Some Successful Interactive Data Graphics, and Why They Succeed

Kaiser Fung

Data Meets Viz. Kloster Holzen. 28 June, 2015
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Kaiser Fung @JunkCharts
Visualizing MBTA Data

M. Berry, B. Card (WPI)
10 Jun 2014

http://mbtaviz.github.io/
“Raw” Data

Space + Time + Speed

Locations of each train on the red, blue, and orange lines at 7:04 am. Hover over the diagram to the right to display trains at a different time.

Subway Trips on Monday February 3, 2014

Service start morning. Each path of one t indicates slow service.

Since the red path is the Ashmont to Braintree trip, Braintree to Ashmont begins.

Train frequency begins at 6:30 AM as it continues.
Interactive Text Links

Focusing

Subway Trips on Monday February 3, 2014

Locations of each train on the red, blue, and orange lines at 7:34 am. Hover over the diagram to the right to display trains at a different time.
A disabled train at Wellington Station caused northbound delays on the Orange Line from 8:50 PM to 9:15 PM.

Notice how southbound trains are temporarily delayed, but get back on schedule quickly.
Your Commute

How do all of these factors affect your commute? Click and drag on the map from a starting station to an ending station to see a detailed breakdown of how long that trip takes at different points during a typical workday. The points on top show all of the trip durations for a given starting time from the start to destination and the points on bottom show all of the times between when when trains leave the start station going to the destination station. The time between trains is the longest you would possibly need to wait if you arrived just as the previous train was leaving. The blue band excludes the shortest and longest 10% of all transit times, leaving behind the most-likely 80% range and the orange band does the same for wait times between trains. The dark lines show the middle point where 50% of the time wait/transit times are higher and 50% of the time they are lower.
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Service on the red line, path of one of the trains, station details, and train frequency information.

Since the Ashmont station is closed, the Braintree extension is not in operation.

Train frequency from 6:30 AM as begins.
Interactive Legend

Continuous Scale (Binned)
Interactive Legend

Continuous Scale (Binned)
Axis Labels

Foreground / Background
Interactive Leader Lines

Placing Line Labels Next to Lines

Placing Insights In Situ

A **disabled train** causes delays on trains after (below) it for over an hour. Notice how this causes delays in the other direction as well, as trains immediately arrive at Alewife then turn around to go south.

Service to Bowdoin stops at 6:20PM

Normal service resumes for the evening starting around 7PM
Drag from a starting station to an ending station to see how long the trip takes over time in the chart.

At 5:00 pm trains leave every 2 to 5 minutes from Porter Square going to South Station. The trip takes between 20 and 29 minutes. The shortest time from when you walk into Porter Square until you walk out of South Station is 20 minutes but it can be as long as 34 minutes. Usually it takes about 25 minutes including wait and transit time.
Can You Live on the Minimum Wage?

9 Feb 2014

Can You Live on the Minimum Wage?

By JEREMY ASHKENAS  FEB. 6, 2014

More than 4.8 million workers now earn the lowest legal pay. This calculator, for a single childless worker, shows the hard choices that have to be made living on the smallest paychecks.

Start by choosing your state: New York

The minimum wage in New York is $8.00 an hour. Tally your living expenses by entering what you think is the least you need for each item. You may find that even your rock-bottom expenses aren't met and that you have to work more hours, pay your bills late, borrow money or do without. Related Editorial »

Housing

Enter monthly rent or mortgage payments (and don't forget insurance, if this is paid separately) that you would expect to pay for

$16,000 in yearly income
Can You Live on the Minimum Wage?

By JEREMY ASHKENAS    FEB 8, 2014

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Related Editorial »

Housing

Enter monthly rent or mortgage payments (and don’t forget insurance, if this is paid separately) that you would expect to pay for a modest apartment or home in your area.

$500  Monthly

$4,000 remaining per year
Food
Include the cost of groceries plus restaurant and takeout meals. If you have a child, you would probably qualify for the Supplemental Nutrition Assistance Program (food stamps), significantly reducing this amount.

$400

Household Essentials
Enter the average amount of money spent on clothing and other essentials, such as paper products and cleaning supplies. If you have a child, include the cost of child care.

$200

Taxes
Even earning minimum wage, you'll still owe federal taxes. Expect to pay at least $1,550 in federal income and payroll taxes. If you have a child, you would probably qualify for the Earned-Income Tax Credit and may receive a tax rebate.

$4,400 in debt per year
Or, 11 more hours a week at a second job

Each pixel represents $1 of debt
Interactivity for Personalization

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Visual changes according to personal data *not* personal preferences

Raw data stay in the background
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What Adjustments Would You Have to Make to Live on the Minimum Wage?

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$  

$16,000 in yearly income
100 Years, 100 Legacies:
The Lasting Impact of WWI

http://www.wsj.com/news/interactive/ww1_ipadMobileApp_only
Interactivity as Catalog

Organizing unstructured data

Enabling multiple browsing experiences

Attractive front-end

List of Hyperlinks
Vertical Scroll
Horizontal Scroll
Interactivity for Segmentation

Editor’s Choice?
Pilates is a legacy of World War I? That's a bit of a stretch, surely. Well no. Turns out this form of fitness beloved by celebrities and mainstream gym-goers alike was conceived by a German boxer and bodybuilder while he was interned in Britain as an enemy alien during the war.
Bloomberg

How Americans Die

17 April, 2014

Interactivity for Narration

Pacing the Learning

But one line in this chart looks unusual! Look at the mortality rate for people *aged 25-44.*
What caused the surge in mortality for 25- to 44-year-olds?

AIDS, which at its peak, killed more than 40,000 Americans a year (more than 30,000 of whom were 25 to 44 years old).

(Slowing infection rates and better treatment eventually allowed many of those with the virus to survive into their 50s and 60s)
Selfiexploratory

L. Manowich, M. Stefaner, et. al.
~ Feb 2014

http://selfiecity.net/#selfiexploratory
Bangkok analyzed relative to aggregate

Intuitive
Multiple Dimensions

Continuous variables
Categorical variables
Interactivity for Catalog  
Personalized path of navigation
Interactive elements should *improve* a non-interactive chart

Identifying the appropriate places to add interactivity is a key design challenge