**Folder Structure :**

1. Plots Folder has plots generated for each of the phases
2. Code Folder has three files respectively for phase1, phase2a, phase2b
3. Data Folder has data used for plots with appropriate names

**Execute code:**

**PHASE 1: phase1.py**

For reproducing plots , use the data required from data folder

For eg week\_frisk\_rfcmp, use fraction/fractionreasons/fractionweeksearchrf\_rfcmp.txt and give the input into the “main” array.

Set appropriate below mentioned threshold when running the code.

Step detection : For detecting steps : Int for Stop data, Float for fractions

Spike Y threshold : Y range for detecting spike : Int for Stop data, Float for fractions

Spike X threshold : Within X range for detecting spikes : Int for all

Monotonic Threshold : To find trends above certain threshold : Int for stop data, Float for fractions

**Output**:

Blue circle – step

Black circle – spike

Green Diamond – Decreasing Trend

Cyan Diamond – Increasing Trend

Red Diamond – Starting of Policy Change

Yellow Diamond – Ending of Policy change

**PHASE 2A: finddivergence.py**

For reproducing plots , use the data required from data folder

For eg week\_frisk\_rfcmp, use fraction/fractionreasons/fractionweeksearchrf\_rfcmp.txt and give the main probability into the “pk” array , odd against in qk array

Output:

For race

Black - color='black'

Black Hispanic = color='orange'

White Hispanic = color='pink'

White - color='green'

Main - color='red'

For gender:

Main = color='red'

Male = color blue

Female = color='green'

**PHASE 2B: phase2b.py**

For reproducing plots , use the data required from data folder For eg week\_frisk\_rfcmp, use fraction/fractionreasons/fractionweeksearchrf\_rfcmp.txt and give the input into the “main” array. Then also provide inputs as necessary for race with 4 more input array or 2 more for gender array

Tune the parameters as mentioned in phase1.

**Output:**

For race

Black - color='black'

Black Hispanic = color='green'

White Hispanic = color='brown'

White - color='pink'

Main - color='blue'

For gender:

Main = color='blue'

Male = color=’green’

Female = color='red'

**Findings:**

The general trend has a sharp decrease in 2009 – 2010 and in 2013. In gender plots the policy change is applied disproportionately for males. Generally females are not affected. When we compare the proportion of female searched for a few reasons cs\_drgtr(Drug transaction ) the proportion of female stopped are more. But for reasons like cs\_bulg the fraction of female stopped is very less because mostly female do not carry guns. The spikes in female for certain reasons like stop with prior knowledge is too drastic on certain days. This indicates that females are searched intensely on specific weeks. The plot for rf\_knowl is very different than every other plot, it has a constant reduction in frisk but there is a sudden increase after mid-year of 2011.

For race the policies are applied disproportionately between whites and other races. In almost all reasons the proportion of white stopped/searched/frisked is too low. Blacks are the most affected race, the next is white Hispanic, then white, then black Hispanic in most of the cases. In rf\_Bulg in year 2009 there is a sharp decrease for black race – this must be because of some policy change.