

Datavzrd

**Rapid programming- and maintenance-free interactive
visualization and communication of tabular data**

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**D U I S B U R G
E S S E N**

Data-analyses need tables



Excel

Me: Types 12.25

Excel: 12/25/2020

Me: *Deletes*, types in 12.25

Excel:



Data-analyses need tables



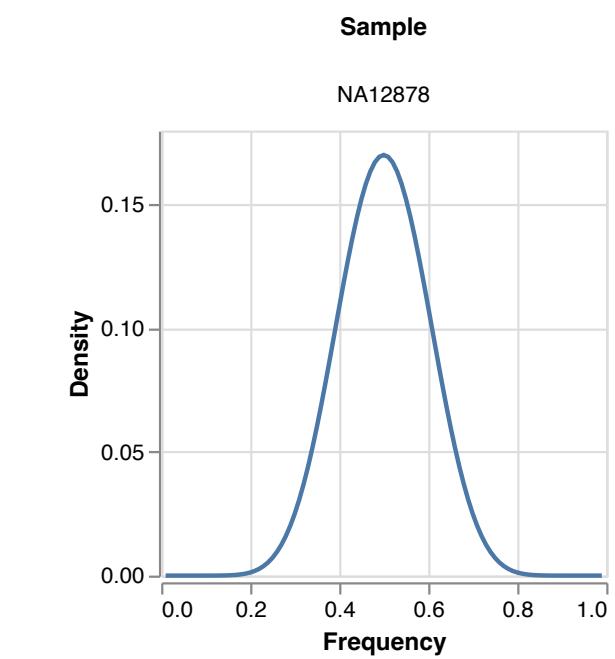
...but is a single table enough?

Oncoprint + single variant calls

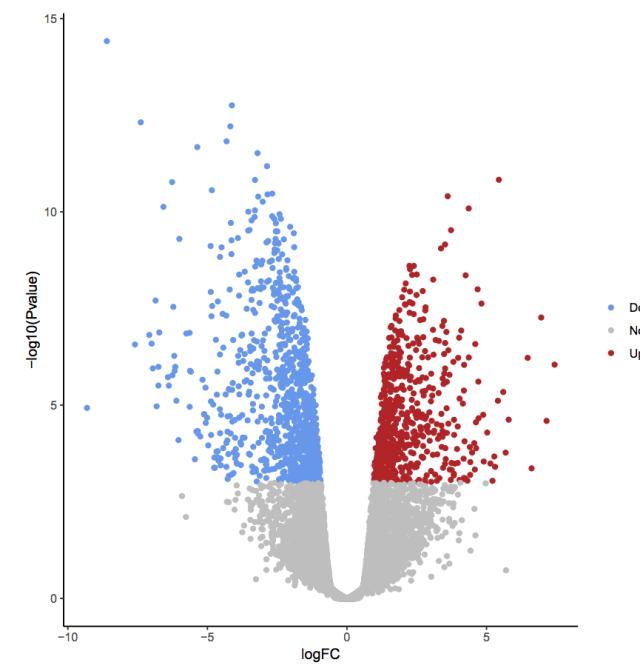
Differentially expressed genes + expression matrix

...but is a single table enough?

Oncoprint + single variant calls +



Differentially expressed genes + expression matrix +



State of the art

Individual tables (tsv, excel) and plots

- Easy to publish
- Limited interactivity
- Missing connections in between items of different tables

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Web applications (Custom, Shiny, Lumen, ...)

- Run on (local) server
- Implementation overhead
- Long-term maintenance is challenging

The problem

Input:

- Set of tables
- Relations between tables
- Set of rendering definitions

Output:

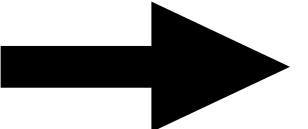
- Portable and interactive representation

Datavzrd

```

1  name: My oscar report
2  datasets:
3    oscars:
4      path: ".examples/data/oscars.csv"
5      offer-excel: true
6      links:
7        link to oscar plot:
8          column: age
9          view: oscar-plot
10         link to movie:
11           column: movie
12           table-row: movies/Title
13       movies:
14         path: ".examples/data/movies.csv"
15         offer-excel: true
16         links:
17           link to oscar entry:
18             column: Title
19             table-row: oscars/movie
20       default-view: oscars
21       webview-controls: true
22     views:
23       movies:
24         dataset: movies
25         render-table: ^
26         columns:
27           Genre:
28             ellipsis: 15
29         imdbID:
30           link-to-url:
31             IMDB:
32               url: "https://www.imdb.com/title/{value}/"
33       Title:
34         link-to-url:
35           Wikipedia:
36             url: "https://en.wikipedia.org/wiki/{value}"
37         Letterboxd:
38           url: "https://letterboxd.com/search/{value}"
39           new-window: false
40       imdbRating:
41         precision: 1
42       plot:
43         bars:
44           scale: linear
45           domain:
46             - 1
47             - 10
48         color:
49           scale: linear
50           range:
51             - red
52             - green

```



Title	Year	Rated	Released	Runtime	Genre	Director	imdbRating	imdbID	link to oscar entry	link to oscar entry
7th Heaven ▾	1927	Unrated	6 May 1927	1h 50m	Drama	Frank Borzage	7.6	tt0018379	link to oscar entry	link to oscar entry
Coquette ▾	1929	Unrated	06 Apr 1929	1h 16m	Drama, Romance	Sam Taylor	5.7	tt0019788	link to oscar entry	link to oscar entry
The Divorcee ▾	1930	Passed	19 Apr 1930	1h 24m	Romance, Drama	Robert Z. Leonard	6.7	tt0020827	link to oscar entry	link to oscar entry
Min and Bill ▾	1930	Passed	29 Nov 1930	1h 9m	Comedy, Drama	George W. Hill	6.8	tt0021148	link to oscar entry	link to oscar entry
The Sin of Madelon Claudet ▾	1931	Passed	24 Oct 1931	1h 15m	Drama	Edgar Selwyn	6.7	tt0022386	link to oscar entry	link to oscar entry
Morning Glory ▾	2010	PG-13	10 Nov 2010	1h 47m	Comedy, Drama, ...	Roger Michell	6.5	tt1126618	link to oscar entry	link to oscar entry
It Happened One Night ▾	1934	Passed	22 Feb 1934	1h 45m	Comedy, Romance	Frank Capra	8.1	tt0025316	link to oscar entry	link to oscar entry
Dangerous ▾	2021	R	05 Nov 2021	1h 39m	Action, Thriller...	David Hackl	5.1	tt3876910	link to oscar entry	link to oscar entry
The Great Ziegfeld ▾	1936	Passed	08 Apr 1936	2h 56m	Drama, Musical	Robert Z. Leonard	6.7	tt0027698	link to oscar entry	link to oscar entry
The Good Earth ▾	1937	Passed	06 Aug 1937	2h 18m	Drama, Romance	Sidney Franklin, Victor Fleming, Gustav Machaty	7.5	tt0028944	link to oscar entry	link to oscar entry
Jezebel ▾	1938	Approved	26 Mar 1938	1h 44m	Drama, Romance	William Wyler	7.5	tt0030287	link to oscar entry	link to oscar entry
Gone with the Wind ▾	1939	Passed	17 Jan 1940	3h 58m	Drama, History, ...	Victor Fleming, George Cukor, Sam Wood	8.1	tt0031381	link to oscar entry	link to oscar entry
Kitty Foyle ▾	1940	Passed	27 Dec 1940	1h 48m	Drama, Romance	Sam Wood	6.9	tt0032671	link to oscar entry	link to oscar entry
Suspicion ▾	1941	Approved	14 Nov 1941	1h 39m	Film-Noir, Mystery...	Alfred Hitchcock	7.4	tt0034248	link to oscar entry	link to oscar entry
Mrs. Miniver ▾	1942	Not Rated	01 Dec 1942	2h 14m	Drama, Romance, ...	William Wyler	7.6	tt0035093	link to oscar entry	link to oscar entry
The Song of Bernadette ▾	1943	Approved	01 Apr 1945	2h 36m	Biography, Drama...	Henry King	7.6	tt0036377	link to oscar entry	link to oscar entry
Gaslight ▾	1944	Passed	30 Oct 1944	1h 54m	Crime, Drama, Mystery...	George Cukor	7.8	tt0036855	link to oscar entry	link to oscar entry
Mildred Pierce ▾	1945	Approved	20 Oct 1945	1h 51m	Crime, Drama, Family...	Michael Curtiz	8.0	tt0037913	link to oscar entry	link to oscar entry
To Each His Own ▾	1946	Approved	12 Mar 1946	2h 2m	Drama, Romance	Mitchell Leisen	7.7	tt0039040	link to oscar entry	link to oscar entry
The Farmer's Daughter ▾	1947	Unrated	26 Mar 1947	1h 37m	Comedy, Drama, ...	H.C. Potter	7.2	tt0039370	link to oscar entry	link to oscar entry

Showing 1 to 20 of 184 rows 20 rows per page

Configuration

Datasets



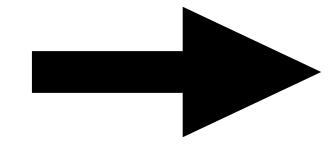
```
datasets:  
  oscars:  
    path: ".examples/data/oscars.csv"  
    offer-excel: true  
    links:  
      link to movie:  
        column: movie  
        table-row: movies/Title  
  movies:  
    path: ".examples/data/movies.csv"  
    offer-excel: true  
    links:  
      link to oscar entry:  
        column: Title  
        table-row: oscars/movie
```



oscars		
...	movie	...
	La La Land	
	Room	
	Gladiator	
	Crazy Heart	

movies		
...	Title	...
	La La Land	
	Room	
	Crazy Heart	
	Gladiator	

Tick Plots

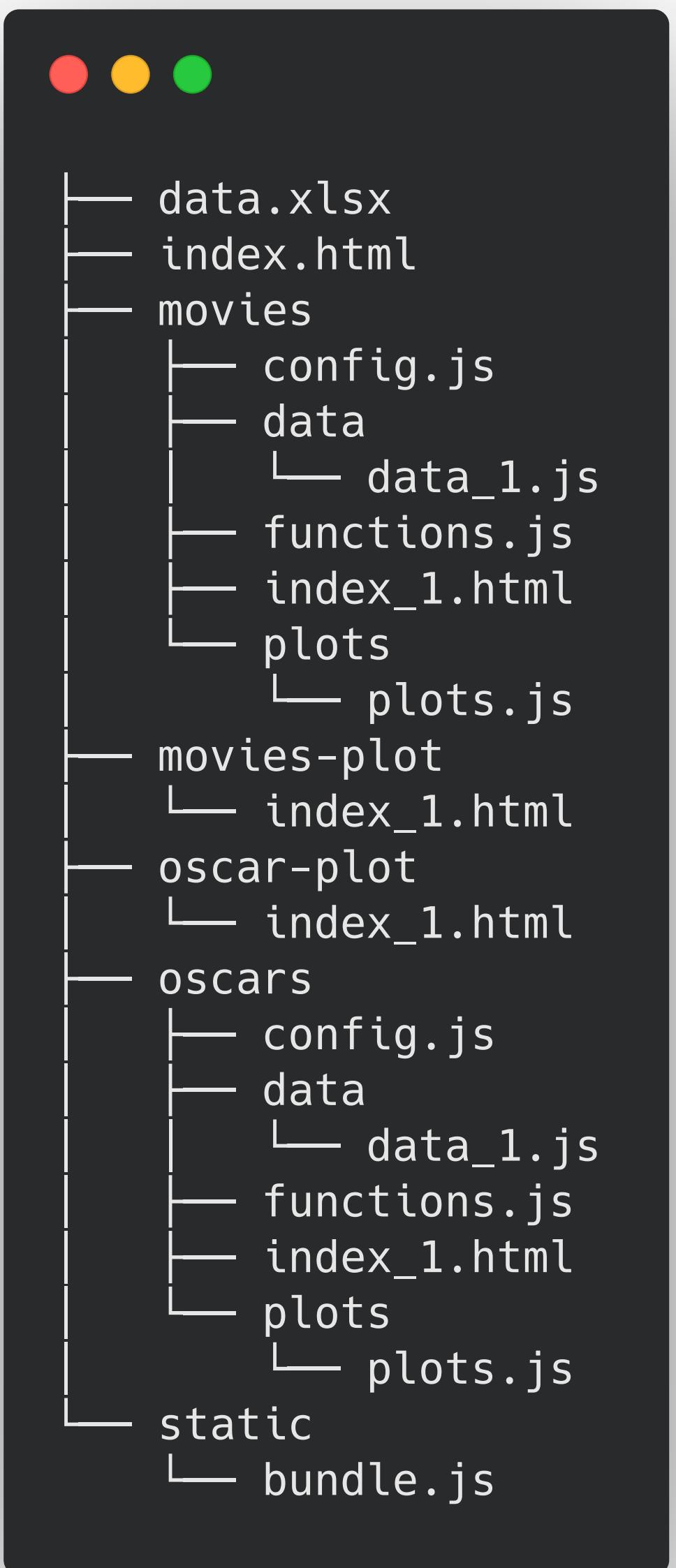


More options:

- Bar plots
- Pill plots
- Linkouts
- Custom Plots using Vega-Lite
- Custom renderings using Javascript
- Reusable configurations created by the community: *spells*
- Infer base configuration from dataset using `datavzrd suggest`

Portability

- Static HTML files in one directory
- No server needed
- Easily sharable
 - Zip directory and send via email, WeTransfer etc.
 - Attach to publication as supplement
 - Host report on GitHub pages using `datavzrd publish`



datavzrd.github.io



Datavzrd: Rapid programming- and maintenance-free interactive visualization and communication of tabular data

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Article	Authors	Metrics	Comments	Media Coverage	Peer Review
▼					

Koesterlab

