Portable In-Browser Data Cube Exploration

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Data exploration for everyone
From data democratization to analytics democratization

Who?
- Data scientists
- Data analysts
- Data journalists
- And may be their audience!

How?
- Easy to use
- Easy to interpret
- Does not require specialized infrastructure
- Does not require specialized pre-configuration

Why do items go bad?

Something going wrong with the items? .. the locations? .. the seasons?
.. is it a combination of these?

Explanation tables:
- Information theoretic approach highlights the most informative parts of the data cube
- Iterative scaling finds maximum entropy estimates
- Sample based approach for pruning the datacube

<table>
<thead>
<tr>
<th>Item</th>
<th>season</th>
<th>location</th>
<th>count</th>
<th>expires?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cheese</td>
<td>*</td>
<td>*</td>
<td>14</td>
<td>7/14</td>
</tr>
<tr>
<td>Chocolate</td>
<td>*</td>
<td>*</td>
<td>5</td>
<td>0/5</td>
</tr>
<tr>
<td>*</td>
<td>Winter House</td>
<td>3</td>
<td>2/3</td>
<td></td>
</tr>
</tbody>
</table>

id item season location expires?
1 Cheese Winter Kitchen No
2 Cherries Summer Summer house Yes
3 Chocolate Summer Summer house No
4 Chocolate Spring Bedroom No
5 Chocolate Winter Office No
6 Chocolate Summer Basement No
7 Chocolate Fall Winter house No
8 Eggs Fall Kitchen Yes
9 Eggs Winter Winter house Yes
10 Juice Spring Office Yes
11 Milk Spring Office Yes
12 Milk Summer Winter house Yes
13 Veggies Spring Summer house Yes
14 Veggies Winter Winter house Yes

Afterburner: An in browser SQL engine that uses Code Generation that almost matches the state of the art SQL engines running native on the same machine.

Afterburner exploits two JavaScript features:
- JavaScript typed arrays:
  - Contiguous in memory storage
  - Predefined types using typed views
  - Similar storage efficiency to C arrays
- Asm.js:
  - Statically-typed subset of JavaScript
  - Amenable to AOT optimization
  - On average ~1.5× slower than native code

Missed the talk?
Check out our live demo at:
https://afterburnerdb.github.io/afterburner/explore.html
Code is open source at:
https://github.com/afterburnerdb/afterburner