

## MAT259 Project 2: 2D Spatial Map

### Kevin Deweese

#### Concept:

Which types of material have seasonal dependence on checkout activity? I suspect that summer months will see an increase in children's reading material as compared to adults. I'm curious if this is the case and what similar patterns might exist.

#### Data and Query:

The top 10 types of media will be examined for the year 2013. For each type of media, the average activity per month will be calculated along with the activity per month. The query to find the top 10 types and their totals in 2013 is shown here. Other queries will be similar.

```
SELECT kind, count( * )
FROM (
  SELECT kind, activity.item
  FROM kind
  INNER JOIN activity ON kind.item = activity.item
  WHERE activity.o
  BETWEEN '2013-01-01'
  AND '2014-01-01'
) AS mytable
GROUP BY kind
ORDER BY count( * ) DESC
LIMIT 10
```

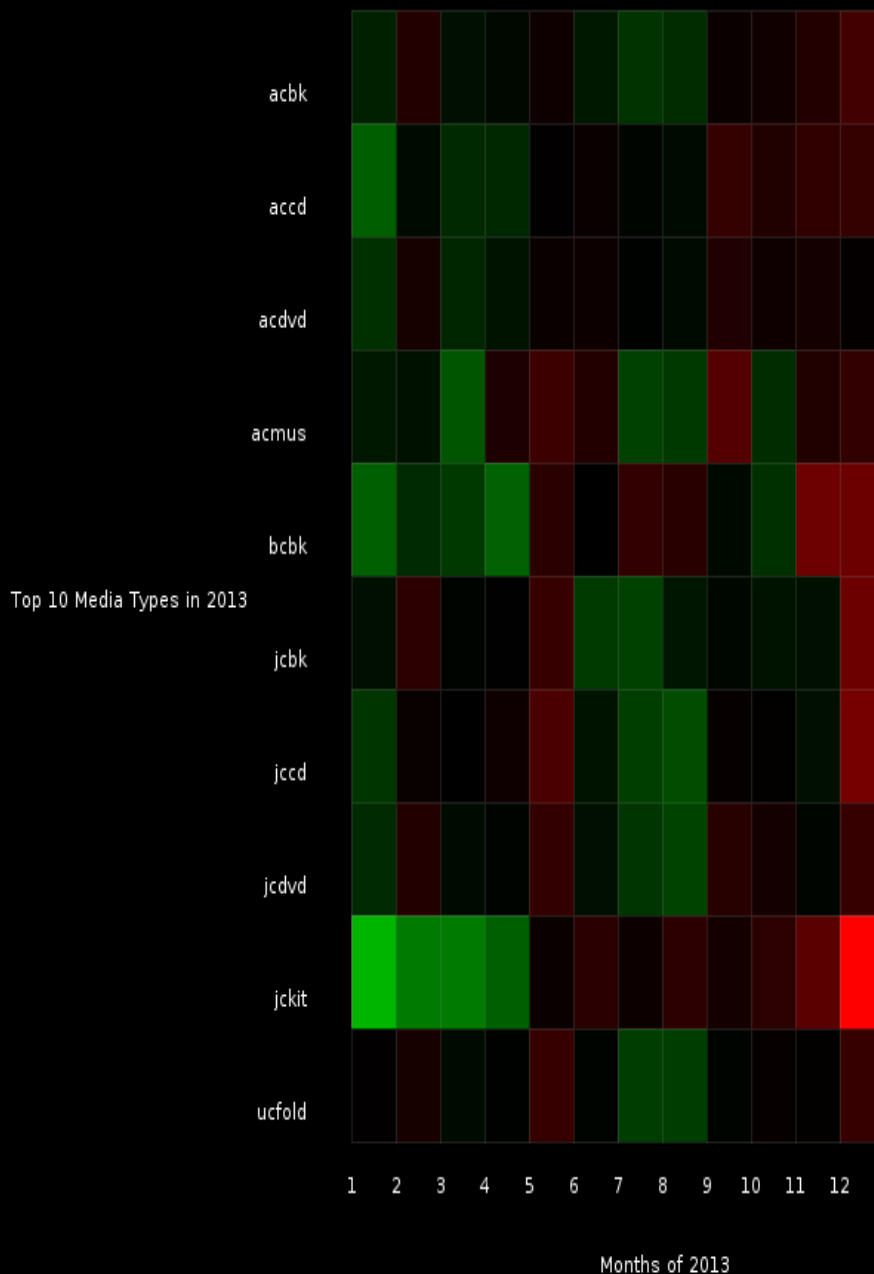
#### Visualization:

Source code for the visualization is attached. Screen shots of the visualization are shown below. I didn't figure out how to add a legend. The data shown is the distance from the average, normalized by the average.

$$\frac{type_{month} - type_{avg}}{type_{avg}}$$

The color scheme is that results that are above average are shown in green while results below average are shown in red. Additionally the calculated distance from average above can be seen for each grid by hovering the cursor over the entry.

## Simple 2D Spatial Visualization - Media Type Popularity



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### Results and Conclusions:

The first thing I notice about this is that there is more green to the left and more red to the right as if everyone starts the new year with a fresh zeal for using the library. The most variable data seems to be the jckit type which has a much higher than average checkout rate in the beginning of the year and declines towards the end of the year. Almost all types show a decreased activity in December. Perhaps during the winter holidays everyone is checking out less. The juvenile book, cd, and dvd types do show an increase in summer months. The adult types show a lesser increase during these months except for

bcbk which shows a decrease.