

Vision Zero

JR Team

By Rafael Garcia & Jirou Xu

THE VISION ZERO CONCEPT

Making errors part of the equation

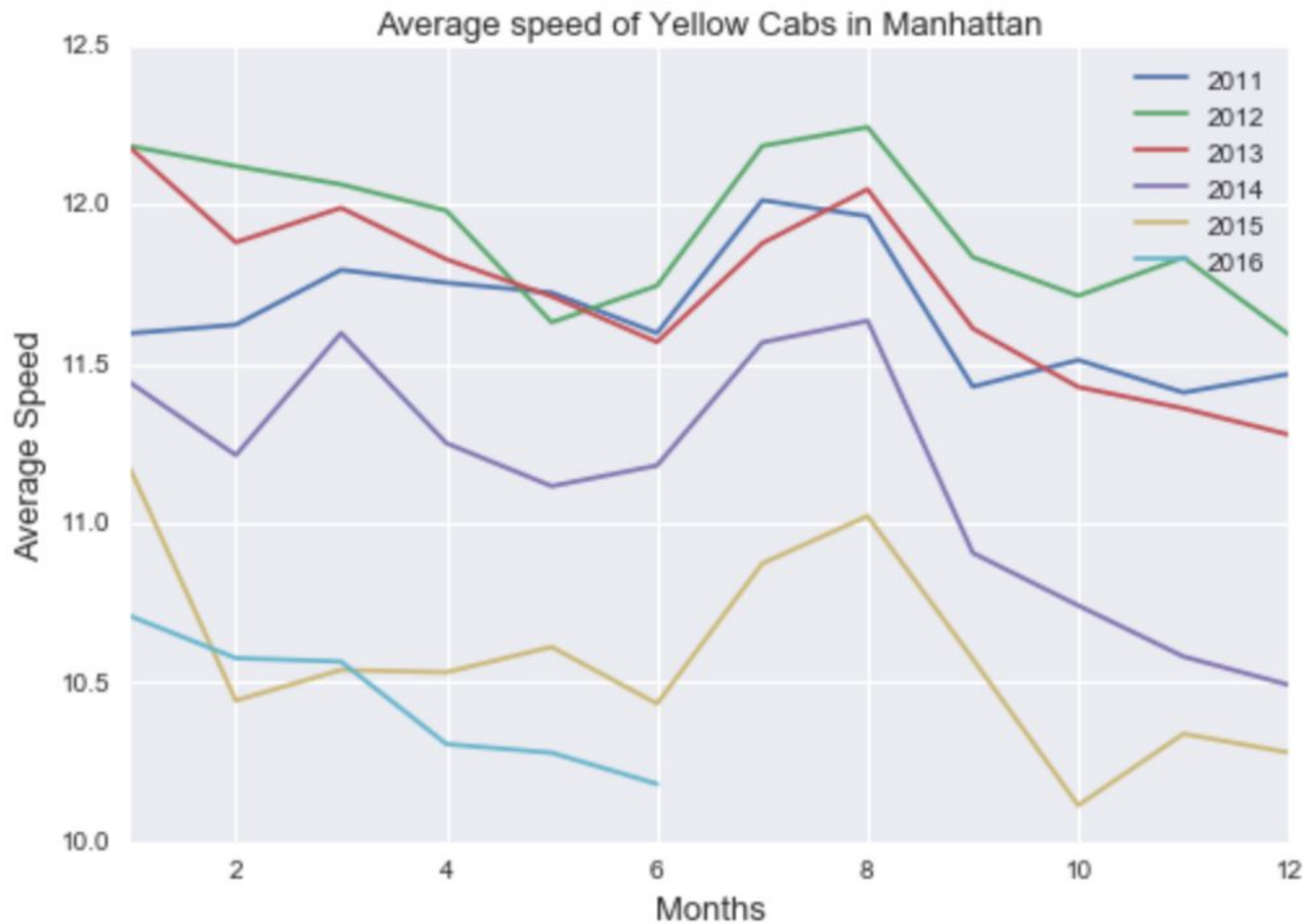
In every situation a person might fail - the road system should not. This is the core principle of the Vision Zero.

Vision Zero

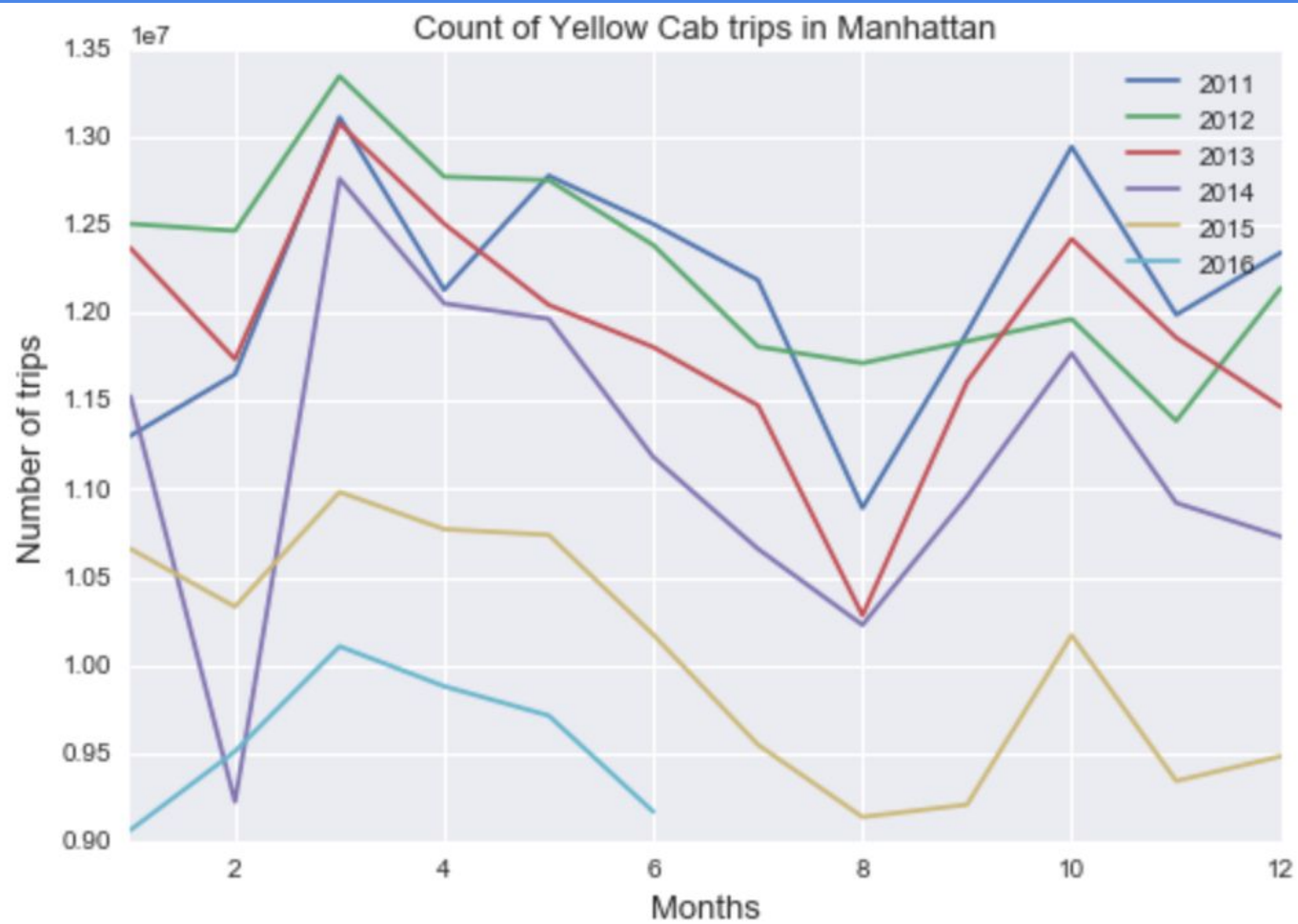
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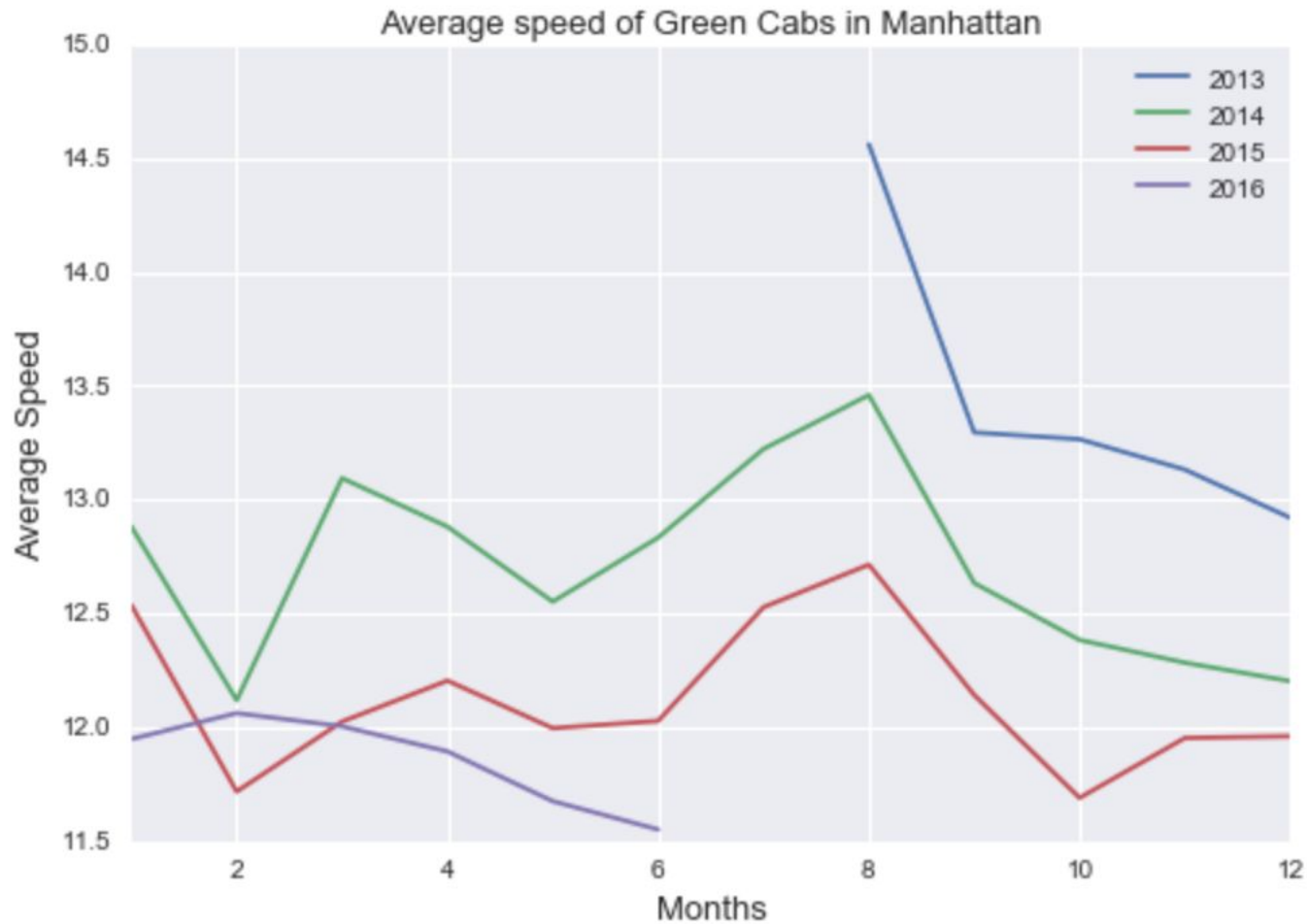
First Goal Visualization (Speed)



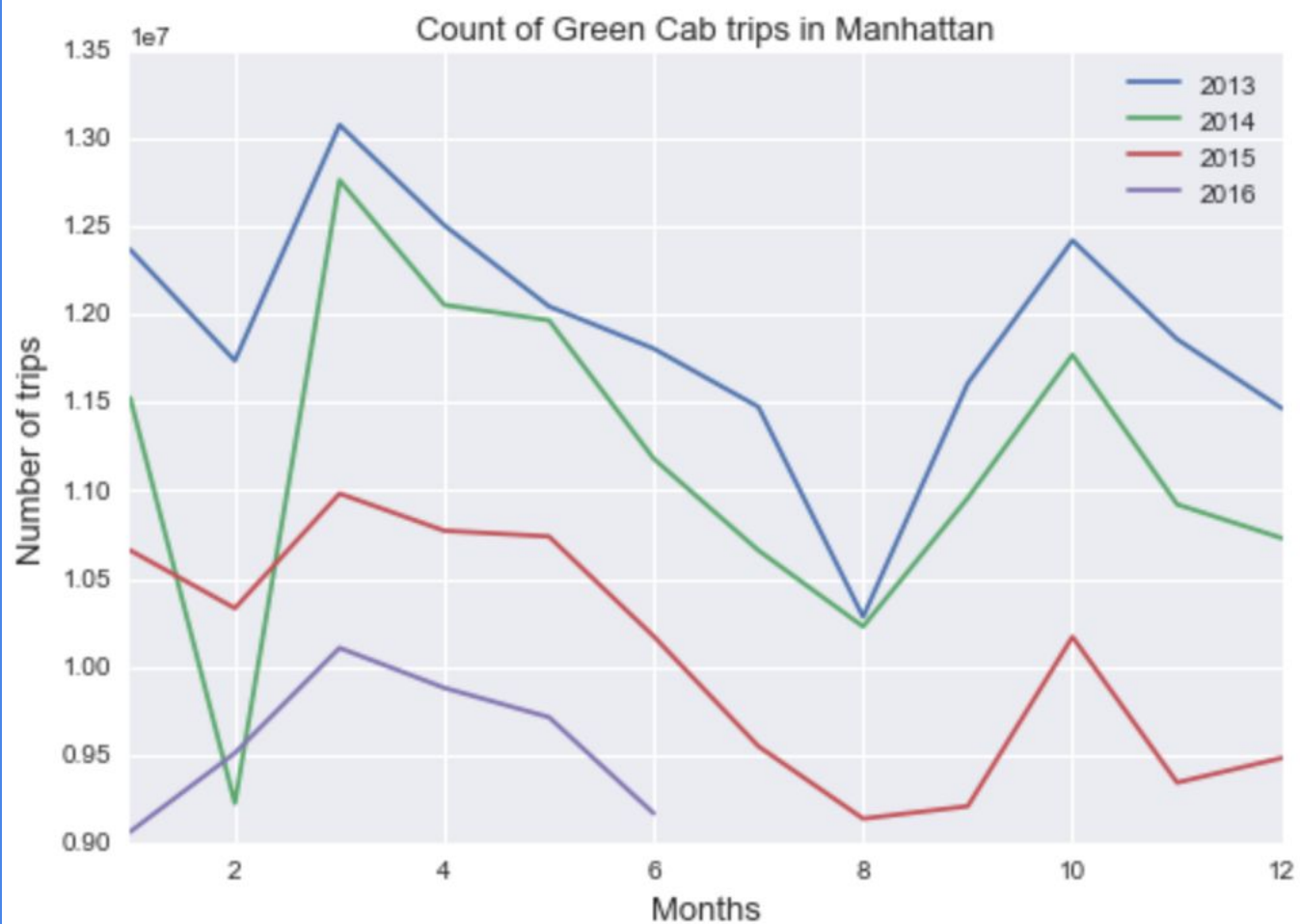
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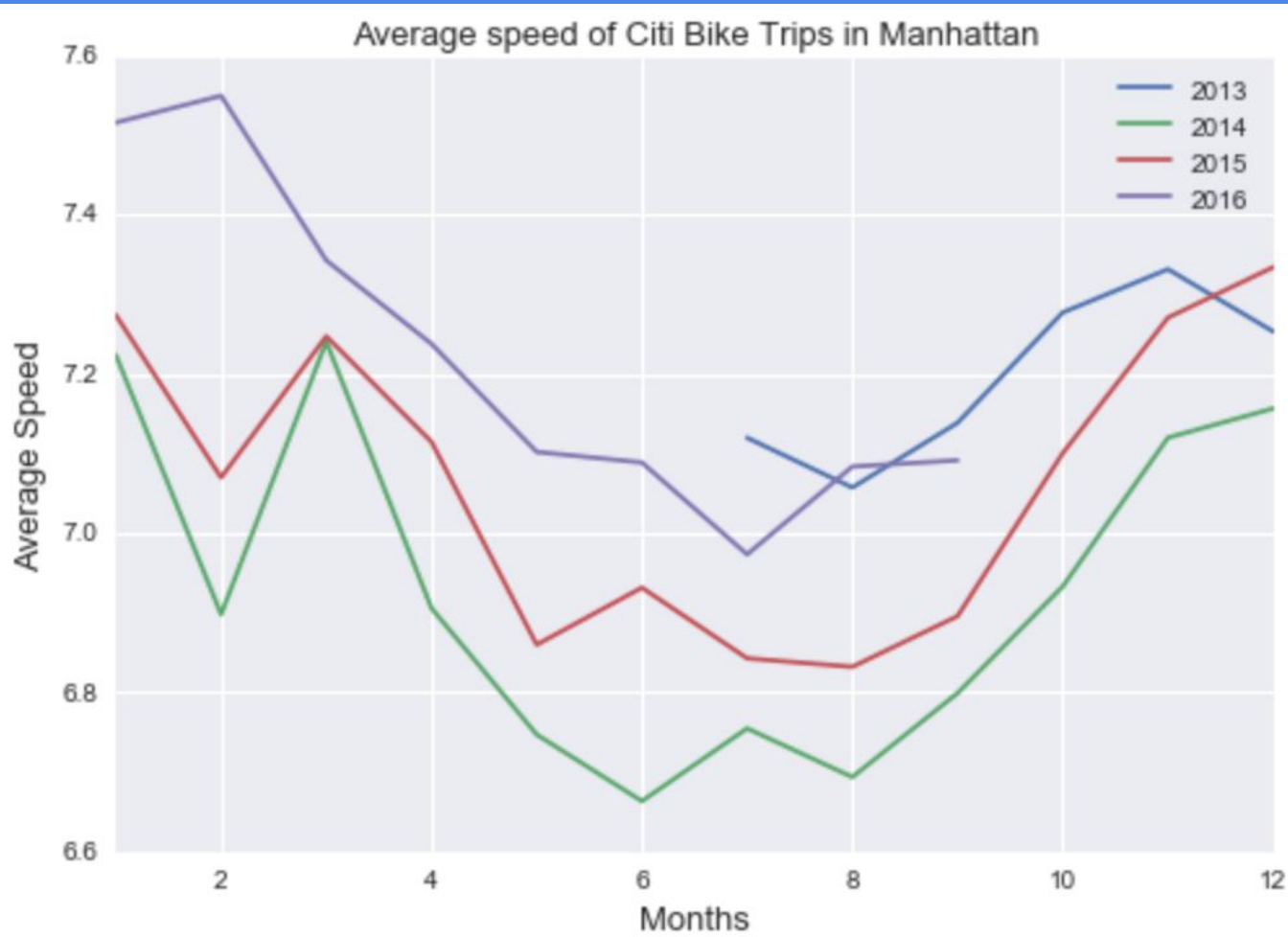
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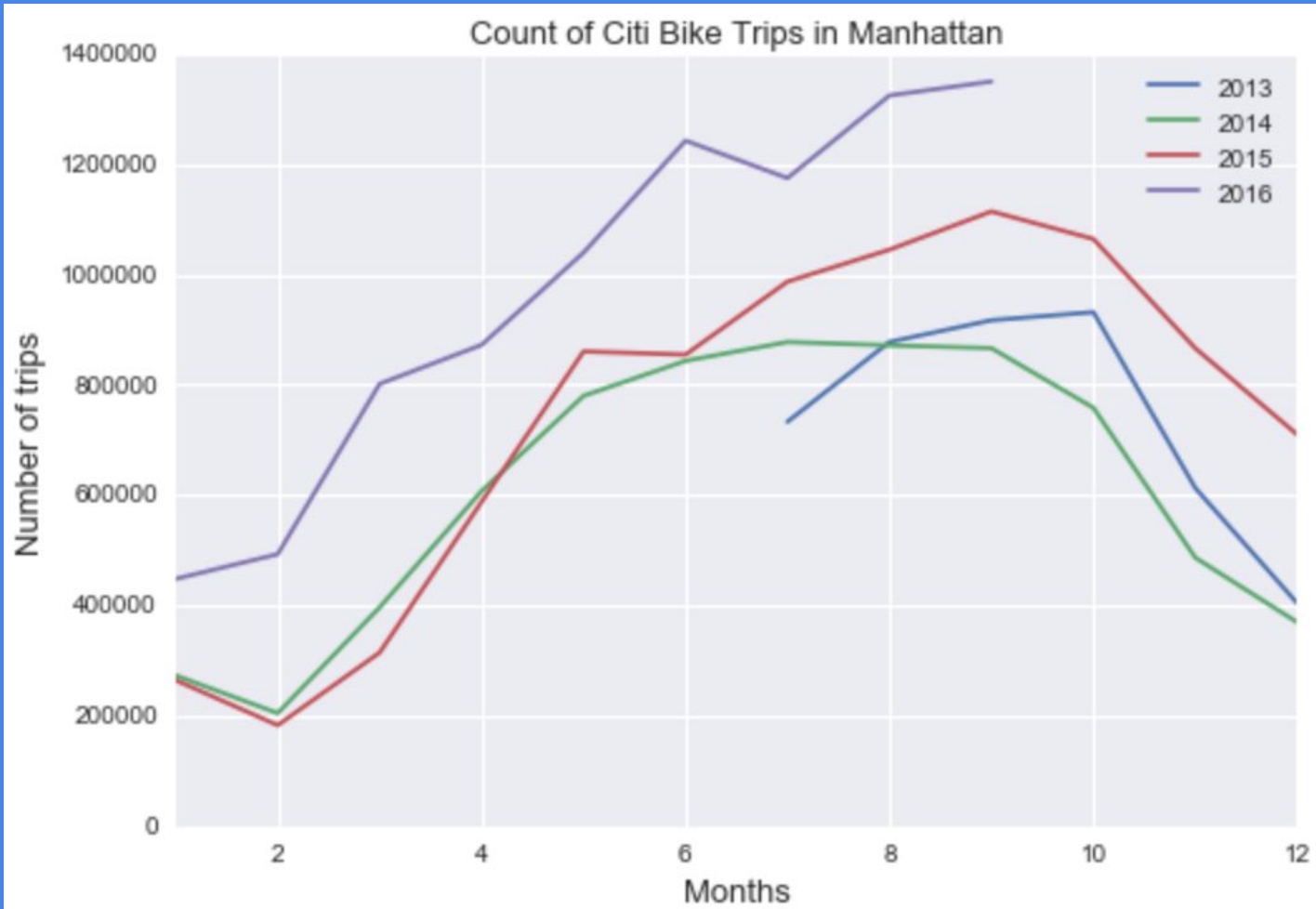
First Goal Visualization (Speed)



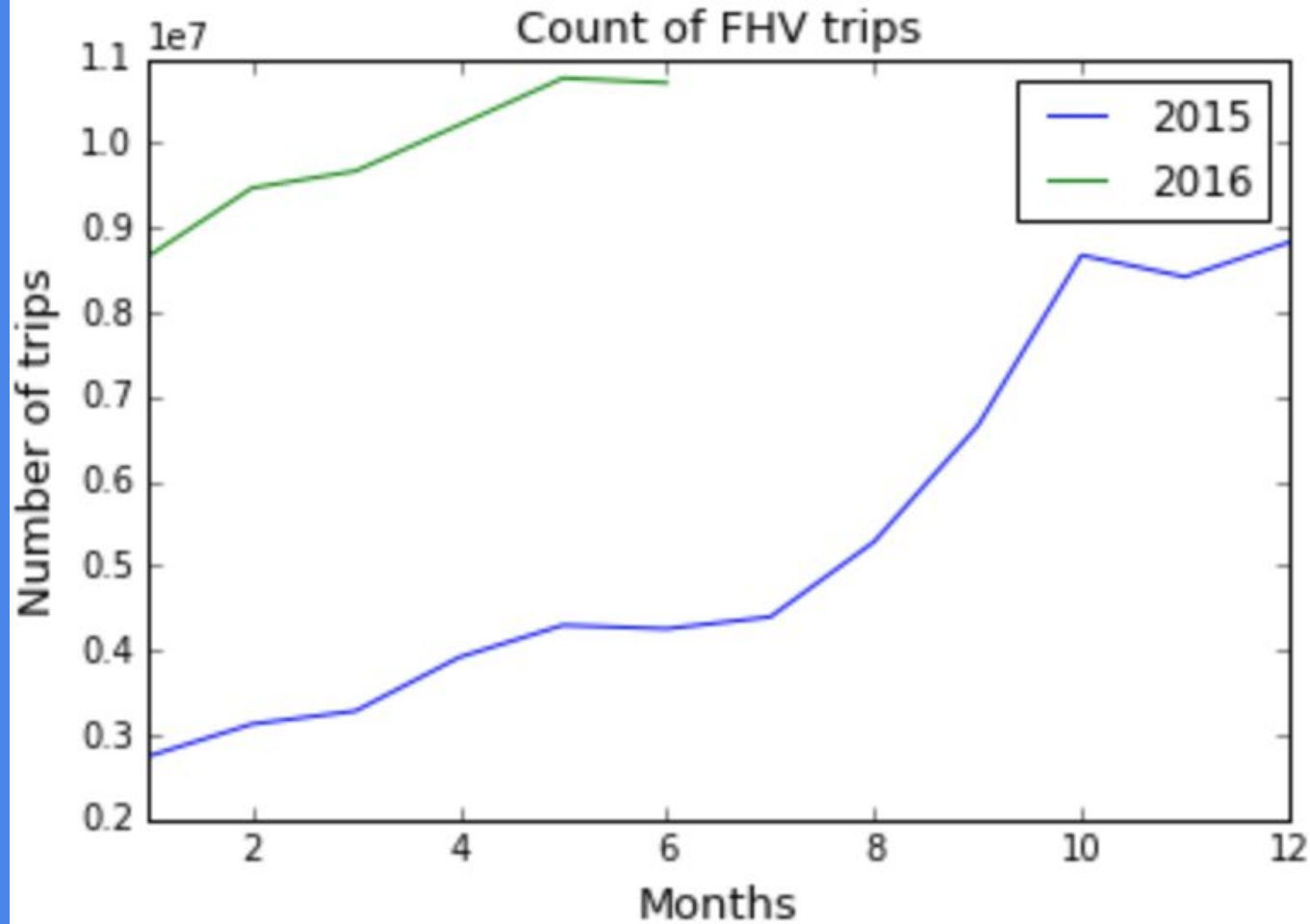
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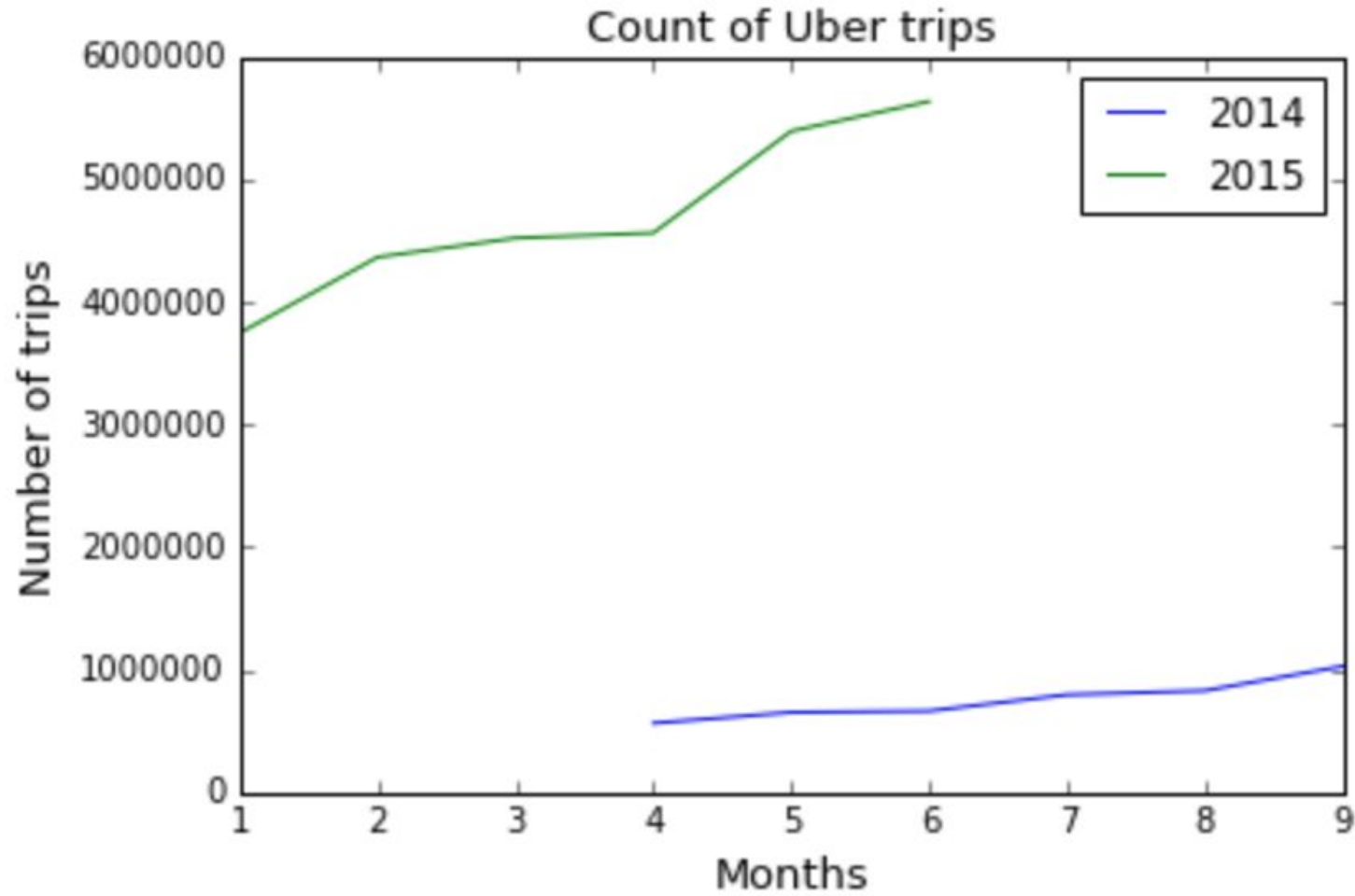
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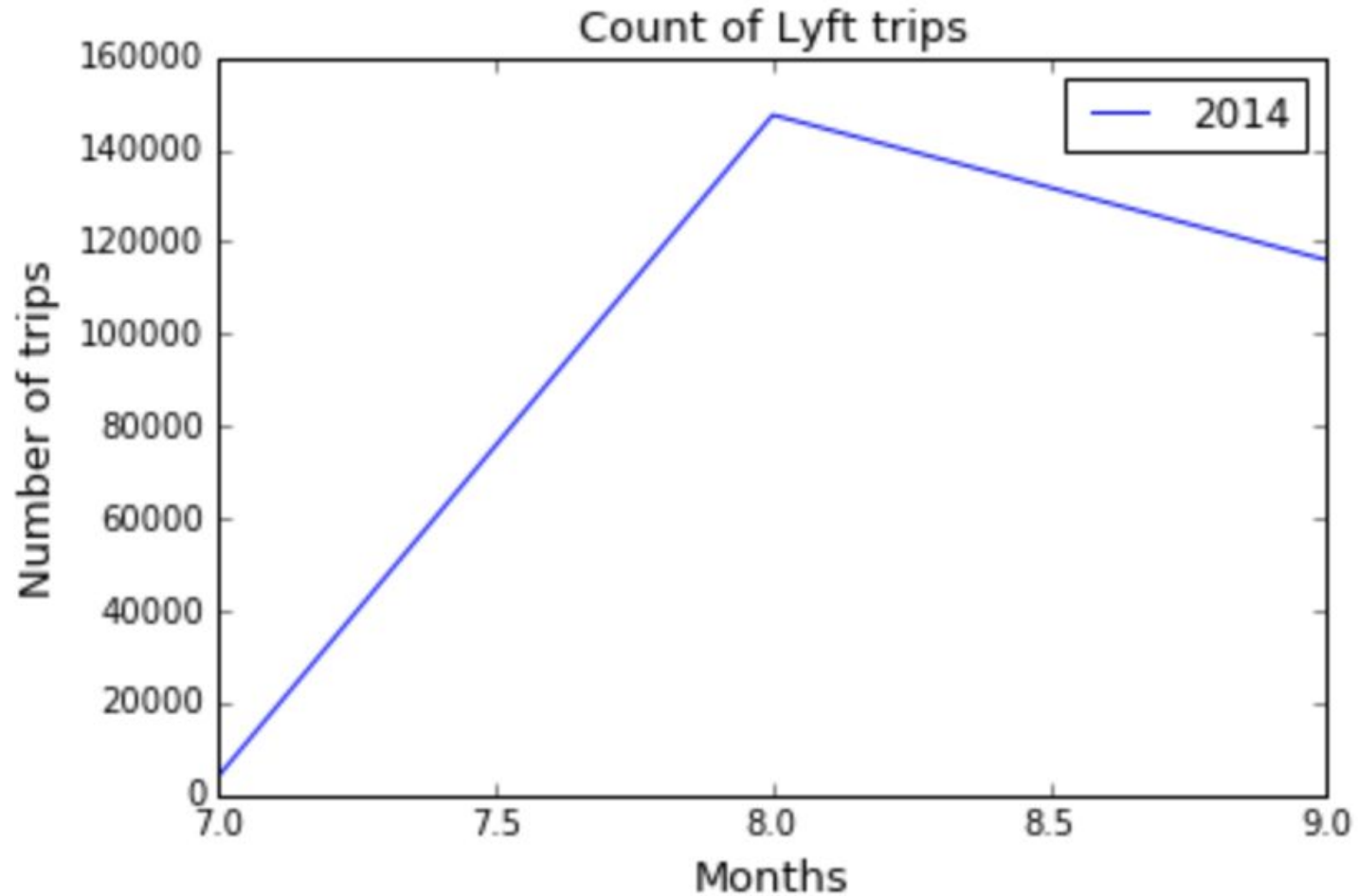
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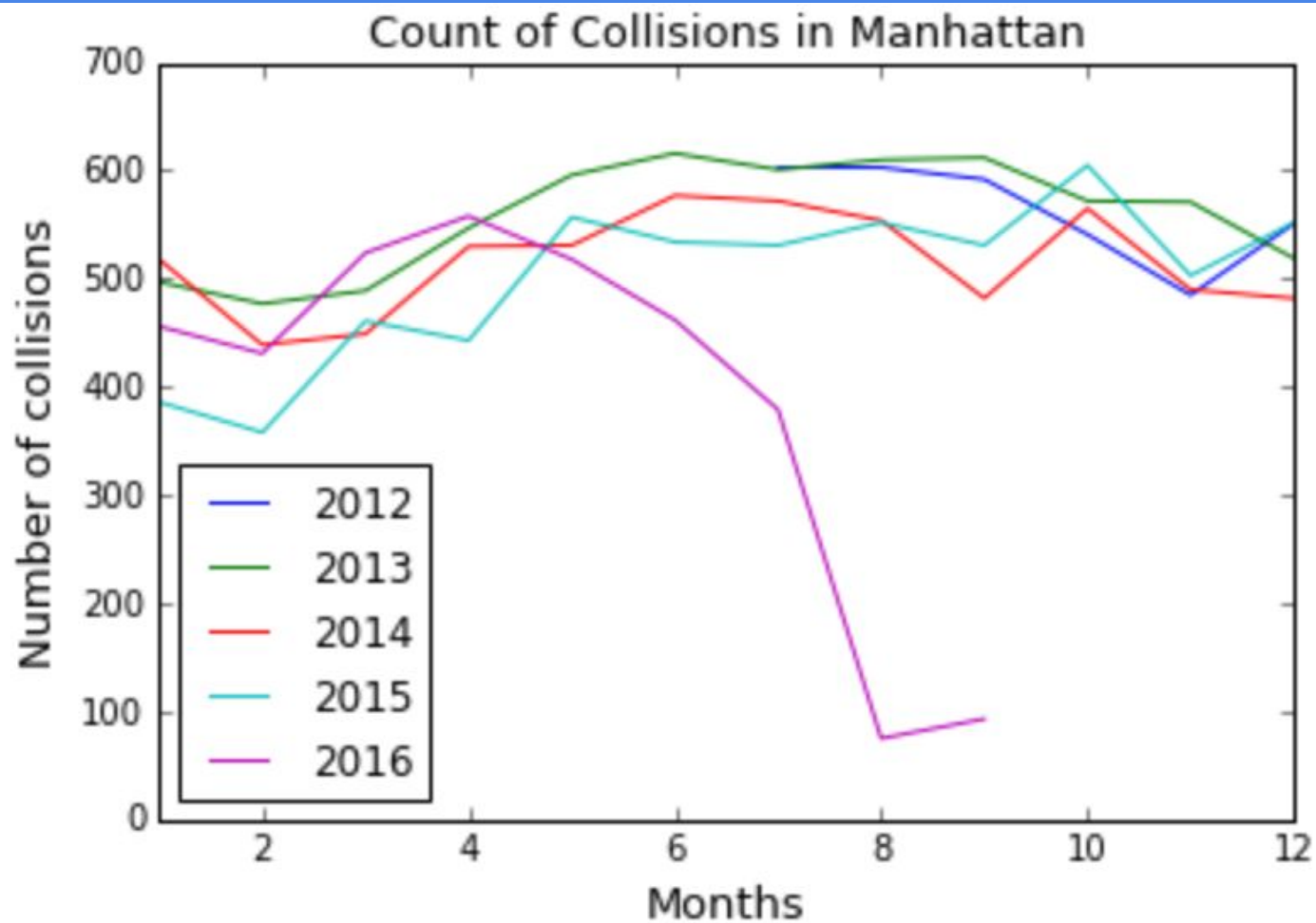
First Goal Visualization (Speed)



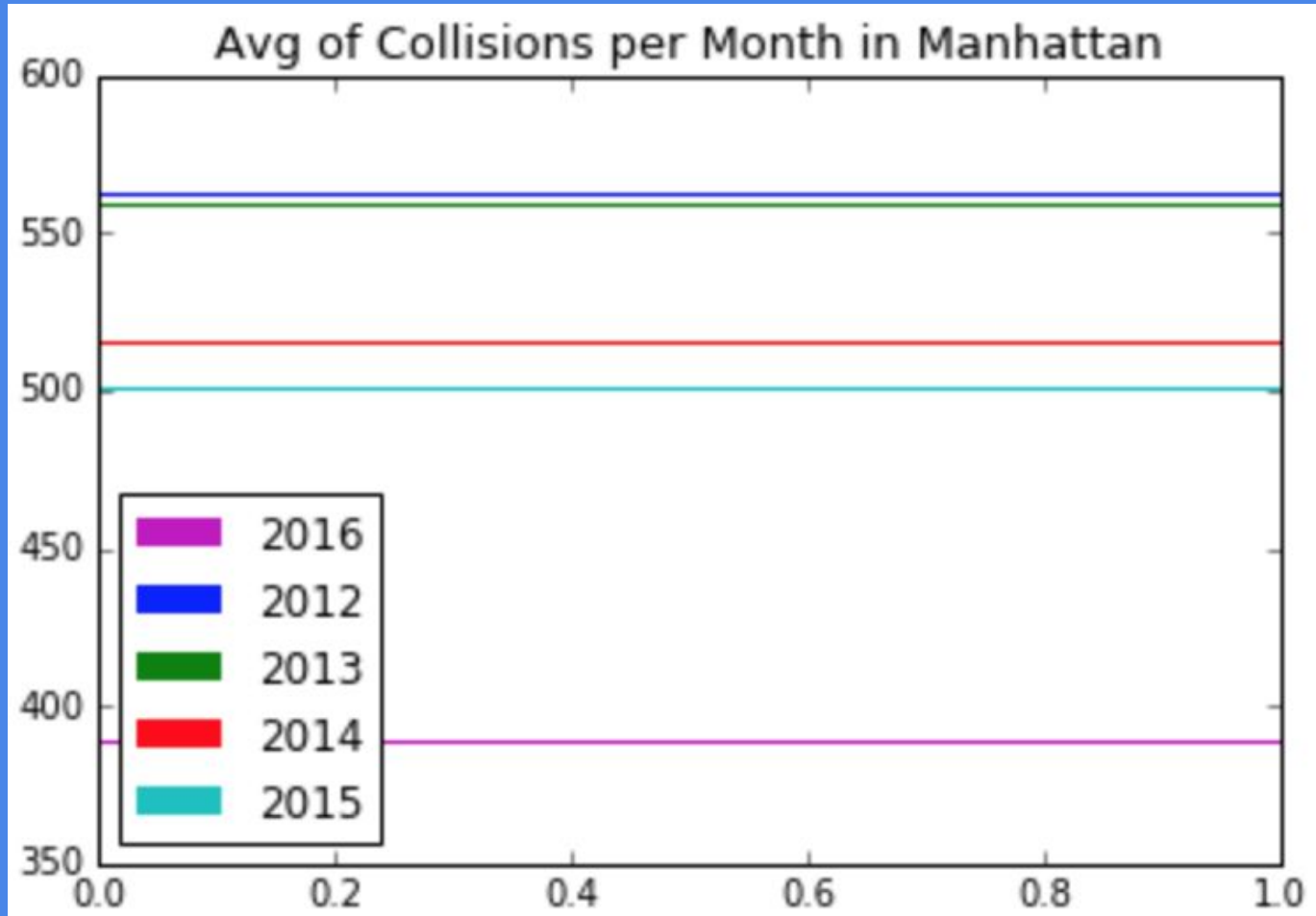
First Goal Visualization (Speed)



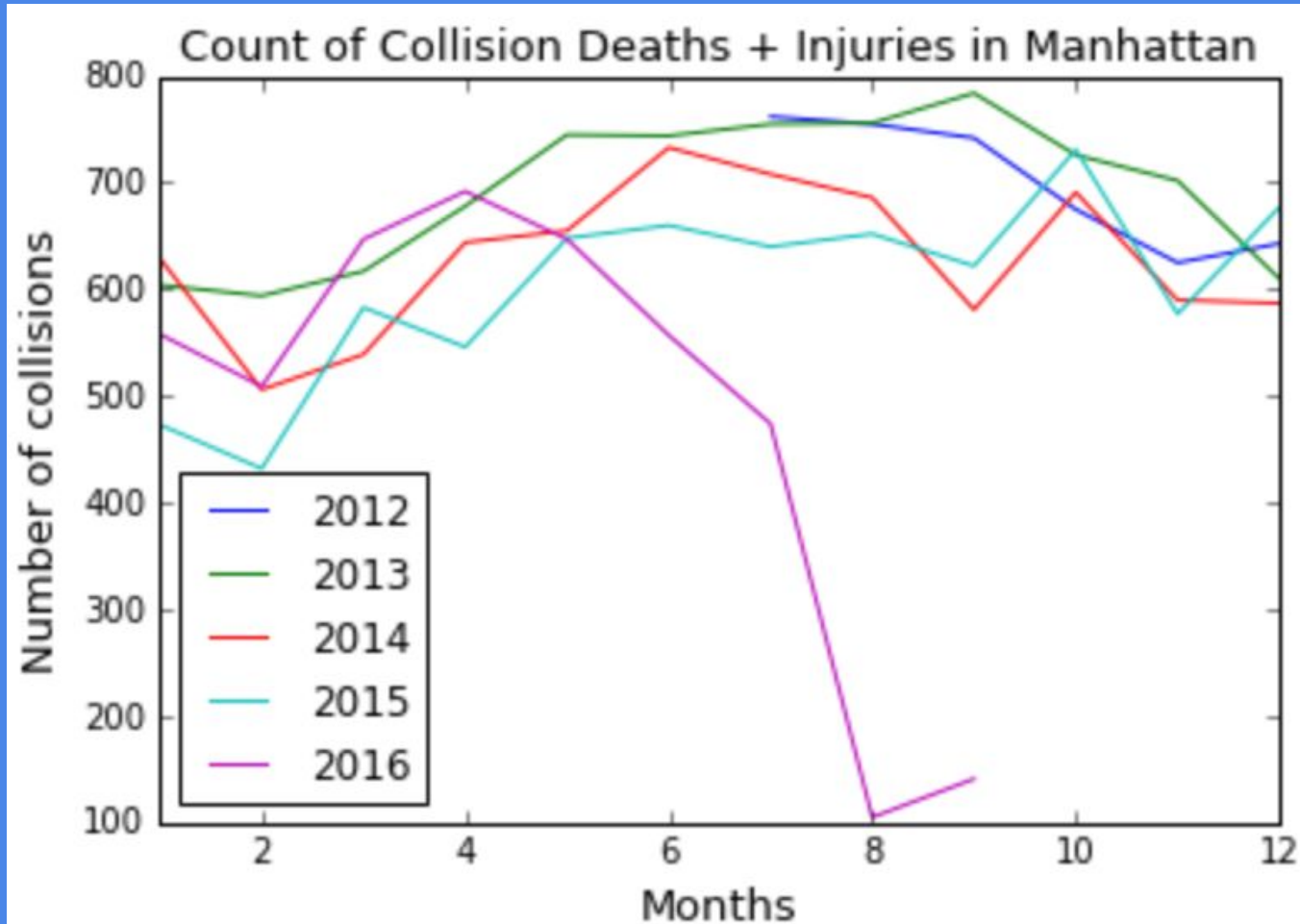
First Goal Visualization (Collision)



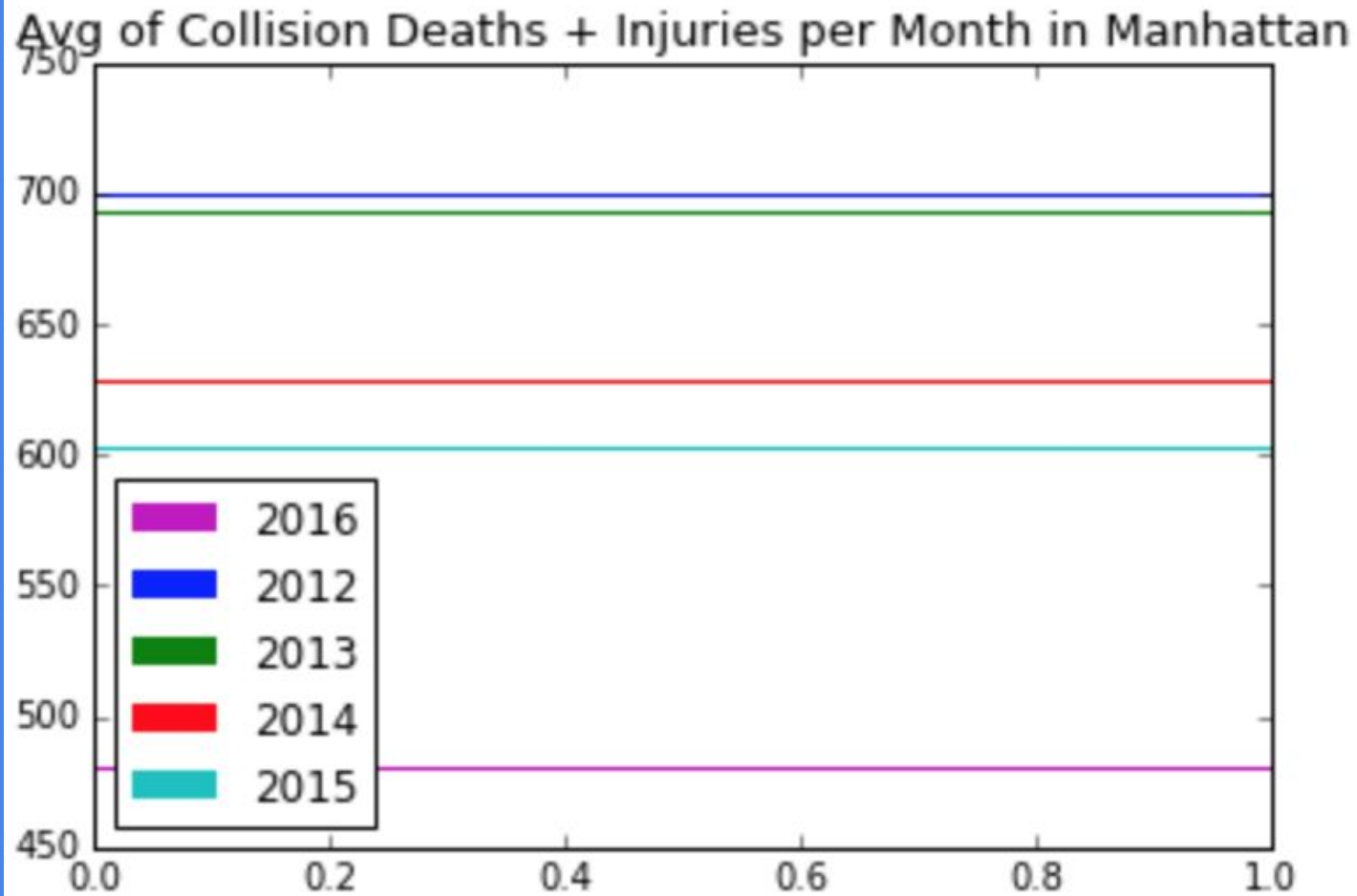
First Goal Visualization (Collision)



First Goal Visualization (Collision)

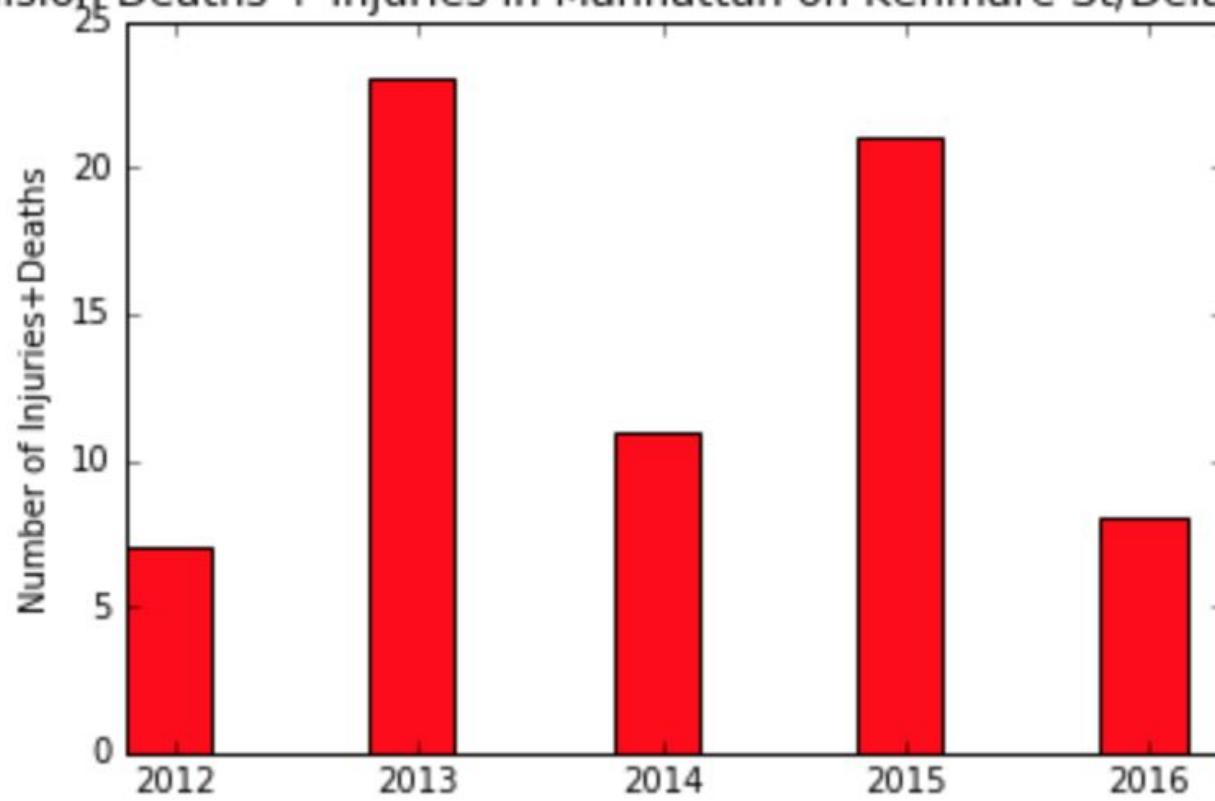


First Goal Visualization (Collision)



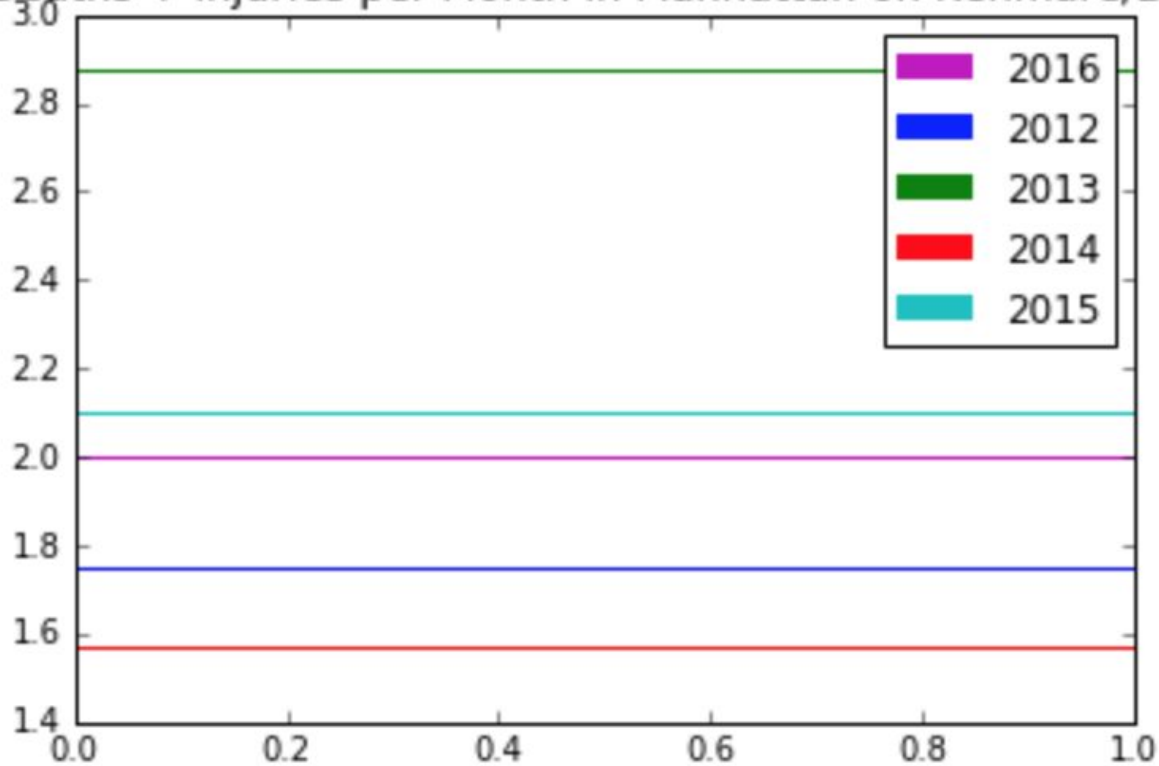
First Goal Visualization (Street Redesign)

Count of Collision Deaths + Injuries in Manhattan on Kenmare St/Delancey St/Springs St

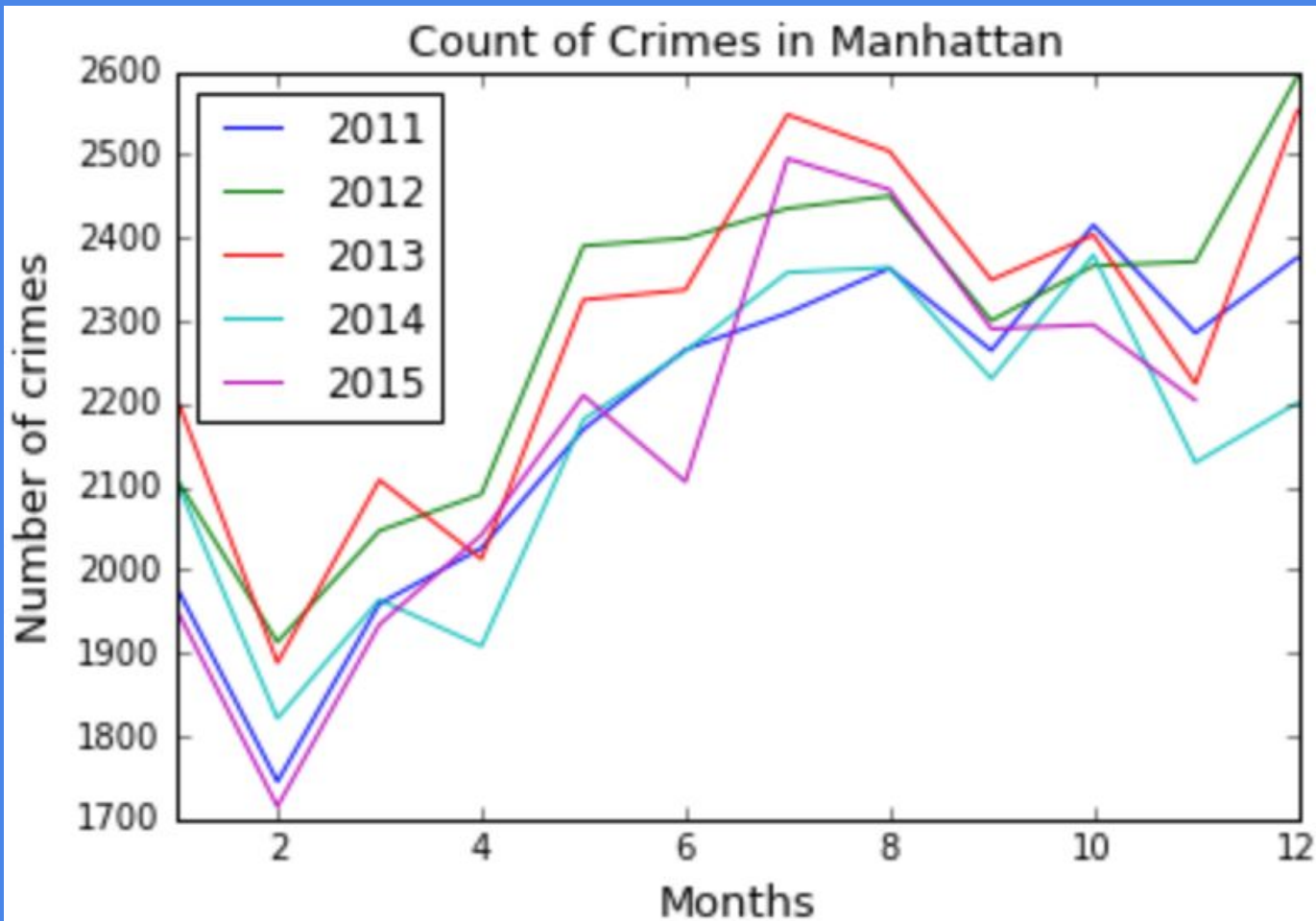


First Goal Visualization (Street Redesign)

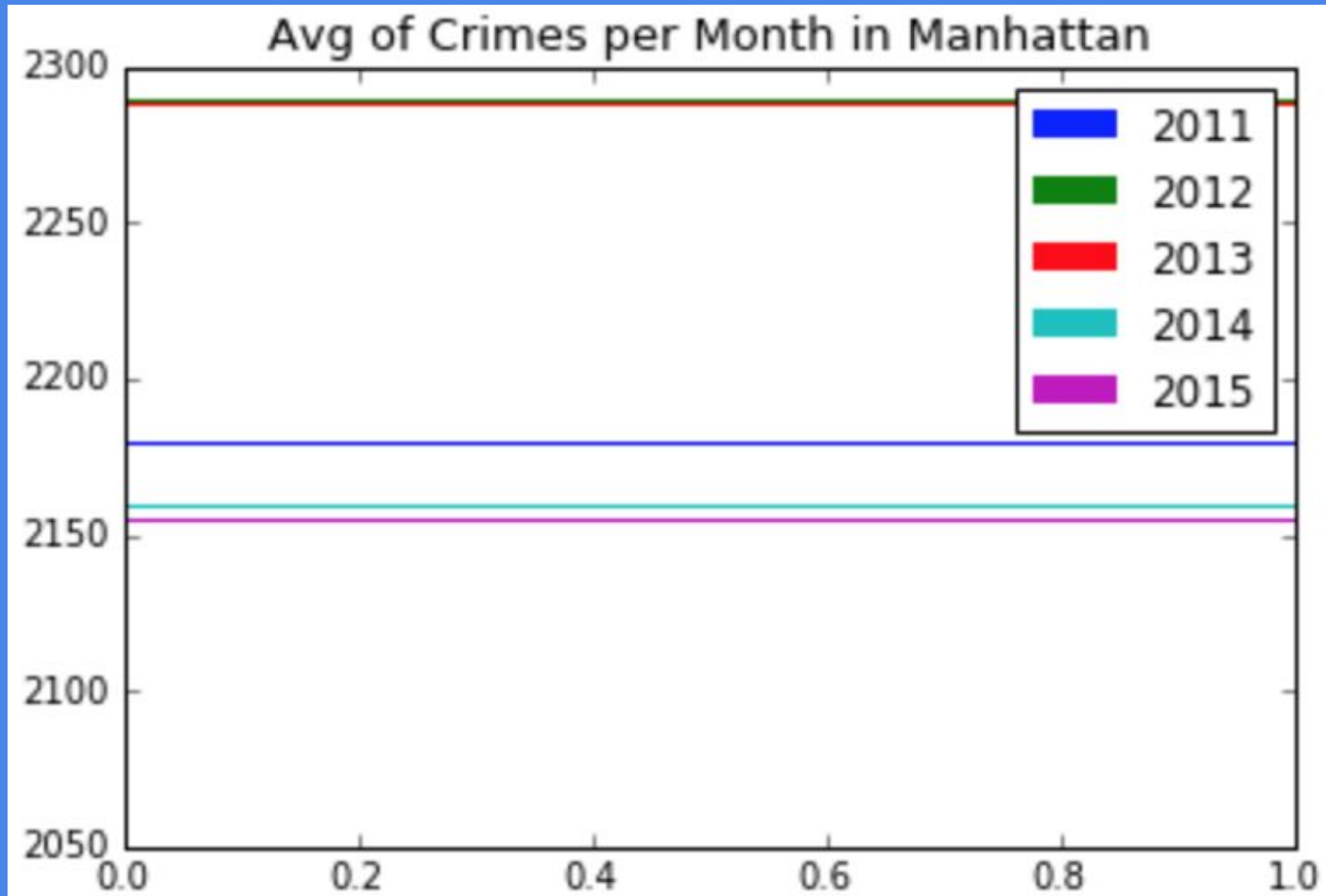
Avg of Collision Deaths + Injuries per Month in Manhattan on Kenmare/Delancey/Springs St



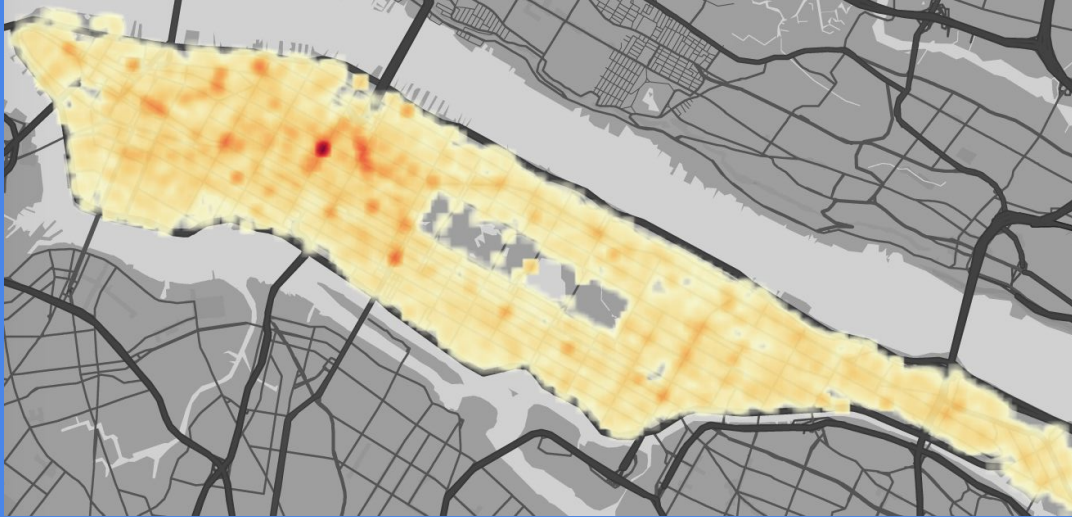
First Goal Visualization (Crime)



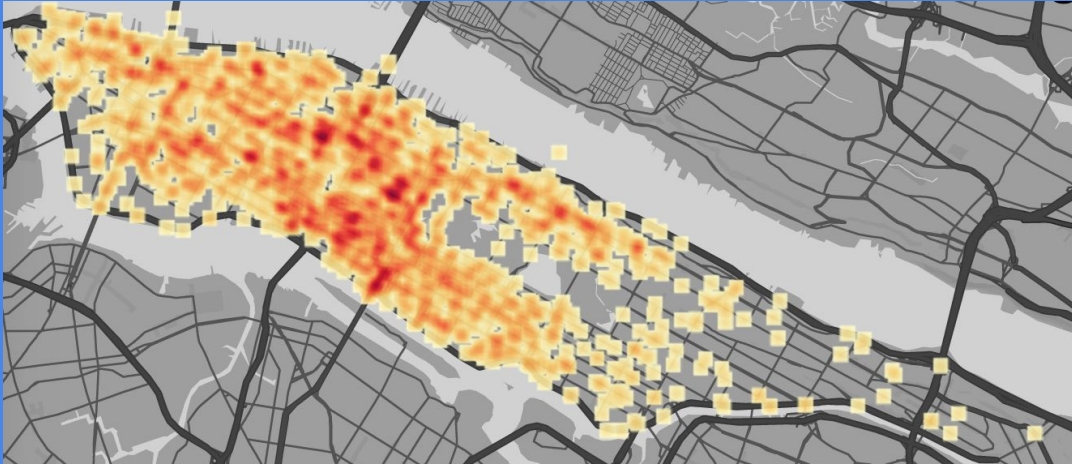
First Goal Visualization (Crime)



First Goal Visualization (Crime x Overspeed)

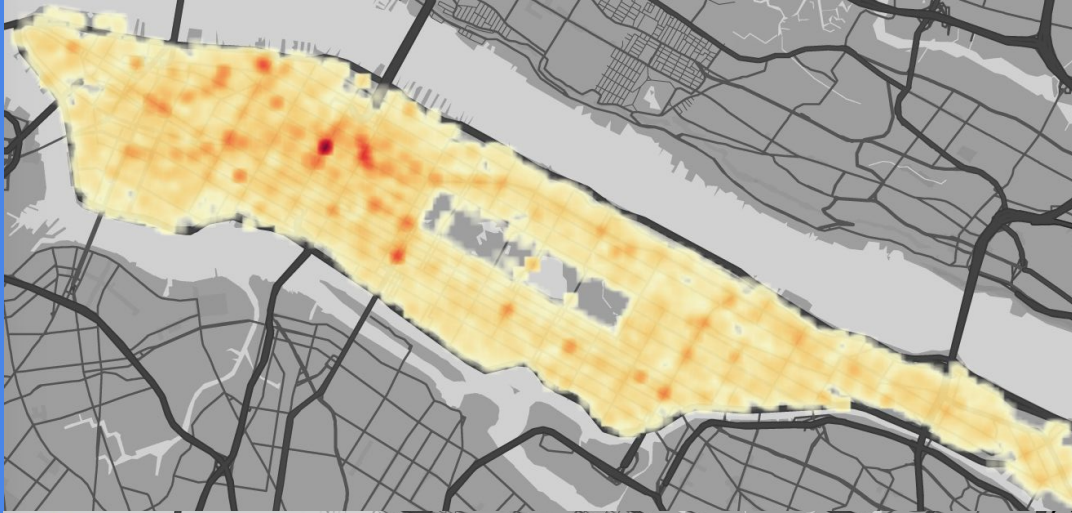


➤ Crime in 2011



➤ Overspeed in 2011

First Goal Visualization (Crime x Overspeed)

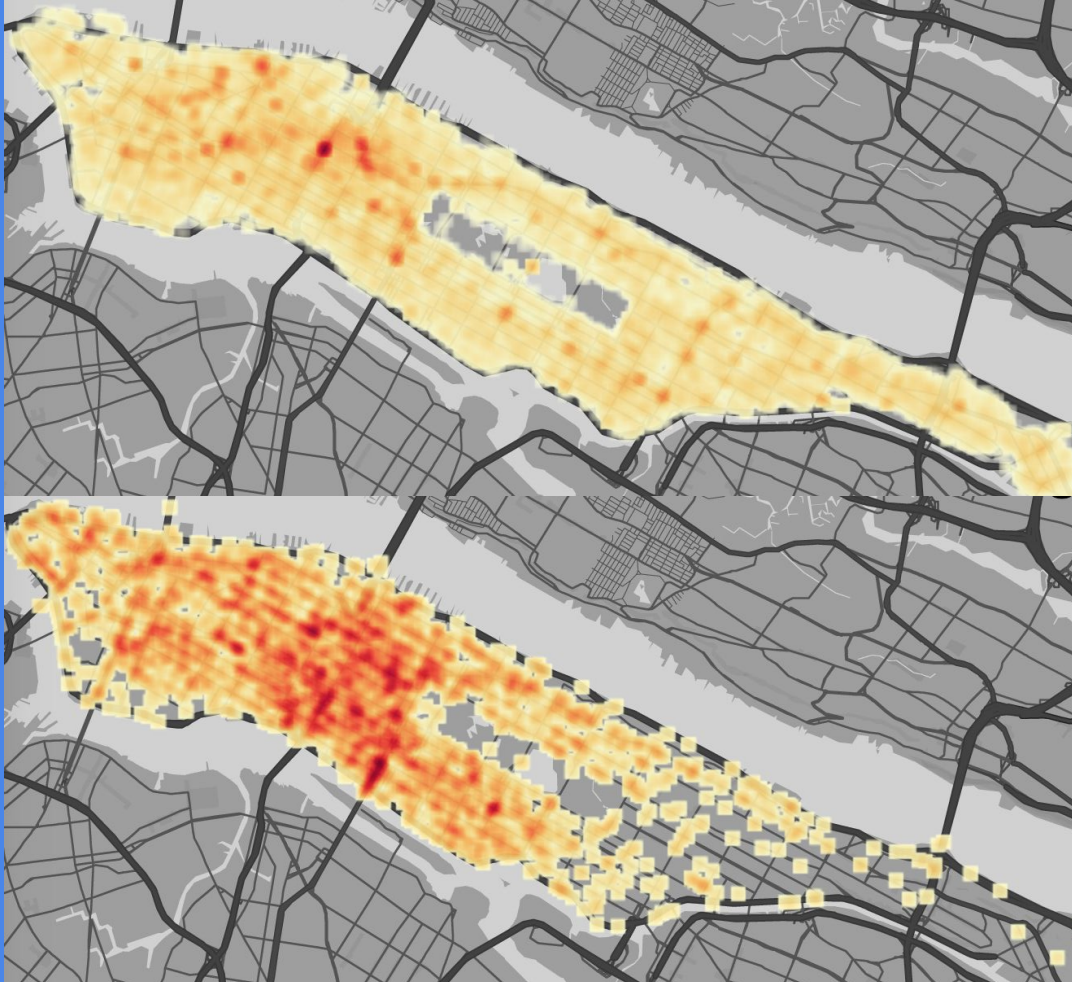


➤ Crime in 2012



➤ Overspeed in 2012

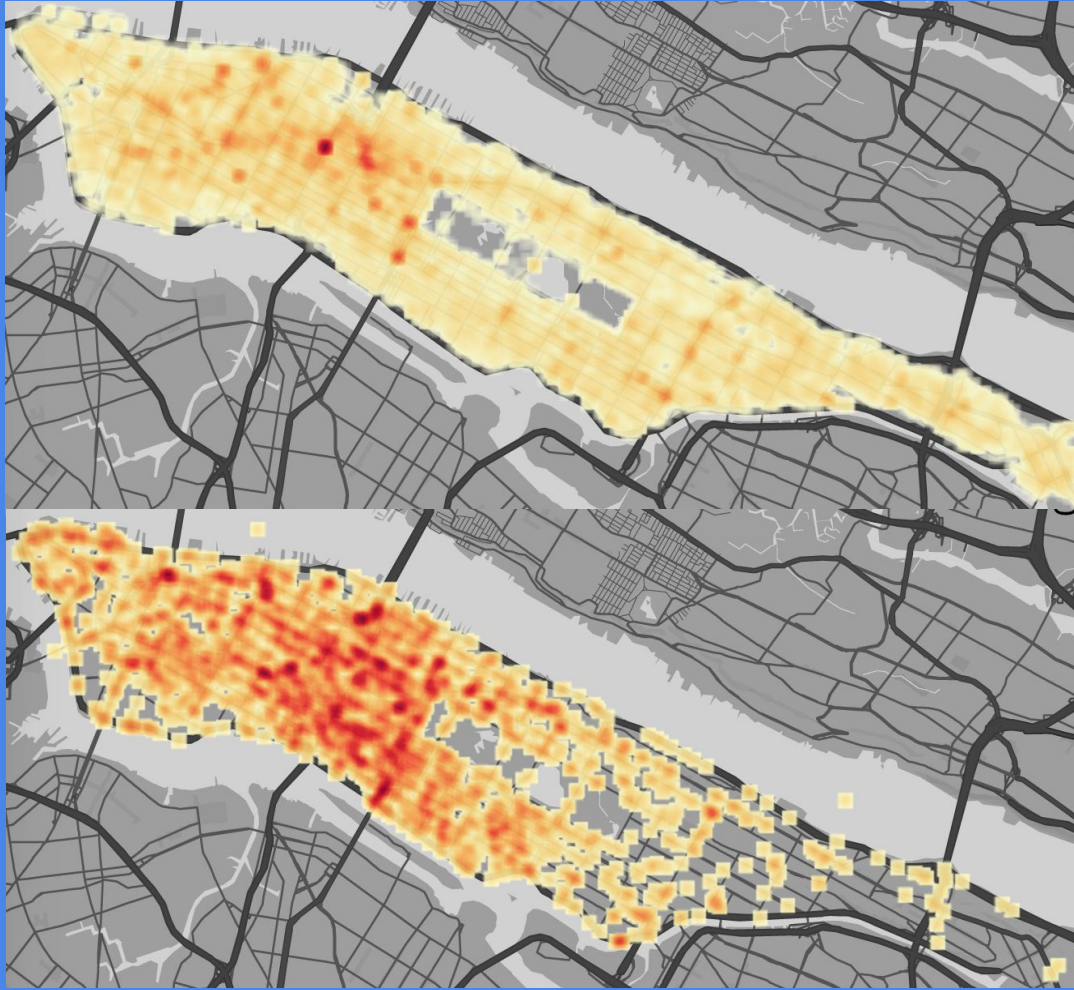
First Goal Visualization (Crime x Overspeed)



➤ Crime in 2013

➤ Overspeed in 2013

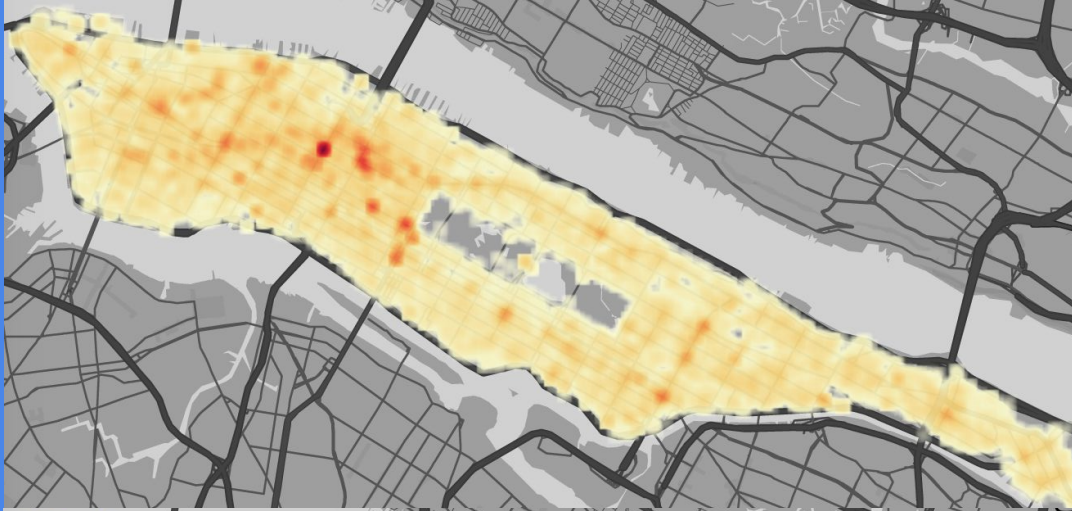
First Goal Visualization (Crime x Overspeed)



➤ Crime in 2014

➤ Overspeed in 2014

First Goal Visualization (Crime x Overspeed)

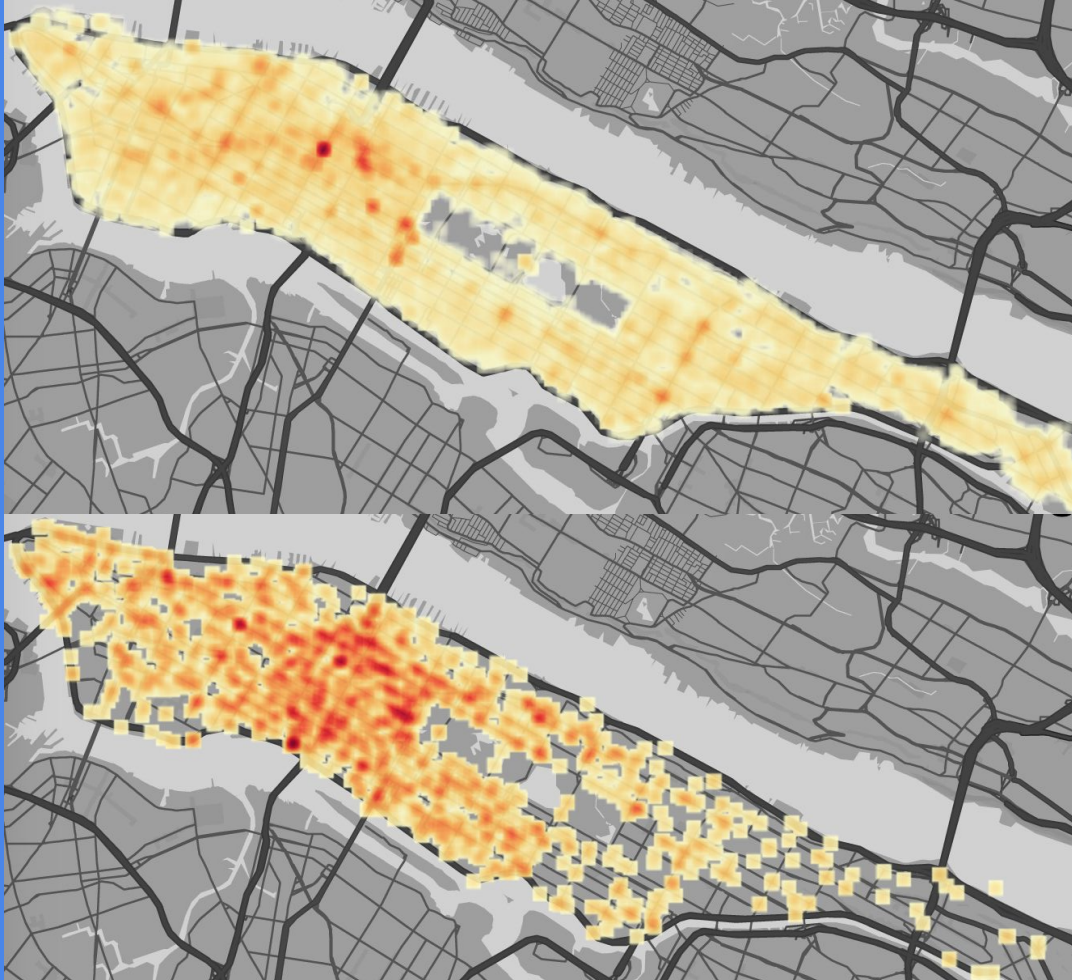


➤ Crime in 2015



➤ Overspeed in 2015

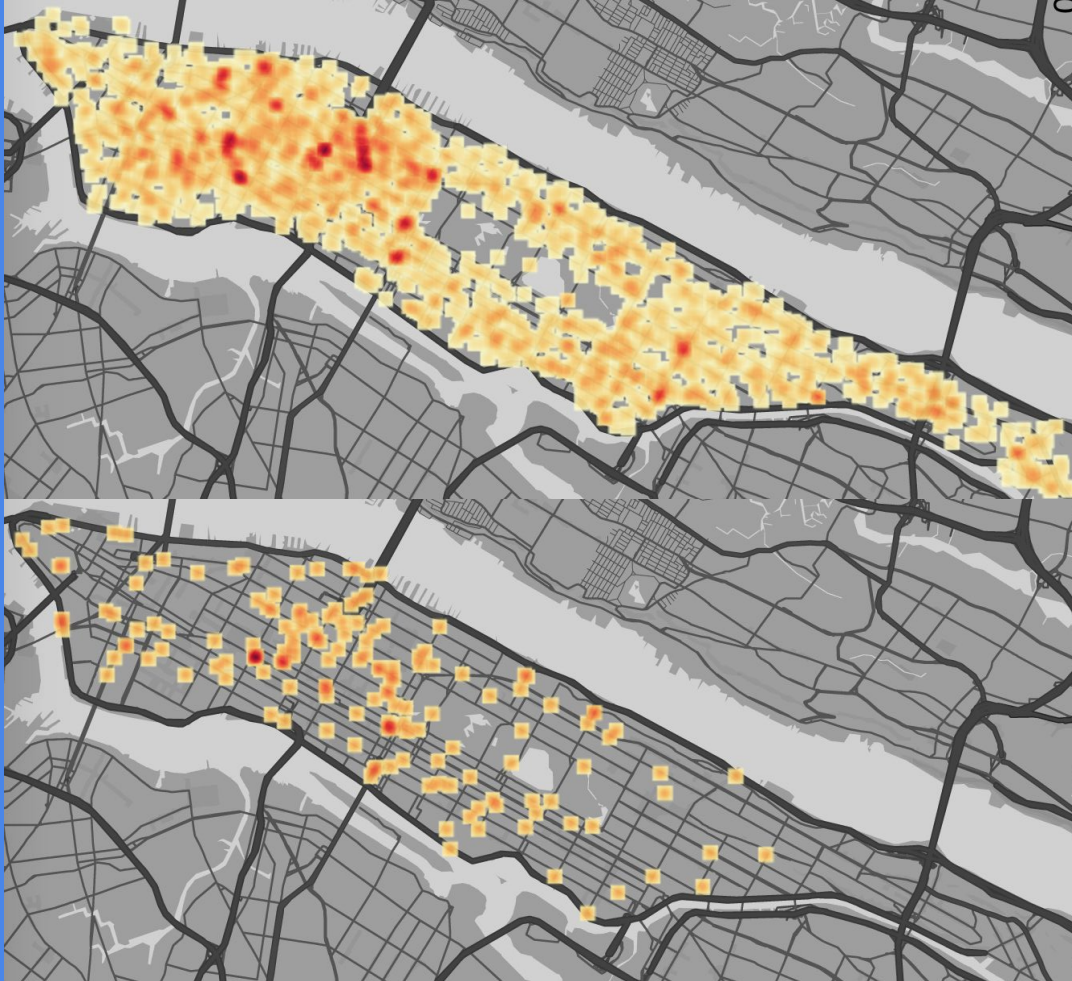
First Goal Visualization (Crime x Overspeed)



➤ Crime in 2015

➤ Overspeed in 2016

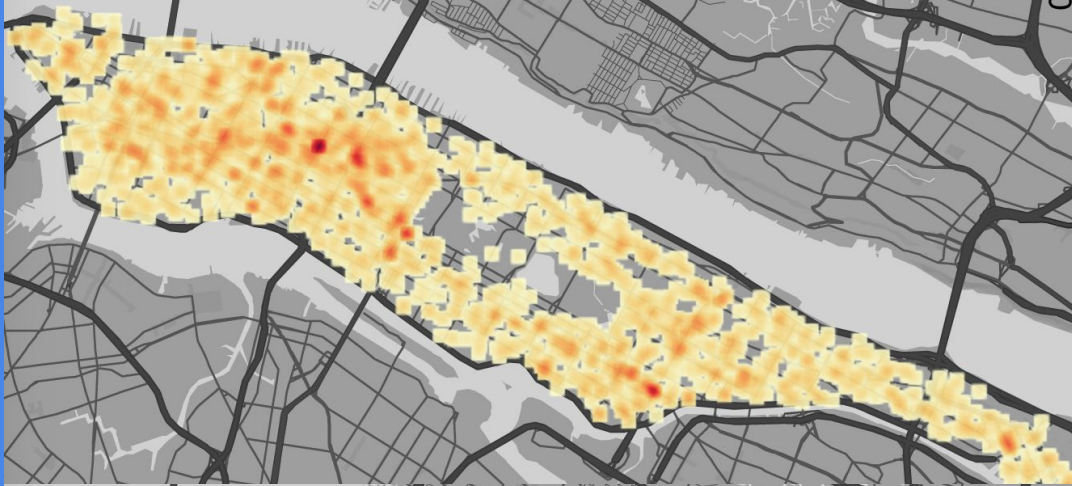
First Goal Visualization (Crime x Overspeed)



➤ Crime in 09/2014

➤ Overspeed in 09/2014

First Goal Visualization (Crime x Overspeed)



➤ Crime in 09/2015



➤ Overspeed in 09/2015

Second Goal Evaluation (Speed)

Hypothesis Testing on Avg speed on Sep/2014 and Sep/2015

#####	$(\mu_{09_2014} = \mu_{09_2015})?$	H_a
Yellow	Reject	$\mu_{09_2014} > \mu_{09_2015}$
Green	Reject	$\mu_{09_2014} > \mu_{09_2015}$
Citi Bike	Reject	$\mu_{09_2014} < \mu_{09_2015}$

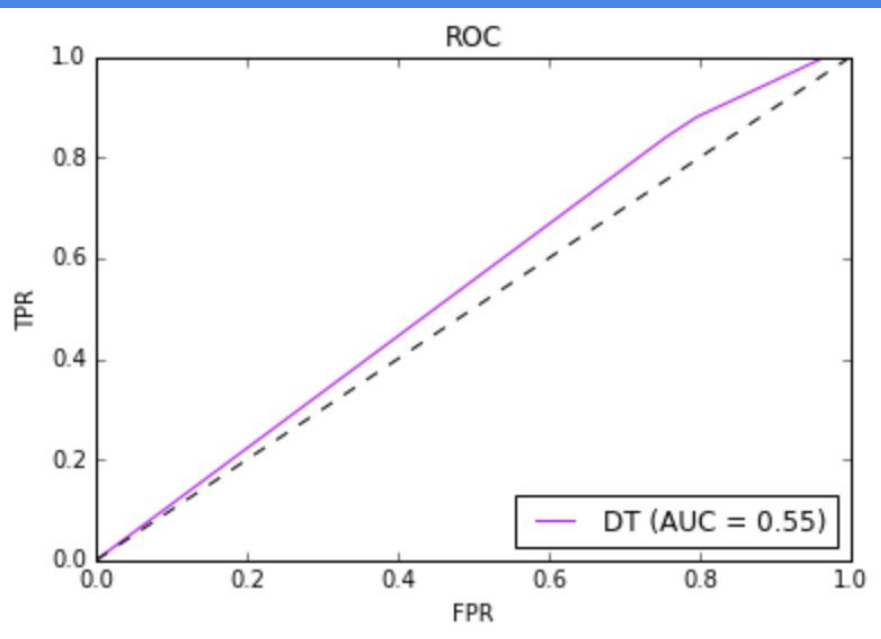
Second Goal Evaluation (Street Redesign)

Ratio of Collisions Before 2014 and After Redesign on Delancey/Spring St on Feb 2014

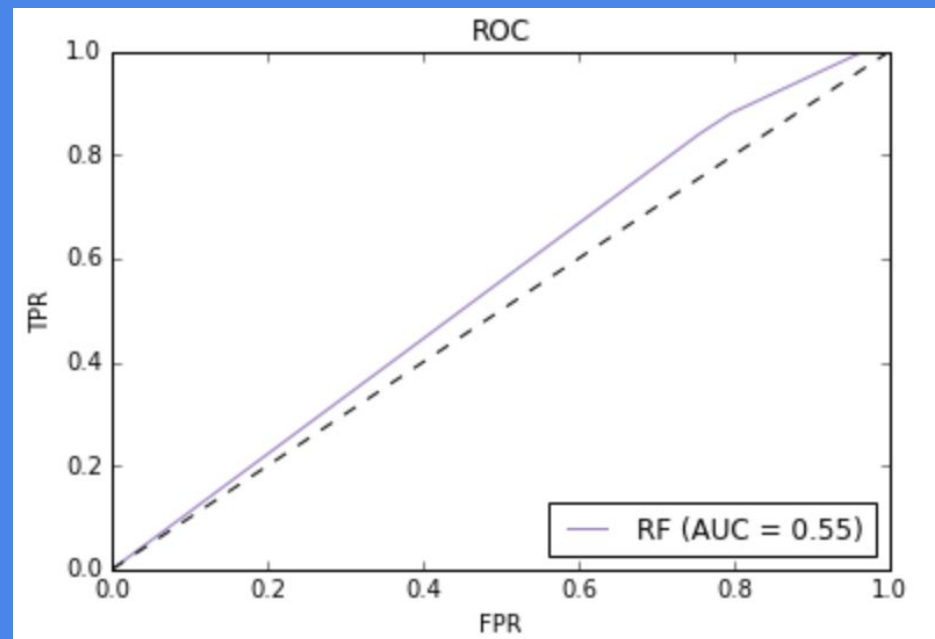
#####	Deaths + Injuries	AVG per Year
From 2008 to 2014(exclusive)	139	23
From 2014 to 2016	40	13.3

Ratio = $13.3 / 23 = .578$, which gives a decrease of 42% on the number of deaths+injuries

Third Goal Hidden Correlation Discovery (Engineered Dataset)

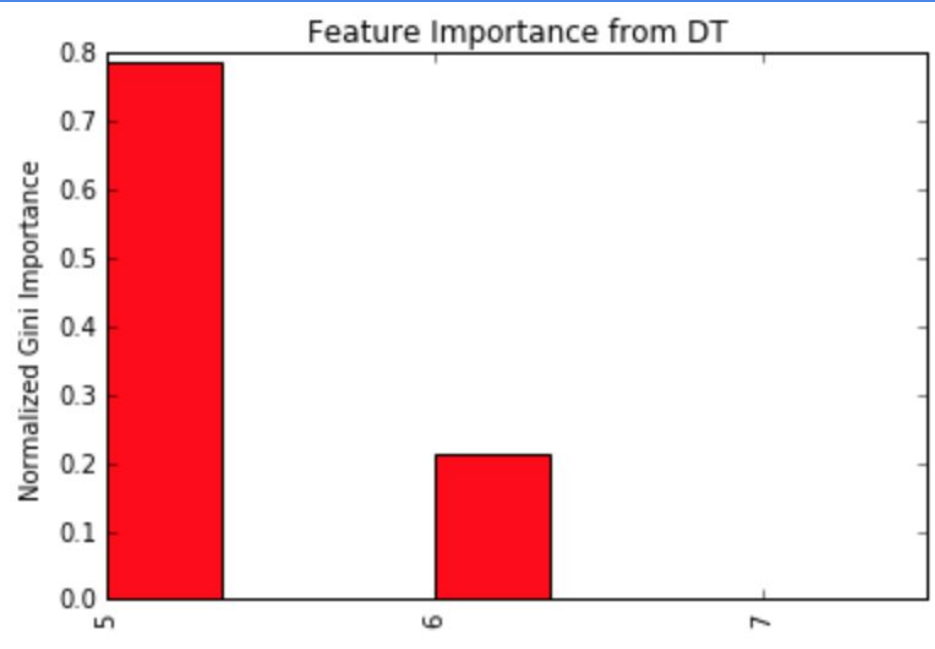


Decision Tree

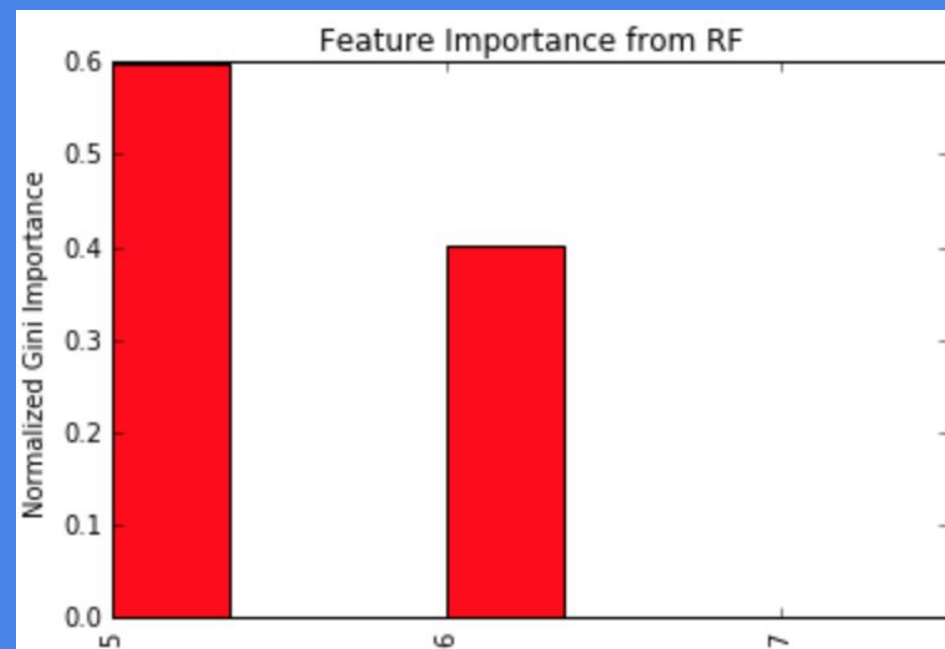


Random Forest

Third Goal Hidden Correlation Discovery (Engineered Dataset)



Decision Tree



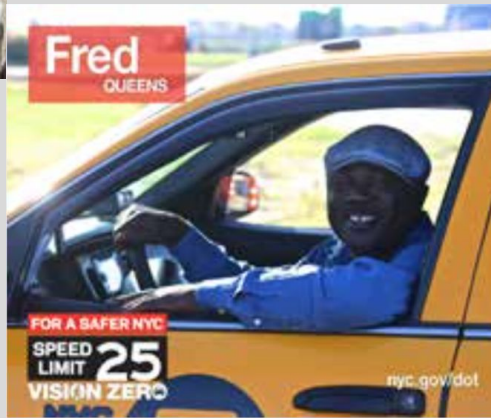
Random Forest

Summary:

➤ Outcomes



Vision Zero



Thank you!