Exploring the Domain of Choice DJS Program

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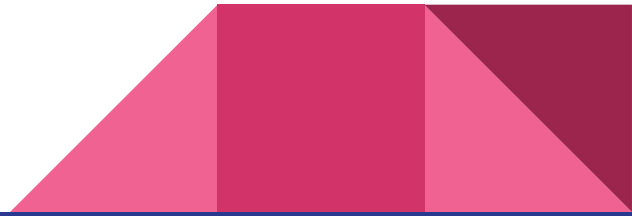
Agenda

- Choice Program Info
  - DJS (Department of Juvenile Services)
- Project Overview
  - Data Set
  - Questions
  - Goals
- Demo (3)
  - How it was made
- Results (3)



Introduction

- UMBC Choice Program provides 50+ AmeriCorps members with opportunities to make a difference in the lives of youths living in Maryland's highest risk communities.
- The goal is to foster healthy development and resiliency among youth who face adverse individual or environmental challenges in their daily lives.
- Choice DJS (Department of Juvenile Services)

DJS Choice Program

- Aims to reduce recidivism and out-of-home placements, strengthen youth and family ties to the community through education and employment, and promote community safety.

- DJS seeks to achieve their goals through the following:
  - face-to-face contact
  - increasing family engagement
  - supporting youth with probation/legal requirements

Project Description

- Overview
  - Our client has Choice DJS data from July 2016 - June 2017
  - Two Data Sets:
    - Daily Logs: Reports of each visit/interaction conducted by AmeriCorps members
    - Calculations: Participant demographics, outcomes, various interactions

- Client Questions:
  - How the young participants of the Choice Program are distributed within regions served by DJS?
  - What is the best time for DJS members to reach the youth by phone during a day?
  - How effective is the service of each of the DJS teams?

What we did?

- We created three distinct visualizations ,where each visualization serve to answer one of the questions of our client
- The visualizations are as follows:
  - Geographic Map
  - Heat Map
  - Parallel Sets

Dot Distribution Map (Demo)

- **What:**

A geographical map created in Tableau showing how youth are distributed within different regions served by DJS members.

- **How:**

Each youth was plotted on a map as a dot. Geographic data was plotted using custom longitude and latitude values derived from the addresses provided in the dataset using Java to parse and convert the data.

- **Why:**

The map helps to see distribution and correlations as well as locate clusters and outliers.

- Link

Phone Call Heat Map (Demo)

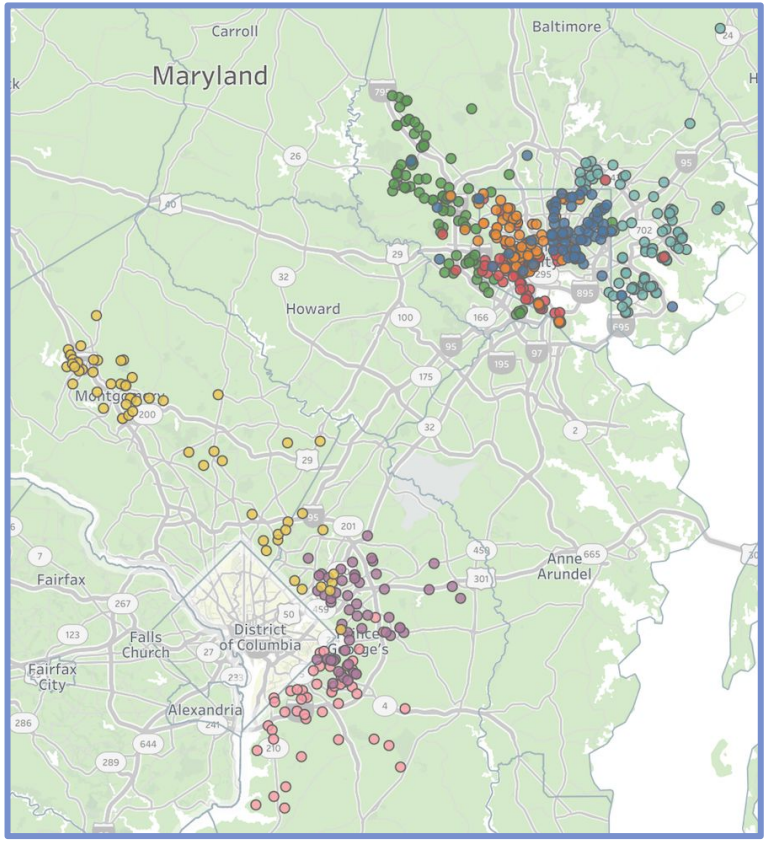
- Day of the Week versus Time of Day
- Log Data of all phone call attempts
  - Filter success phone calls
  - Categorize each date into day of the week
  - Categorize each time into hour of the day
- Color Scale

- Hovering over squares gives tool tip
- Link

Team’s Effectiveness Parallel Set (Demo)

- Parallel sets to explore trends in the data that correlates to Team’s effectiveness
- Parallel sets requires categorical data and having too many categories leads to an unreadable visualization so for some categories, we condensed similar data such as number of visits or outcomes into fewer possible values.
- Our visualizations allows for further exploration of the data by offering the ability to further explore subsets of the data and add or remove categories as needed.
- Created with Java, OpenGL, Sqlite

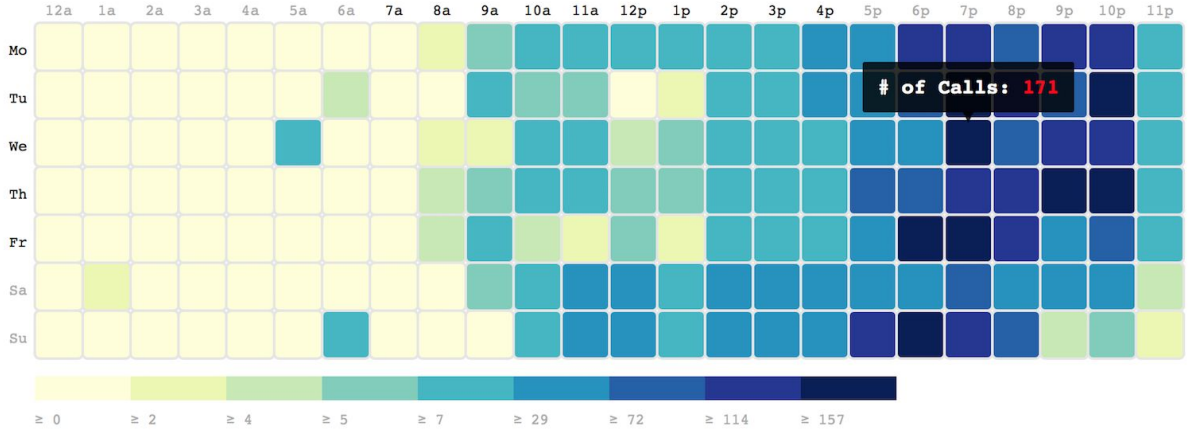
Results



- **Location Distribution Map**
  - **Visualization Findings:** Most youth are located in Baltimore City and there are outliers for almost all teams.
  - **Client Response:** Met our client's goal of easily identifying the distribution of the teams and the youths they served.

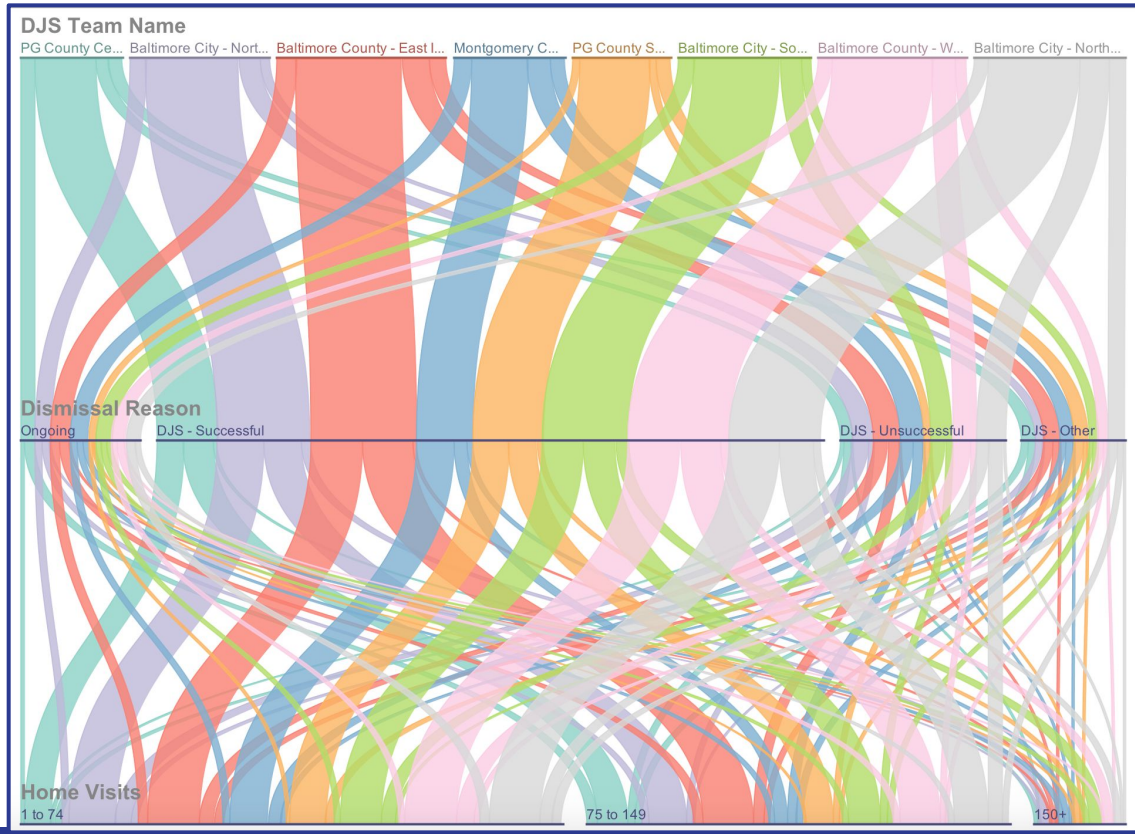
Results

- **Phone call Heat Map**
  - **Visualization Findings:** Most calls are answered in the evenings - youth are awake and not at school.
  - **Client Response:** Valuable for easily identifying the best times to contact youth.



Results

- **Parallel Sets**
  - **Visualization Findings:** A greater number of home visits does have a positive effect on successful outcomes, but it shouldn't be the only measurement for team's effectiveness.
  - **Client Response:** We hope that our client will use this tool to explore her data and gain further insight into which teams are most effective and why.



Conclusion and Future Work

- In order to fully realize the goals of our client, we created three distinct visualizations that all offered interactions with different aspects of the data.
- Additionally we could have added the ability to separate the phone call heat map by month or team and included the functionality to easily import new data sets so that our visualization could continue to be used for additional years of Choice data.

Questions?