Visual Exploration of Shanghai Subway Data

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Outline

01 Introduction and Related work

02 Three views

03 Explore the influence of weather on passenger flow
Introduction and Related Work
Introduction of Visualization
Interactive Visual Discovering of Movement Patterns from Sparsely Sampled Geo-tagged Social Media Data

Track people’s movements with social media data with geotags.

Visualizing Mobility of Public Transportation System

Visualize and explore passenger mobility in a public transportation system with subway system data and bus network data.

Propose a model that allows users to visually query taxi trips.

Three views

- Passenger Flow Volume View
- Running View
- Lines & Stations View
Passenger Flow Volume View

- **Passenger Flow Volume**
- **Passenger Flow Volume in particular time (mouse hover)**

**Time: Apr 1 – Apr 30 2015**

**14 Subway Lines**
Visual analytics

Qingming Festival: 3 days’ holiday on Apr 4 - 6 2015

Weekly periodic variation

Three Hot Lines:
- Line 2
- Line 1
- Line 8
Visual analytics

Two Peaks:
Morning Peak (07:00 – 09:00) & Evening Peak (16:00 – 18:00)
Morning Peak is more agminated; Evening Peak is more dispersive

Line 16
Morning peak comes earlier
Evening peak comes later
Apr 16 2015

Time

Line 1

Running View
Lines & Stations View

Lines
14 Lines (Line 1 – Line 12, Line 16)

Stations
366 Stations

Length
617km
Explore the influence of weather on passenger flow
Explore the influence of weather on passenger flow

3 datasets:
- Shanghai subway smartcard data
- Weather data
- AQI (air quality index)

Scenic resign:
- Sunny: ---
- Raining and windy: ↓
- Fog and haze: ↓

Entertainment district:
- Sunny: ---
- Raining and windy: ↓
- Fog and haze: ↓

Residential district:
- Sunny: ---
- Raining and windy: ---
- Fog and haze: ---

Business district:
- Sunny: ---
- Raining and windy: ---
- Fog and haze: ---
### Explore the influence of weather on passenger flow

#### Simply validate the influence of weather

<table>
<thead>
<tr>
<th>Station</th>
<th>Apr 7 (Tues)</th>
<th>Apr 8 (Wed)</th>
<th>Apr 8 – Apr 7</th>
<th>(Apr 8 – Apr 7) / Apr 8</th>
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<tbody>
<tr>
<td>豫园</td>
<td>36547</td>
<td>41615</td>
<td>5068</td>
<td>12.1783%</td>
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<tr>
<td>人民广场</td>
<td>193788</td>
<td>216861</td>
<td>23073</td>
<td>10.6395%</td>
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<td>上海动物园</td>
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<td>13327</td>
<td>1175</td>
<td>8.8167%</td>
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<td>徐家汇</td>
<td>148406</td>
<td>159163</td>
<td>10757</td>
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<tr>
<td>南京西路</td>
<td>96842</td>
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<td>金科路</td>
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<tr>
<td>张江高科</td>
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<td>70769</td>
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<td>唐镇</td>
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</tbody>
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THANK YOU

2016.04.20