Analysis of cells within a spreadsheet

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ANALYSIS OF CELLS WITHIN A SPREADSHEET PROGRAM

Technical task:
The task of the technical innovation is to enable an efficient statistics function for marked cells in spreadsheet programs.

Initial situation:
Tables are constructed in two dimensions with rows and columns. A cell is uniquely addressed via a defined row and column. A marker may include one or any selection of cells.

In practice, for example, there are several labeled cells to be analyzed according to different criteria or properties. Such an analysis would, for example, provide information about the number (depending on content type: for example, text, numeric value, date, logical expression [FALSE, TRUE, error value [#NV, #VALUE, ...])
- the labeled cells
- the visible cells
- the cells with formulas
- the cells with values
- occupied cells without duplicates / duplicates
- occupied cells with duplicates / duplicates

In addition, for example, the highest frequency of duplicates would be displayed, as well as the minimum and maximum values.

The aim of such an analysis is to quickly get an overview of the labeled cells.

Solution:
An additional functionality for a spreadsheet program provides a statistics function for selected cells as well as the option to select or mark cells according to their criteria.

The solution presented is the following statistic function for marked cells.

The cells to be analyzed are marked and the function is called.

As a result, the information already described above is output:

- number
- the cells per content type: e.g. Text, numerical value, date, logical expression [FALSE, TRUE, error value [#NV, #VALUE, ...])
- the labeled cells
- the visible cells
- the cells with formulas
- the cells with values
- occupied cells without duplicates / duplicates
- occupied cells with duplicates / duplicates

Displaying the highest frequency for duplicates
Display of the minimum and maximum value.

For each category listed above, the corresponding cells can be marked automatically. That is, e.g. with the selection of the „cells with formulas“ only those cells are marked, which contain a formula.

Example of a marked table, see Figure 1.
This table contains hidden rows and columns (highlighted in yellow).
An analysis now yields the following result, see Figure 2.

There are 48 cells marked, all of which are occupied, but only 35 cells are visible.

The content types of the cells have the following distribution:
- 21 cells contain text,
- 14 cells contain numbers,
- 7 cells contain logical expressions,
- 6 cells contain a date,
- 1 cell contains a formula.
- 32 cells have different contents (variants)
- 16 cells are duplicates (doublets).

The highest frequency is analyzed with 4. The smallest and highest cell value has primarily significance for numerical cells.

If one now selects the criterion „Formulas“, the cells which correspond to this criterion are marked in the table, see Figure 3.

Cell C7 contains a formula instead of a value, as the cell entry in Figure 3 shows.

Line 8 and column F are now displayed, see Figure 8.

Example of a marked table, see Figure 1.
This table contains hidden rows and columns (highlighted in yellow).
An analysis now yields the following result, see Figure 2.

By way of example, the spreadsheet program Microsoft Excel is very popular for evaluating larger databases and maintaining data. If several hundred or a multiple thereof are processed here on data, such an analysis function, in addition to the functional gain, also represents a great efficiency advantage.

The technical implementation of a described statistics function for marked cells is exemplified using the tool AXCEL, see Figure 9.

Calling the function „Cell Analysis“ within the tool „AXCEL“ with the key combination CTRL + d, see Figure 10.
As a result, the analysis result is reported, see Figure 11.
The selection „string“ (= text) in the opened dialog (fig. 12 right) shows the follow-
ing values, see figure 12 left.
The value in cell B7 is thus not a number, but a string.
The selection „occupied cells with duplicates“ in the opened dialog (fig. 13 right) shows the following values, see figure 13 left. The selection „highest frequency“ in the opened dialog (fig. 14 right) shows the following values, see figure 14 left. The selection „smallest cell value“ in the opened dialog (fig. 15 right) shows the following values, see figure 15 left. With the program button „Apply marking“ the dialog is closed and the marking is available for further processing.

**Advantages:**
- Possibility of rapid analysis of cells.
- Possibility of a quick check on different criteria.
- Possibility to select a criterion or property that will automatically mark all cells that meet this criterion.
- Possibility to display the content type of the respective cells.
- More efficiency with large amounts of data.

**Possible application:**
- Applicable in spreadsheet programs.
Beispielablauf:

Abbildung 5

Abbildung 6

Abbildung 7

Abbildung 8

Abbildung 9

Abbildung 10

Abbildung 11