

## How do I calculate the percent change from one row to the next in a List?

Suppose you have some monthly data in a List on a report like this:

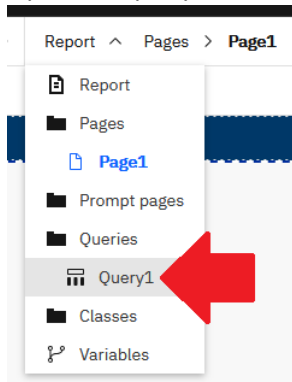
Month	Units Sold
January	1509
February	1698
March	1967
April	2451
May	2909
June	3844
July	3447
August	4665
September	5652
October	6196
November	5409
December	6324

You would like to know how much the numbers have changed from month to month by adding a new column that shows the percent change from one row to the next, like this:

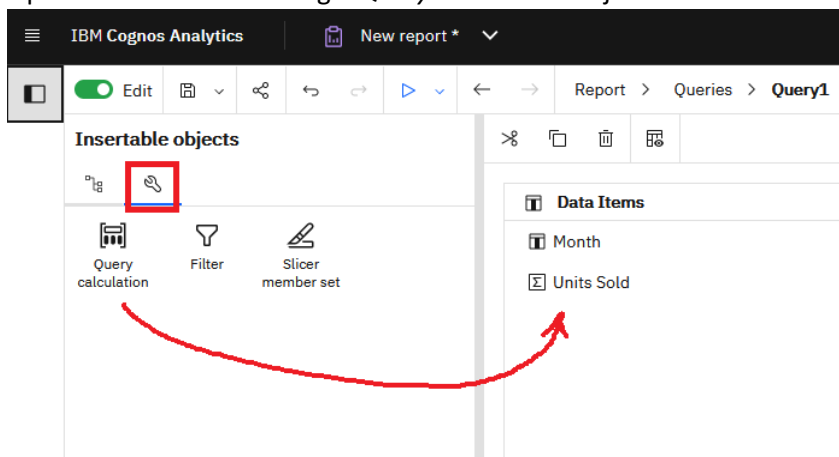
Month	Units Sold	Percent Change
January	1509	
February	1698	12.5%
March	1967	15.8%
April	2451	24.6%
May	2909	18.7%
June	3844	32.1%
July	3447	-10.3%
August	4665	35.3%
September	5652	21.2%
October	6196	9.6%
November	5409	-12.7%
December	6324	16.9%

## Calculate percent difference

1. Open the query:

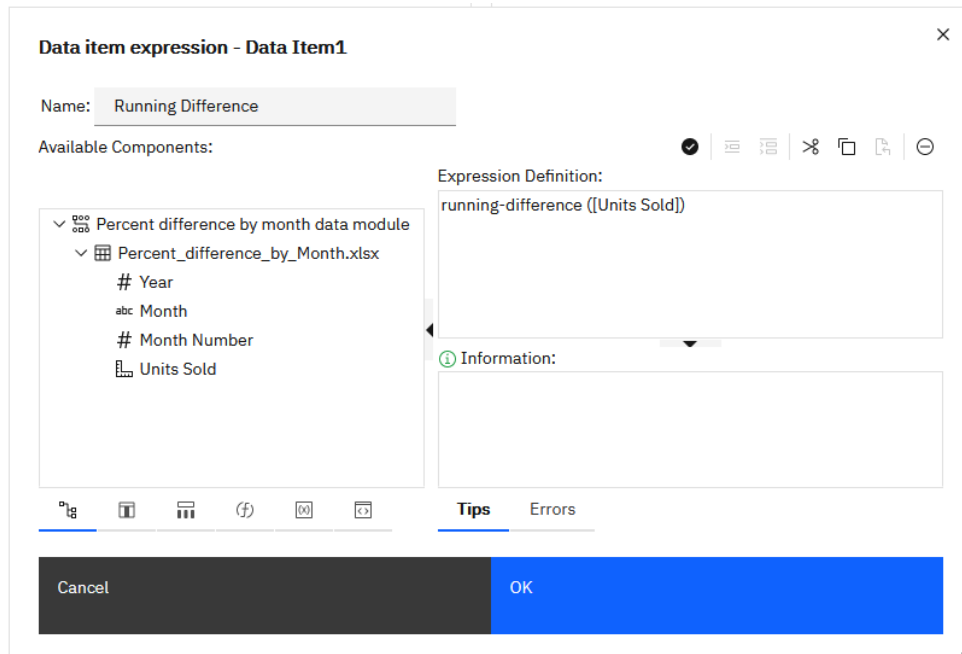


2. Open the *Toolbox* and drag a *Query calculation* object onto the *Data Items* box:



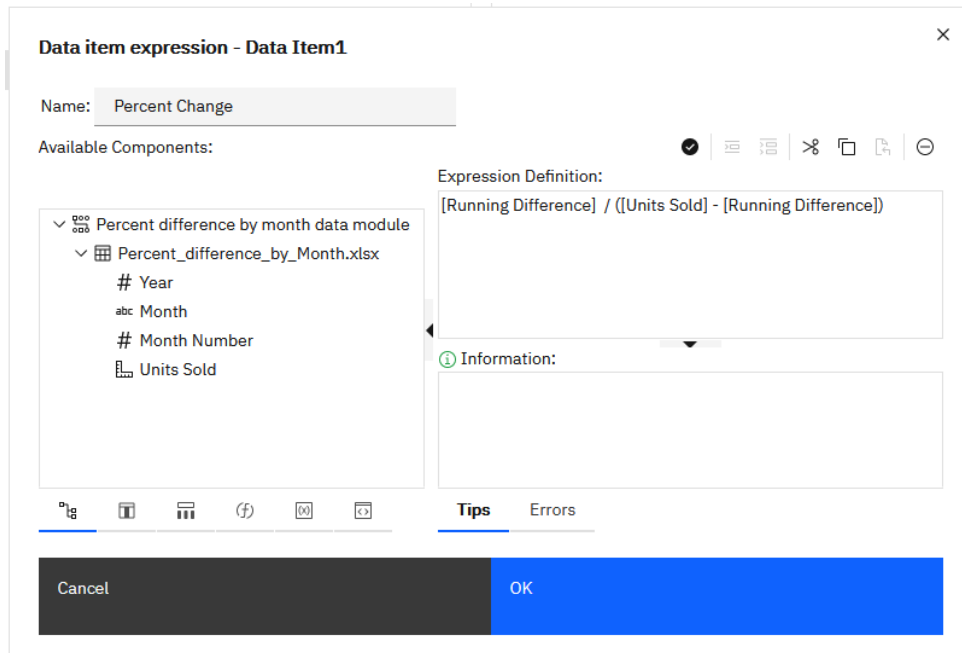
3. In the resulting dialog, enter the following:
  - a. *Name*: Running Difference

b. *Expression Definition: running-difference ([Units Sold])*



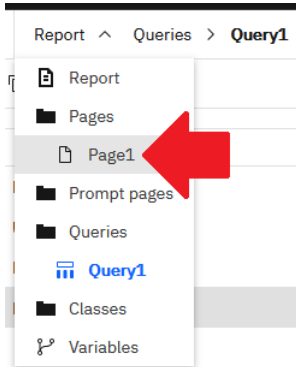
c. Click OK

4. From the *Toolbox*, drag another *Query calculation* object onto the *Data Items* box.
5. In the resulting dialog, enter the following:
  - a. *Name:* Percent Change
  - b. *Expression Definition:*  $[\text{Running Difference}] / ([\text{Units Sold}] - [\text{Running Difference}])$



c. Click OK

6. Navigate back to the report:



7. Open the *Data Items* panel and drag *Percent Change* onto the List:

IBM Cognos Analytics | New report \* | Edit | Report > Pages > Page1

Insertable objects

- Query1
  - Month
  - Units Sold
  - Running Difference
  - Percent Change

Double-click to edit text

Month	Units Sold	Percent Change
January	1509	
February	1698	0.12524851
March	1967	0.15842167
April	2451	0.24605999
May	2909	0.18686251
June	3844	0.32141629
July	3447	-0.10327784
August	4665	0.35335074
September	5652	0.21157556
October	6196	0.09624912
November	5409	-0.12701743
December	6324	0.16916251

8. Select any cell in the *Percent Change* column in the List, open the Properties, and click the ellipsis button at the end of *Data format*:

The screenshot shows the Cognos Analytics interface. On the left, there is a table with columns: Month, Units Sold, and Percent Change. The 'Percent Change' column contains values ranging from -0.12701743 to 0.16916251. A red arrow points to a cell in this column with the text 'Select'. On the right, the Properties panel is open, showing the 'List column body' section. Under the 'DATA' section, the 'Data format' property is highlighted with a red box. Other sections visible include 'CONDITIONAL', 'TEXT SOURCE', 'BOX', and 'COLOR & BACKGROUND'.

Month	Units Sold	Percent Change
January	1509	
February	1698	0.12524851
March	1967	0.15842167
April	2451	0.24605999
May	2909	0.18686251
June	3844	0.32141629
July	3447	-0.10327784
August	4665	0.35335074
September	5652	0.21157556
October	6196	0.09624912
November	5409	-0.12701743
December	6324	0.16916251

9. In the resulting dialog, enter the following:

- a. *Format type*: Percent
- b. *Percentage symbol*: %
- c. *Number of decimal places*: 1

The screenshot shows the 'Data format' dialog box. The 'Format type' is set to 'Percent'. The 'Properties' section is expanded, showing the following settings: 'Percentage symbol' is '%', 'Number of decimal places' is '1', 'Decimal separator' is empty, 'Scale' is empty, 'Negative sign symbol' is empty, 'Negative sign position' is empty, 'Use thousands separator' is empty, 'Thousands separator' is empty, and 'Group size (digits)' is empty. A tooltip for 'Number of decimal places' is visible, stating: 'Specifies the number of digits to be displayed to the right of the decimal point. If this property is not set, the number of decimal places will vary depending on the number rendered.' The dialog has 'Cancel' and 'OK' buttons at the bottom.

- d. Click *OK*

10. The report now looks like this:

Month	Units Sold	Percent Change
January	1509	
February	1698	12.5%
March	1967	15.8%
April	2451	24.6%
May	2909	18.7%
June	3844	32.1%
July	3447	-10.3%
August	4665	35.3%
September	5652	21.2%
October	6196	9.6%
November	5409	-12.7%
December	6324	16.9%

11. **Bonus Points:** Let's apply a Conditional Style so that all the negative numbers are red. To do that, select any of the cells in the *Percent Change* column, open the Properties, and click the ellipsis button beside *Conditional styles*:

Double-click to edit text

Month	Units Sold	Percent Change
January	1509	
February	1698	12.5%
March	1967	15.8%
April	2451	24.6%
May	2909	18.7%
June	3844	32.1%
July	3447	-10.3%
August	4665	35.3%
September	5652	21.2%
October	6196	9.6%
November	5409	-12.7%
December	6324	16.9%

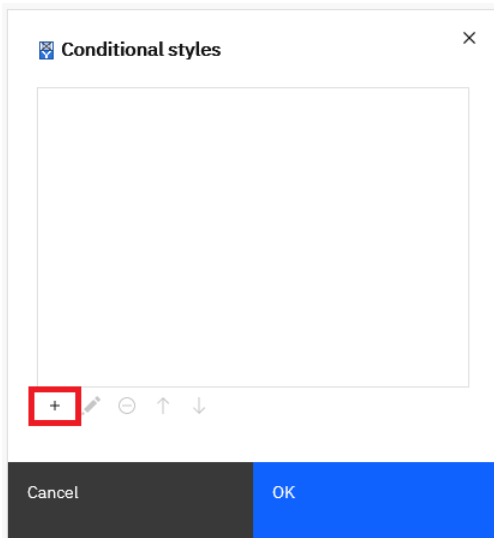
Select

Page preview Properties

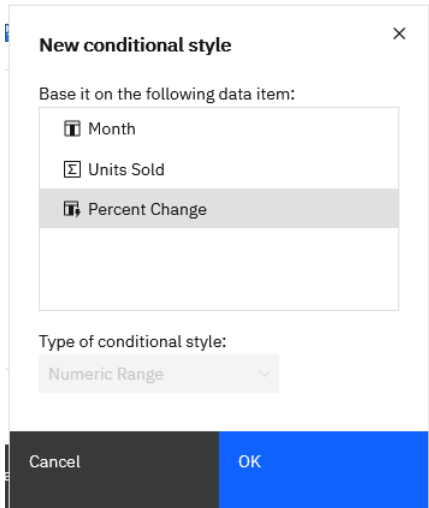
List column body

- CONDITIONAL
  - Conditional styles
  - Style variable
  - Text source variable
- TEXT SOURCE
  - Source type: Data item value
  - Data item value: Percent Change
- DATA
  - Data format: Percent
- Drill-through definitions
- Group span
- BOX
  - Border
  - Padding
  - Box type
- COLOR & BACKGROUND
  - Background image
  - Background effects

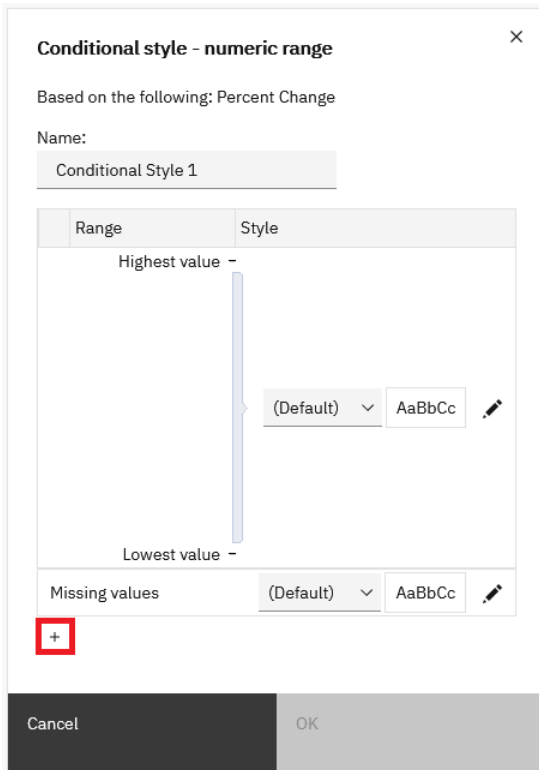
12. In the resulting dialog, click *New conditional style*:



13. Accept the defaults in the resulting dialog and click *OK*:

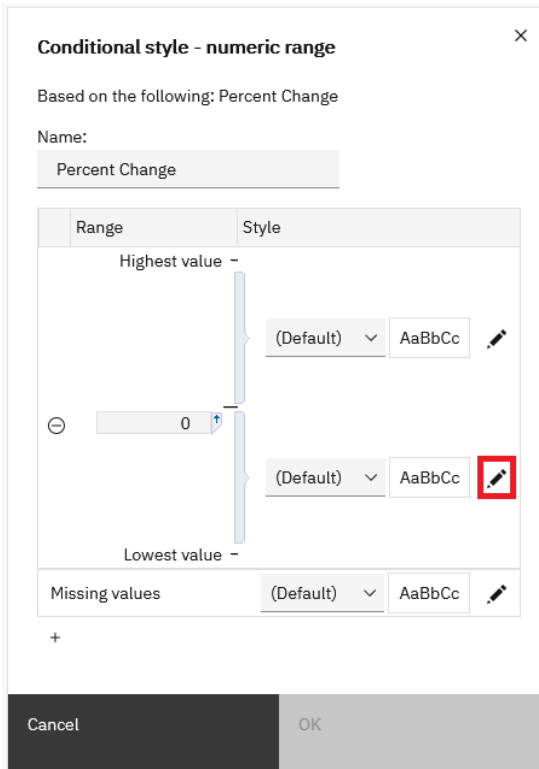


14. In the next dialog, type a Name (e.g. Percent Change) and click *New value*:



15. Type 0 and click *OK*.

16. Click the *Edit Style* icon for the values under 0:





17. Set the *Foreground color* to Red and click *OK*:

The 'Style' dialog box is shown with the 'Basic' tab selected. The 'Foreground color' is set to Red. The 'Background color' is set to white. The 'Font' is set to the default. The 'Border' is set to none. The 'Horizontal alignment' is set to left. The 'Vertical alignment' is set to top. The 'Relative alignment' is set to (Default). The 'Padding' is set to 0. The 'Margin' is set to 0. The 'Data format' is set to the default.

18. Click *OK* and *OK*. The report will look like this:

Month	Units Sold	Percent Change
January	1509	
February	1698	12.5%
March	1967	15.8%
April	2451	24.6%
May	2909	18.7%
June	3844	32.1%
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