visualizing Vancouver crime

Dec 12, 2017
CPSC 547 Final Project
Alexandra Kim and Amon Ge
Intro

- Hard to see trends with available vis tools
- How do we aid data analysts?

GeoDASH: Vancouver Police Department Crime Map
What-Why-How

**What**
- tables
- geometry
- dynamic data

**How**
- isotype plot: color hue, density, position
- grid map: color saturation, color hue, size, position

**Why**
- discover, compare, summarize
- trends, outliers, features
What-Why-How

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## Dataset

### Open Data Catalogue

**Crime**

<table>
<thead>
<tr>
<th>Data currency comments</th>
<th>The data on this site is scheduled to be updated every Sunday morning. Note: there can be a delay of up to 2 weeks between when data is updated in its home system and the publication to the Open Data feed.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data set description</td>
<td>This is a dataset of crime data on a year-by-year basis beginning in 2003.</td>
</tr>
</tbody>
</table>

**Legal Disclaimer from Vancouver Police Department**

The release of Vancouver Police Department (VPD) crime data is intended to enhance community awareness of policing activity in Vancouver. Users are cautioned not to rely on this information provided to make decisions about the specific safety level of a specific location or area. By using this data the user agrees and understands that neither the Vancouver Police Department, Vancouver Police Board nor the City of Vancouver assume liability for any decisions made or actions taken or not taken by the user in reliance upon any information or data provided.

While every effort has been made to be transparent in this process, users should be aware that this data is designed to provide individuals with a general overview of incidents falling into several crime categories. The information provided therefore does not reflect the total number of calls or complaints made to the VPD. Please refer to the FAQ for further details.

The data provided is based upon information contained in the VPD Records Management System. The crime classification and file status may change at any time based on the dynamic nature of police investigations. The VPD has taken great care to protect the privacy of all persons involved in the incidents reported; no personal or identifying information has been provided in the data. Locations for reported incidents involving Offences Against a Person have been deliberately randomized to several blocks and offset to an intersection. No time or street location names will be provided for these offences. For property related offences, the VPD has provided the location to the hundred block of these incidents within the general area of the block. All data must be considered offset and users should not interpret any locations as related to a specific person or specific property.

**Data accuracy comments**

The Vancouver Police Department's GeoDash Crime Map may not represent the authoritative source. Note: GeoDash stands for Geographic Data Analysis and Statistics Hub. It is a crime mapping tool used by Vancouver Police Department (VPD) to inform residents on the crime activities happening in Vancouver.

**Attributes**

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<thead>
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<th>DAY</th>
<th>Hour</th>
<th>Minute</th>
<th>Hundred Block</th>
<th>Neighbourhood</th>
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<th>Y</th>
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data.vancouver.ca/datacatalogue/crime-data.htm
DEMO
Tools

- d3.js (v 4)
- leaflet.js (v 1.2.0)
- HTML, CSS, Javascript
- python3
Preprocessing

- UTM to Latitude-Longitude
- Binning crimes by geography, and by type x neighbourhood
Limitations

● Data limitations
  (sensitive crimes, e.g. *homicide*, are not visualizable)
● Finest granularity window is measured in days
● All shown data is aggregated
● Grid size is not adjustable
Future

- Adjustable grid sizes
- Aggregate across discontinuous similar windows (day vs night, seasons)
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Thanks!

images:
http://geodash.vpd.ca
http://i.dailymail.co.uk/i/pix/2012/08/04/article-2183663-121153A0000005DC-701_634x392.jpg
http://www.humanresourcecouncil.org/images/housing/HOMEBUYER_section_FAMILY.jpg
http://i.imgur.com/XvLllye.jpg
https://d3js.org/
http://leafletjs.com/