from the raw data within the inventory system to enhance your decision making skills.

The examples illustrated above are a snapshot of what the author covers in some of his 2-days training sessions. Having been a corporate trainer for the last 14 years, Palani specializes in training participants how best to perform data analysis from company's raw data and concluding from the information gathered by harnessing Excel's built-in functions and features. A HRDF certified trainer and author of 51 books to-date on various software applications, Palani is passionate on what Excel can do, and how best to present data in different formats. More information is covered in his website [www.avimursolutions.com](http://www.avimursolutions.com). He can be reached at [palani@avimursolutions.com](mailto:palani@avimursolutions.com)

