Visualizing big mobile phone records in Senegal
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**Contribution:** Engineering: Building client/server web app with 3 layers and Interface: Designing interactive interface and revealing insights from data.

**Dataset Statistics**

**SET1:** Log of voices and SMS in hour between 1666 towers \(\rightarrow\) 1.8B data points

**SET2:** Log of 319,508 users at 1666 towers \(\rightarrow\) 11.1B data points

**Infrastructure**

- Data for Development Senegal, sponsored by Orange
- NodeJS server with MongoDB and Python, storing and mining data and sending to clients
- Using Mapbox and extending Leaflet APIs to visualize communication, mobility.

**Tool Features**

**Communication**

| Tower Communication | - Draw lines from selected towers (green) to those towers (pink) having call out hourly. (Use SET1) |
| Tower Stat Information | - Displaying basic statistic information. (Use SET1) |
| District Diagram | - Towers coloring and clustering based on # of unique users. |
| Tower Diagram | - Colors of selected towers change hourly based on indicator values: # calls and Sum of duration call (Use SET1) |
| Tower Comparison | - Draw line chart based on the selected towers to compare above indicator values in time hourly. (Use SET1) |
| District Diagram | - Display daily communication at district level based on indicator values: # call, # SMS, # SMS out, # call out, Sum of duration call out. (Use SET1) |

**Mobility**

- Dakar residents and workers: Use heat map showing the mobility of Dakar residents and workers (classified by calling time). (Use SET2)

**Credits**

- Node
- Express
- Mapbox
- Leaflet
- MongoDB
- Open Iconic