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Evidence based research of JavaScript Grids according to a set of expected attributes

Why I have to care about grids?

Tabular presentation of data allows data to be organized for further analysis, allowing large amounts of raw data been sorted and reorganized in a neat format, and allows the inclusion of only the most important or relevant data.

It also facilitates a dialogue between the text and the exact numbers in your results, so that you don't have to describe all the specific numerical values in your report. On the other hand, you should never put data in a table if you can describe it efficiently in one or two sentences.

In summary, tabular presentation lets you place your results in an organized display of rows and columns that enable you to group your data by different classifications so that you can make comparisons and better understand your data [2].

Ok, so what I've to expect about this work?

The goal of this work is to find the best (or most suitable) grid according to some attributes list defined by the team and not pretend to be an exhaustive research about javascript grid implementations or anything outside the defined scope.

This high-level objective were divided into 4 concrete research questions (RQ) in order to obtain a more detailed and comprehensive view on this topic.

RQ.1. What are the grids founded according to the attributes defined?

RQ.2. What have the most active community?

RQ.3. What is the update frequency?

Some JavaScript grids classification [1]

Data Driven

- Large numbers of rows
- Server side pagination
- Scrolling, search & sort
- Lack of editing or single row based
- Binding through XML or JSON

Light Edit

- Every row is in editing status
- Search & sort rarely available
- Data filled from JS object, calling methods or HTML tables

Spreadsheets

- Sophisticated JS clones of Excel
- Complex solutions
- Supporting formulas, graphs and lot of functionalities focused on "simulation effect".

Now, what is your conclusion?

We have to remember that this is not an exhaustive research about javascript grids, only a selection based on evidence founded in a literature research. The answer to the first questions (**RQ.1**) may be one of the three tables presented in the Experimental Protocol, but **Error! Reference source not found.** shows the grids that support all the desired attributes (with/without plugins) having very strong communities. In this table it's the answer of the second question (**RQ.2**) about the community activity.

Table I - Grids with all desired attributes (with plugins)

Freq (#)	Grid	Grouping	Editable	Forum / Group	StackOverflow (questions tagged)	StackOverflow (search results)
12	DataTables (Data Table jQuery plugin)	X.plugin	X.plugin	9692	837	Inf. (many results)
7	jQGrid	X	X	5398	**3865**	**3743**
6	dhtmlxGrid	X	X	4483	0	38
4	SigmaGrid	X	X	918	0	5
4	SlickGrid	X	X	1021	267	339
3	Ext Js Grid	X	X	**12073**	293	1533
2	jqxGrid	X	X	107	0	0
1	KendoUi	X	X	2619	101	72

According to our research we have found that 8 grids fit our requirements; their communities seem to be very active, mainly through their forums or group; some of them also are very active in StackOverflow, having a lot of tagged questions and search results.

Expected attributes

- Filtering
- Grouping
- Sorting
- Data: column types & data binding
- Editable cells
- Big data support (loading while scrolling)
- Good documentation and strong community

The number of updates per year (**RQ.3**) wasn't so easy to get as we initially thought. We get this information through emails contact, but we think that this information should be public and available in each grid website.

This information (**Table II**) let you know the development history, the versioning schema and more important, how often you need to make updates if you want to stay updated.

Table II - Updates per year

Grid	Updates/year	Computation
DataTable	13	51 non-beta releases / 4 years
dhtmlxGrid	2	None. Explicit in email response.
jqxGrid	12	None. Explicit in email response.
KendoUi	6	None. Explicit in email response.

Tabular representation has many advantages over other kind of data representation, like better organization, numerical results and large amount of raw data display. For these reason many javascript implementations are available in the web, with different features, licensing modes and support. In this study a set of attributes were defined in order to find what grid fit into this features description.

We think that this may be the base of new researches about this topic. Also, the methodology used in this study can be use in similar scenarios. Future works may include some empirical activities to test which have better performance, which is easier to implement or which grid is easier to extend through plugins.

Behind the Scenes

If you want to know how this research was made in detail, please refer to the Experimental Protocol document. This section will only show the most relevant things about the followed research method.

- Google is used as search engine using the verbatim tool [3] to search without any alterations in what is typed into the query box.
- The search strategy was structured and built around a PICOC framework [4].
- The main strategy was to perform iterative searches in Google to improve domain knowledge and word variations to build the main search string.
- StackOverflow discussion about jQuery grid recommendations [5] was used to make the expected attributes listed in previous page.
- Only first 20 results of the Google search were selected to this study.

Learned lessons

- Google can be used as a search engine to this kind of research (verbatim mode)
- Iterative refinement of terms and the used of synonyms seems to be effective building search strings
- Authors can be reached anytime and they usually answer in a very gently way
- The methodology used in this research can be used with any UI control (not only with JavaScript ones)

References

[1] "Designing Tables," North Carolina State University - LabWrite resources. [Online]. Available: http://www.ncsu.edu/labwrite/res/gh/gh-tables.html.

[2] R. Bicchierai, "JavaScript grid editor: I want to be Excel," Eltit Golb, 2010. [Online]. Available: http://roberto.open-lab.com/2010/01/30/javascript-grid-editor-i-want-to-be-excel/.

[3] Wilco, "jQuery Grid Recommendations," StackOverflow, 2008. [Online]. Available: http://stackoverflow.com/questions/159025/jquery-grid-recommendations.

[4] Google, "Google verbatim tool." [Online]. Available: http://support.google.com/websearch/bin/answer.py?hl=en&answer=1734130. [Accessed: 08-May-2012].

[5] Google, "Google Basic search help." [Online]. Available: http://support.google.com/websearch/bin/answer.py?hl=en&answer=134479.

[6] B. Kitchenham and S. Charters, "Guidelines for performing Systematic Literature Reviews in Software Engineering," vol. 2, no. EBSE 2007–001, pp. 2007–01, 2007.

[7] K. Liew, "7 Robust and Feature Packed Javascript Grid Plugins," 2011. .

[8] Wikipedia-Contributors, "PageRank," Wikipedia. [Online]. Available: http://en.wikipedia.org/wiki/PageRank.