MAT 259, Winter 2015

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HW3, 2D Spatial Map "Reordered"

The topic is same as before: Loan Period vs. Pages and Dewey Class. However, the data was extracted from the loans occurred after year 2013. Also, the number of pages were limited to 1200 to present all-filled cell grid. Then two tasks were tested:

      1. Integrate new color gradient scheme that automatically fits input data.

      2. Reorder the columns and rows to show some unseen aspect.

Adaptive color gradient starts from idea that it would be better to have more resolution where most of the data is concentrated and those concentration could be calculated with integral. As seen in figure below one can use integral function as customized mapping of relative position in data axis.
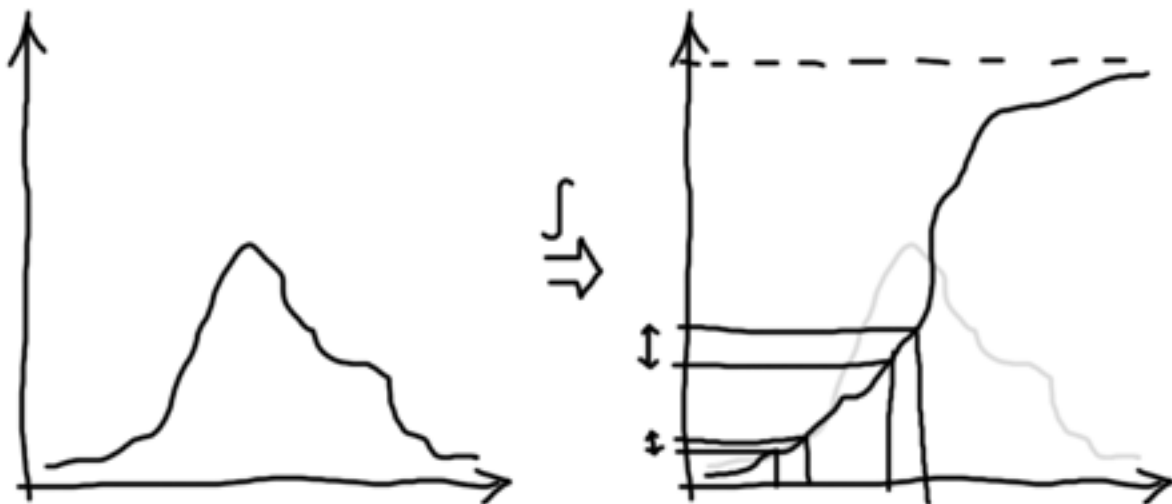
And the same difference in original data is converted to different scale according to data density. This will allow more resolution in dense range. below is the quick experiment on small data.
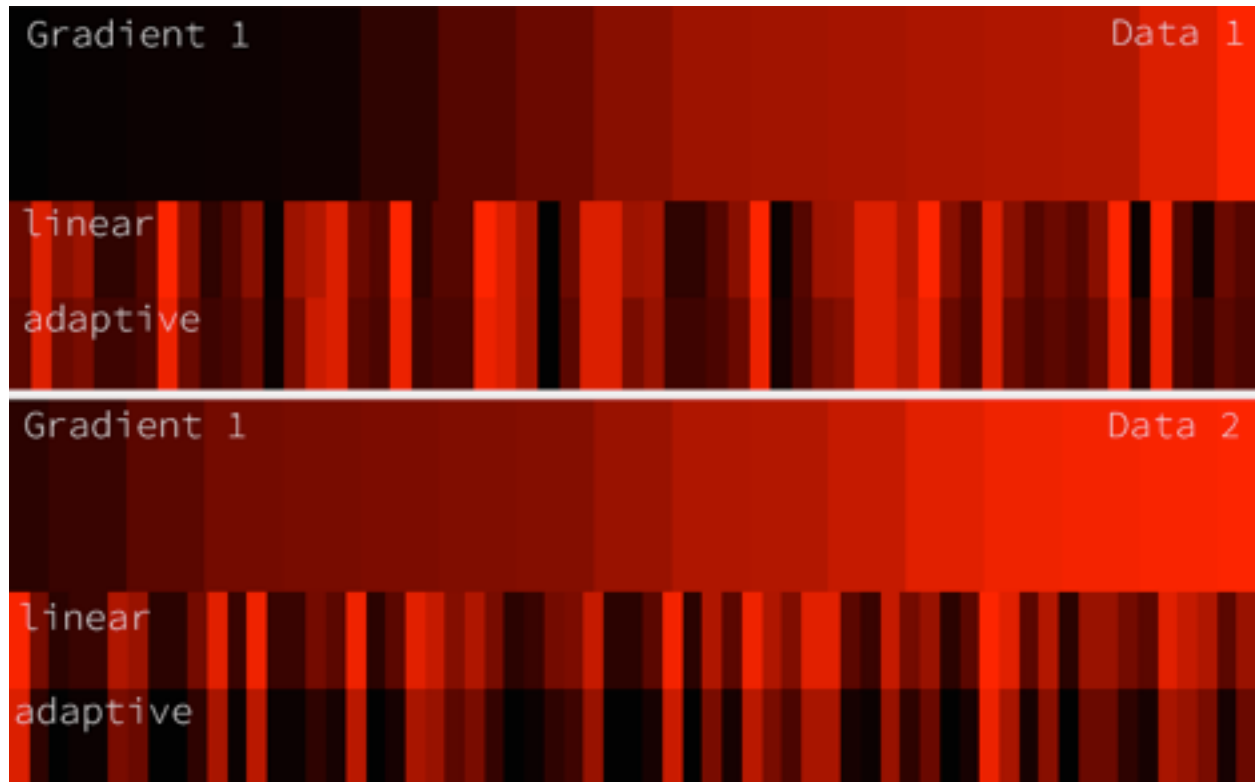

It is observed that with two different data different gradient scheme is acquired and this will enable different result of mapping with basic (1st order) linear mapping. This was considered successful and adopted.

Reordering the previous 2D grid cells were done with implementing Java `Array.sort` function. Sorting was done both row-wise and column-wise.

In addition cursor interaction of highlighting the cell below cursor and showing the value of it was implemented. Following are the original visualization and task-applied results.
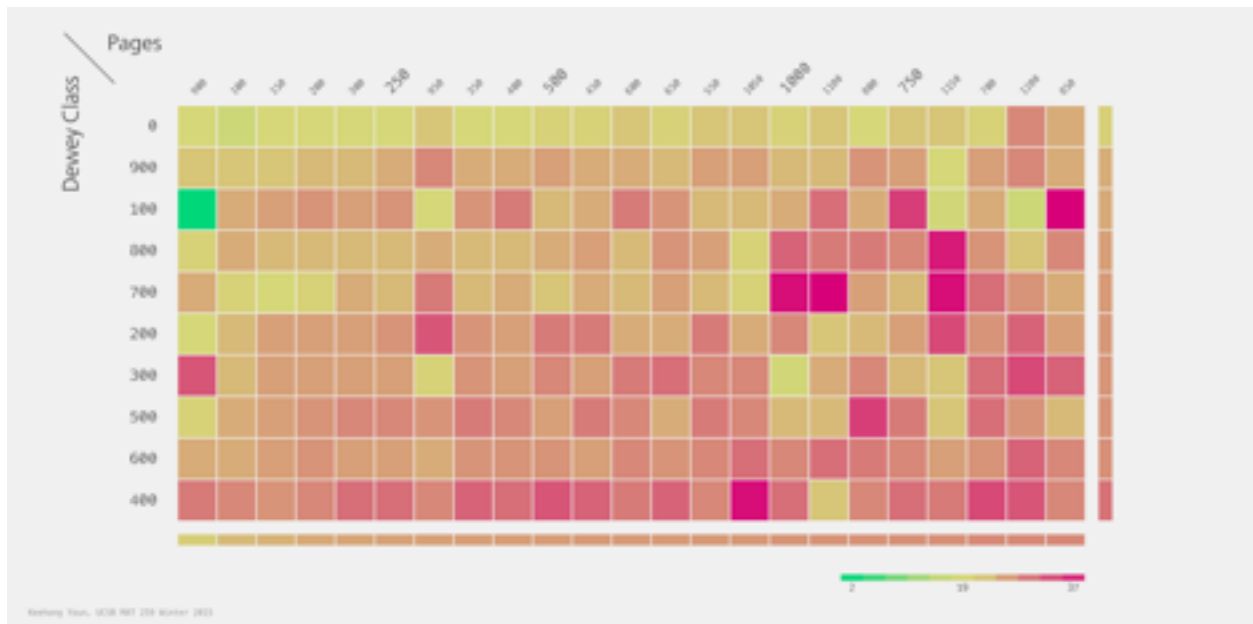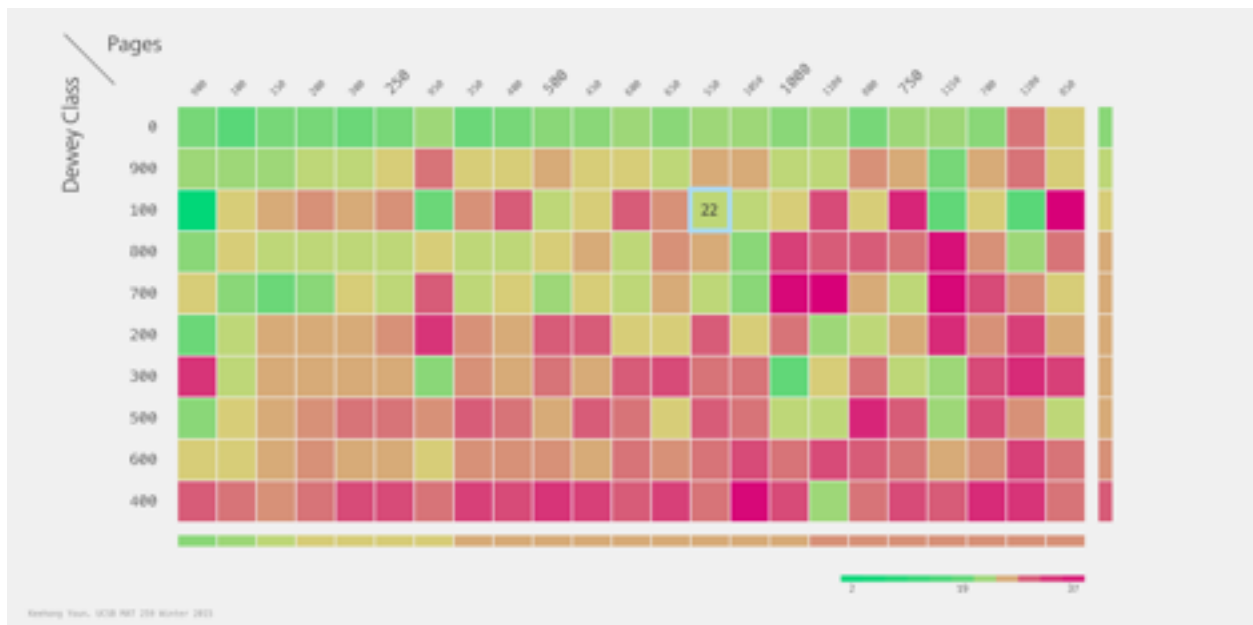
Img 1. Original 2D Grid
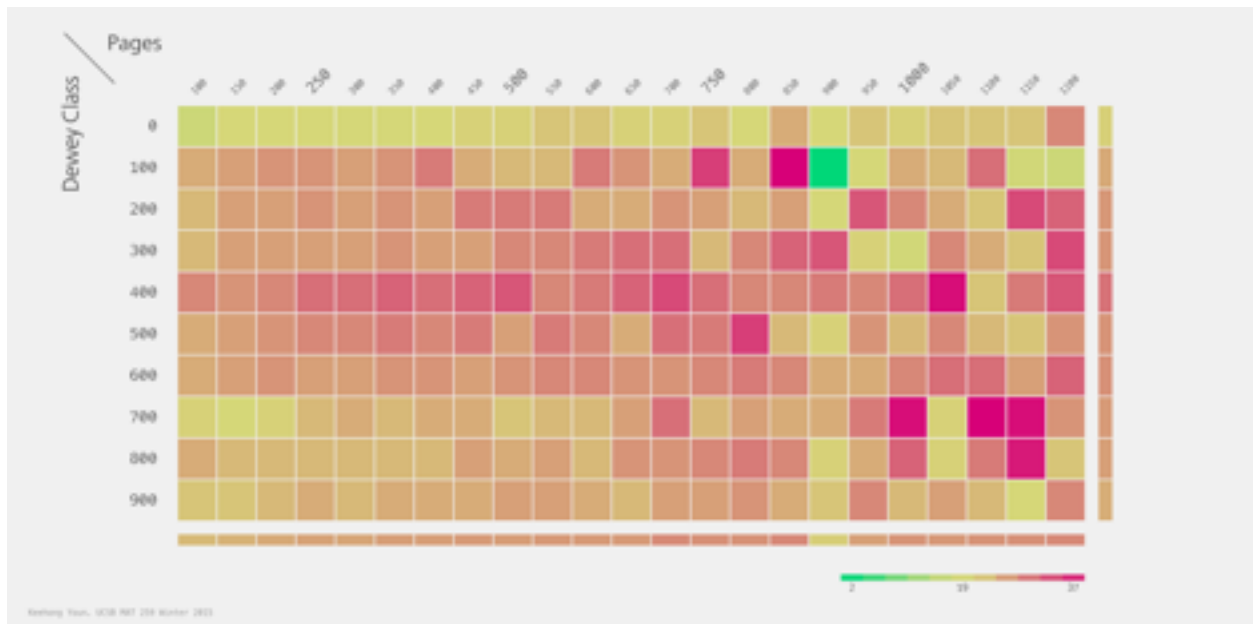
Img 2. Adaptive Gradient 2D Grid
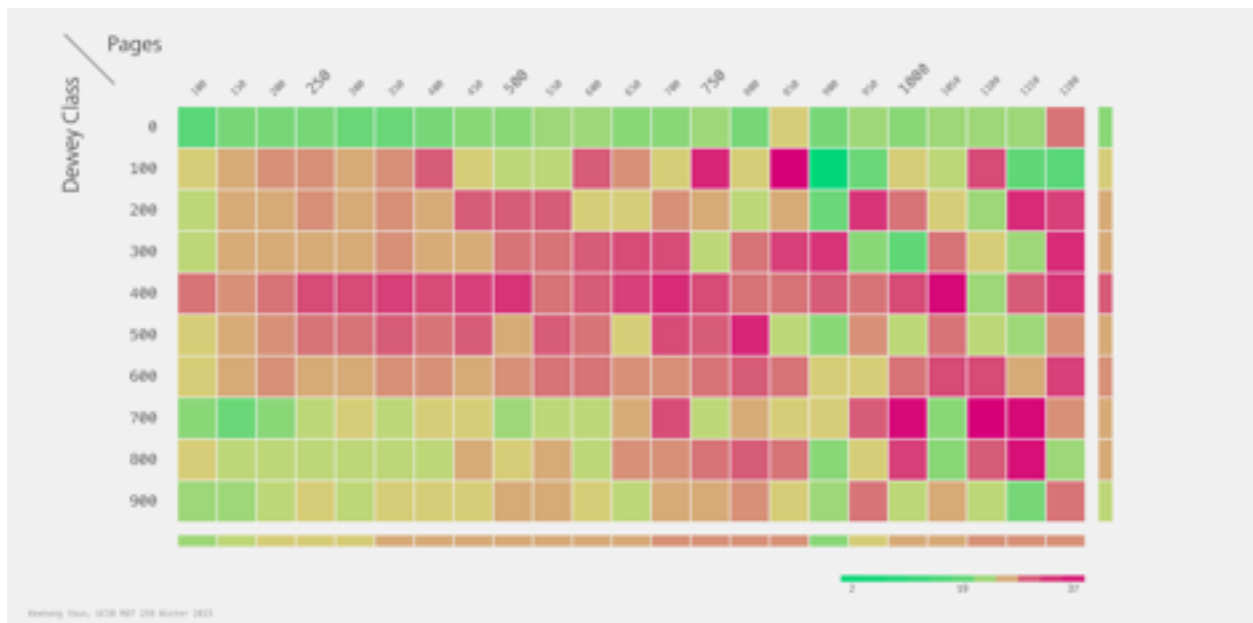
Img 3. Reordered 2D Grid

Img 4. Reordered Adaptive Gradient 2D Grid (with highlight)

Code: https://github.com/younkhg/mat259/tree/master/hw3/loantime_reordered