Team: Melodic Transport
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Project Feature List

Stacked Area Chart: The focal point of our project will be a stacked area chart that shows average spending over time across several different general categories such as food, transportation, etc. This chart will be scrubbable/searchable in several ways.

Timelines/Control Panel: A set of linked timelines below the chart will offer the main way that the user can adjust the area chart. These will allow the user to "brush" and select different periods of time to zoom in on, at which point the area chart will re-scale to show the selected time period. However, these timelines will not just act as controls for the area-chart display. Rather, they will also serve as a display mechanism for key historical events across different categories. One timeline might display economic recessions and bull-market periods, while another could display the political party in control of the white house, or key foreign events. As the user brushes on any of the timeline-controls, all will update simultaneously in a linked fashion. This will enable the user to explore the different correlations and connections between consumer spending and historical events.

Percentage/Aggregate dollar view toggle: a toggle selector or button will enable the user to switch back and forth between viewing the data in raw dollar terms, and percentage-per-year terms, which emphasize changes in proportion overtime.

Demographic Filters: the user will also be able to filter the dataset by race, income, educational level, region, and perhaps other criteria, to visualize how spending changes vary across different socio-economic categories. We're envisioning a series of toggles or checkboxes off the side that would enable these filters to be turned on or off.

Stacked Area Detail View: Selecting and double clicking on a layer within the chart, the user will be able to zoom in on just that category, and then see a more detailed breakdown of sub categories. For example, if the user zoomed in on the transportation category, they might see a detailed breakdown of changes in American consumer spending habits on public transportation, automobile purchases, and gasoline over the given period of time.

Stacked Bar Chart Single Year View: If the user clicks on a single year (or a single historical event) the main view will switch from an area chart overtime to a barchart of categories of spending at a given year, enabling more detail to be displayed for that time slice.

Historical event mouseover tooltip: Mousing over a specific historical event will provide more details about that event.

Secondary star chart visualization: As a compliment to the area-chart visualization, we will also display a star chart visualization that demographic information about the expenditure survey respondents, with each point representing a different demographic. In the default view, two star chart area plots will be displayed (semi-translucently) on top of each other, representing the data from the beginning and end of the selected time period. As the user "drags" along the timeline sliders, the star chart may animate.

Secondary Tree Graph visualization: As a compliment to the area-chart visualization, we will also display a force-directed tree graph visualization that displays spending across the given categories. A root node represents income, the first branched nodes will represent categories, and the third-level nodes will represent expenditure items. There will be a repulsive force between nodes parent-child nodes based on what % of overall spending that node represents. The size of the expenditure nodes will represent the unit price of that expenditure as a % of income. There will then be a cluster of nodes around the expenditure that represents the total consumption of that particular item. In the end, here's the story the graph should tell:
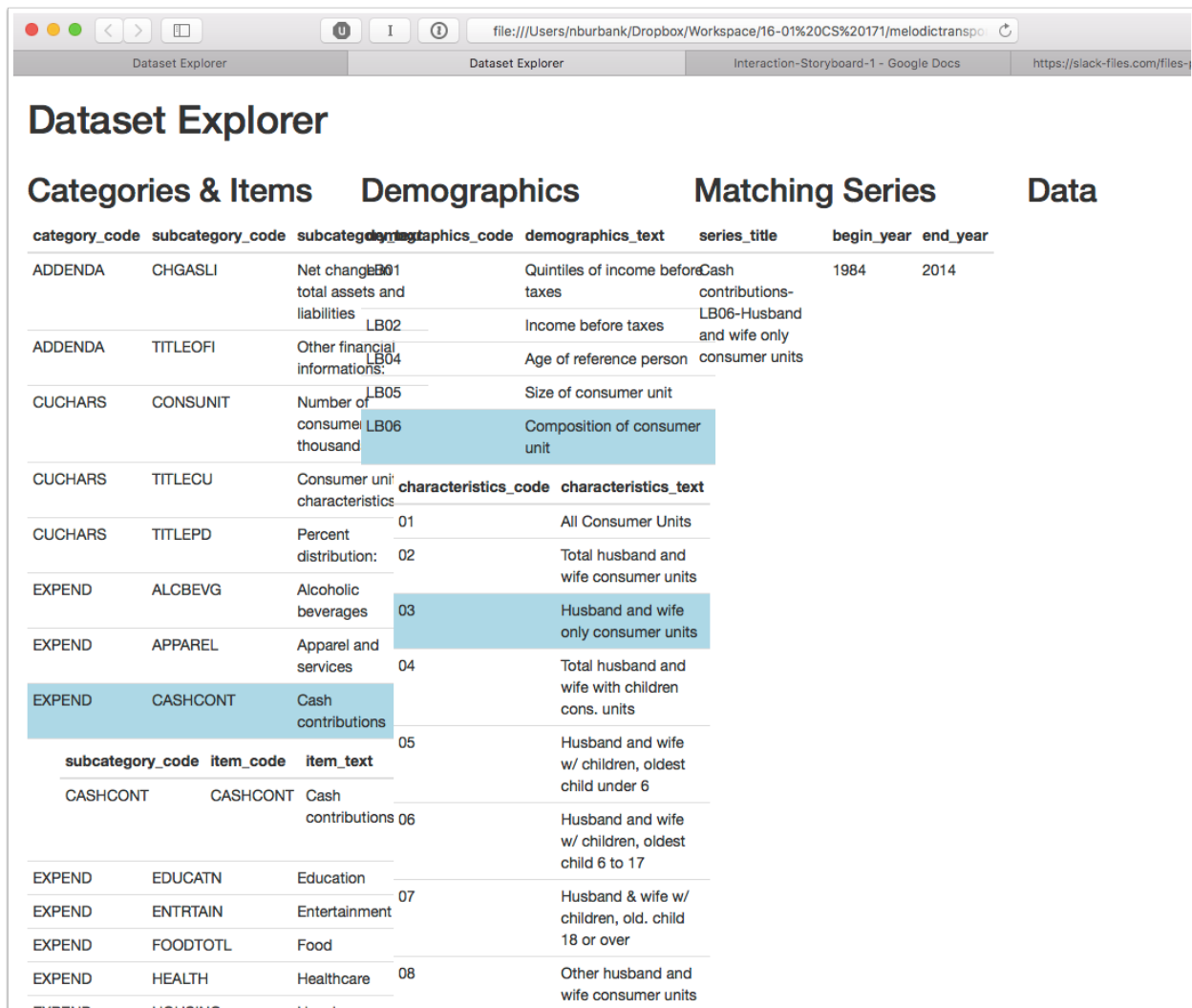
- The more spread out, the more money was spent
- The bigger the clusters around the 'expenditure' nodes, the more consumption of that item

As the user "drags" along the timeline sliders, the graph should 'animate' to reflect over time consumption.

Dataset

The bulk of the data for our project will be gathered from the Consumer Expenditure Survey published by the Bureau of Labor Statistics. There are other data sets available from the BLS that we are also considering such as Unemployment and Employment, Consumer Price Index and various price averages.

As of April 4, 2016,, we have downloaded dataset into an SQL database and built a small webapp to help us explore it and reformat it: