

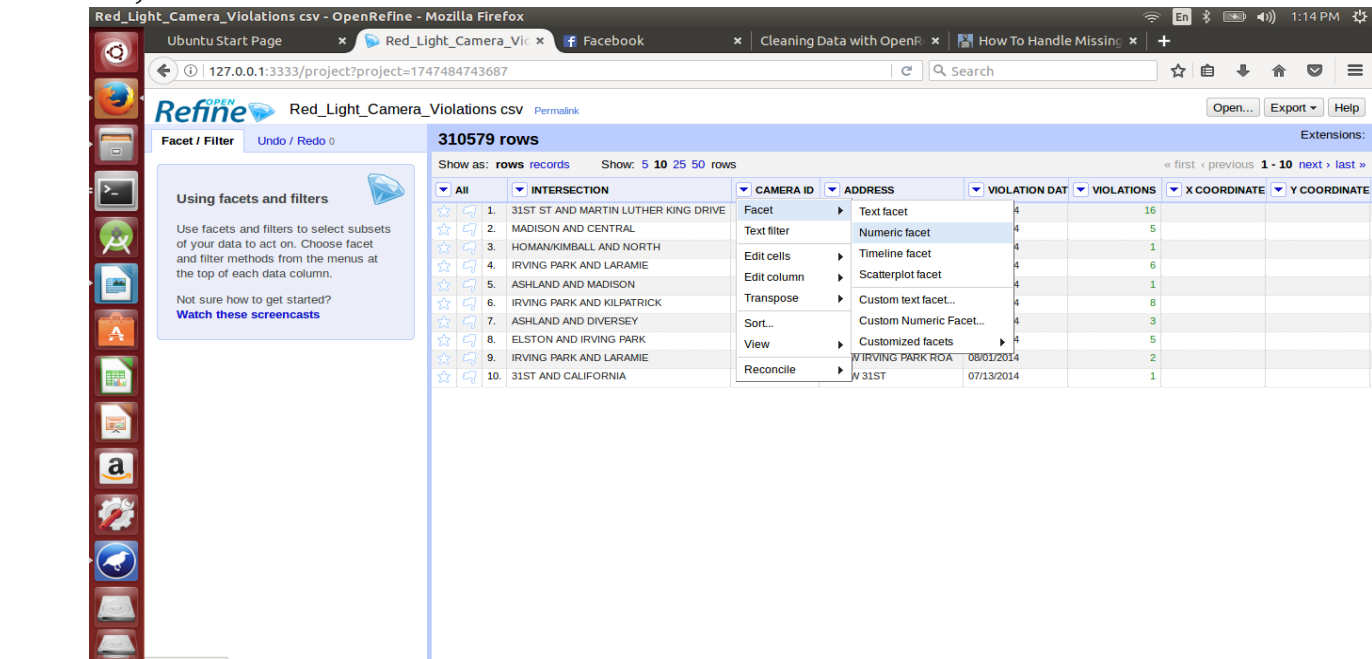
# DM ASSIGNMENT

## Question-1:

The dataset taken has 10 attributes in total. They are Intersection(Nominal), Camera ID(assumed to be unique, Numeric), Address(Nominal), Violation Date(Nominal), Violations(Numeric), X-coordinate(Numeric), Y-Coordinate(Numeric), Latitude(Numeric), Longitude(Numeric), Class Attribute: Location which is an ordered pair of Latitude and Longitude and this is a Nominal attribute. And the number of Rows are 3,10,579.

## 1) Cleaning Non-numeric Camera Id's And Blank Id's:

So, first select Numeric facet:



Red\_Light\_Camera\_Violations csv - OpenRefine - Mozilla Firefox

127.0.0.1:3333/project?project=1747484743687

Refine Red\_Light\_Camera\_Violations csv

Facet / Filter Undo / Redo

Using facets and filters

Use facets and filters to select subsets of your data to act on. Choose facet and filter methods from the menus at the top of each data column.

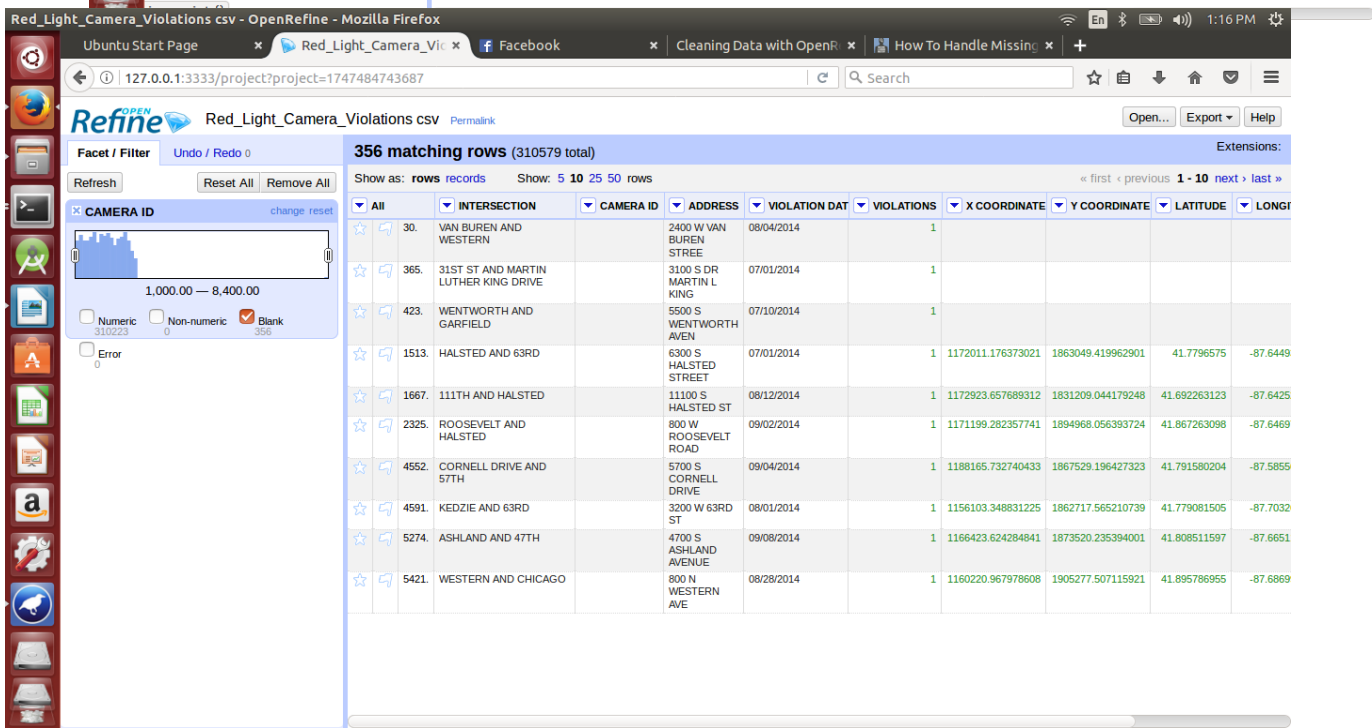
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310579 rows

Show as: rows records Show: 5 10 25 50 rows

Extensions: first < previous 1 - 10 next > last >

	INTERSECTION	CAMERA ID	ADDRESS	VIOLATION DAT	VIOLATIONS	X COORDINATE	Y COORDINATE
1.	31ST ST AND MARTIN LUTHER KING DRIVE				16		
2.	MADISON AND CENTRAL				5		
3.	HOMAN/KIMBALL AND NORTH				1		
4.	IRVING PARK AND LARAMIE				6		
5.	ASHLAND AND MADISON				1		
6.	IRVING PARK AND KILPATRICK				8		
7.	ASHLAND AND DIVERSEY				3		
8.	ELSTON AND IRVING PARK				5		
9.	IRVING PARK AND LARAMIE			08/01/2014	2		
10.	31ST AND CALIFORNIA			07/13/2014	1		



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Refine Red\_Light\_Camera\_Violations csv

Facet / Filter Undo / Redo

Refresh Reset All Remove All

356 matching rows (310579 total)

Show as: rows records Show: 5 10 25 50 rows

Extensions: first < previous 1 - 10 next > last >

	INTERSECTION	CAMERA ID	ADDRESS	VIOLATION DAT	VIOLATIONS	X COORDINATE	Y COORDINATE	LATITUDE	LONG
30.	VAN BUREN AND WESTERN		2400 W VAN BUREN STREET	08/04/2014	1				
365.	31ST ST AND MARTIN LUTHER KING DRIVE		3100 S DR MARTIN L KING	07/01/2014	1				
423.	WENTWORTH AND GARFIELD		5500 S WENTWORTH AVEN	07/10/2014	1				
1513.	HALSTED AND 63RD		6300 S HALSTED STREET	07/01/2014	1	1172011.176373021	1863049.419962901	41.7796575	-87.6449
1667.	111TH AND HALSTED		11100 S HALSTED ST	08/12/2014	1	1172923.657689312	1831209.044179248	41.692263123	-87.6425
2325.	ROOSEVELT AND HALSTED		800 W ROOSEVELT ROAD	09/02/2014	1	1171199.282357741	1894968.056393724	41.867263098	-87.6469
4552.	CORNELL DRIVE AND 57TH		5700 S CORNELL DRIVE	09/04/2014	1	1188165.732740433	1867529.196427323	41.791580204	-87.5855
4591.	KEDZIE AND 63RD		3200 W 63RD ST	08/01/2014	1	1156103.348831225	1862717.565210739	41.779081505	-87.7032
5274.	ASHLAND AND 47TH		4700 S ASHLAND AVENUE	09/08/2014	1	1166423.624284841	1873520.235394001	41.808511597	-87.6651
5421.	WESTERN AND CHICAGO		800 N WESTERN AVE	08/28/2014	1	1160220.967978608	1905277.507115921	41.895786955	-87.6869

Now,unselect numeric values so we are left with non-numeric and blank values .As Camera Id is expected to be a numeric value,so we delete all these non-numeric values which is cleaning data(Assumption)  
Now click on **All--select Edit Rows, and then Remove all matching rows.**

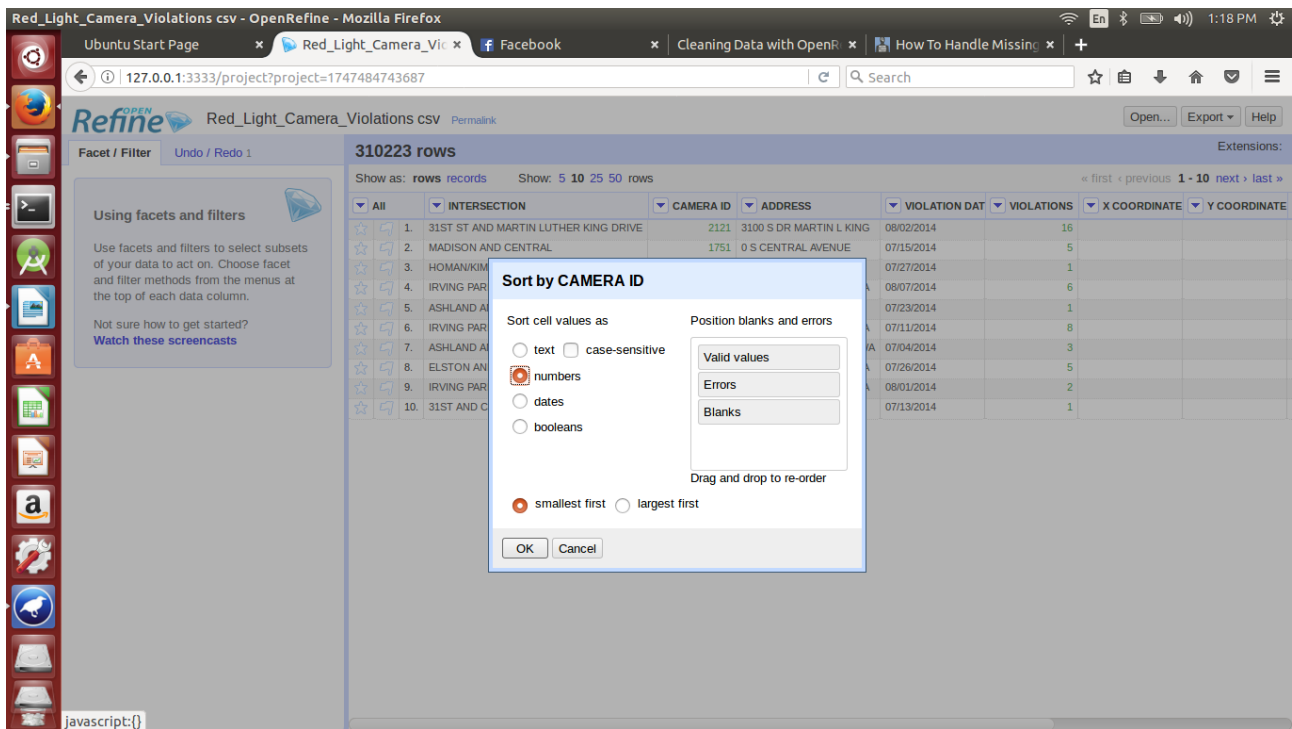
So,the non-numeric data and blank data gets cleared.

The screenshot shows the OpenRefine web interface in a Mozilla Firefox browser. The dataset 'Red\_Light\_Camera\_Violations.csv' is loaded. On the left, the 'Facet / Filter' panel shows 'CAMERA ID' with a range of 1,000.00 to 8,400.00. The 'Remove All' button is visible. The main table area shows '356 matching rows (310579 total)'. A context menu is open over the 'CAMERA ID' column, with 'Remove all matching rows' selected. The table headers are: INTERSECTION, CAMERA ID, ADDRESS, VIOLATION DAT, VIOLATIONS, X COORDINATE, Y COORDINATE, LATITUDE, and LONGITUDE. The table body contains several rows of data, including intersections like 'BUREN AND ERM', 'ST AND MARTIN', '5500 S WENTWORTH AVEN', '6300 S HALSTED STREET', '11100 S HALSTED ST', '800 W ROOSEVELT ROAD', '5700 S CORNELL DRIVE', '3200 W 63RD ST', '4700 S ASHLAND AVENUE', and '800 N WESTERN AVE'.

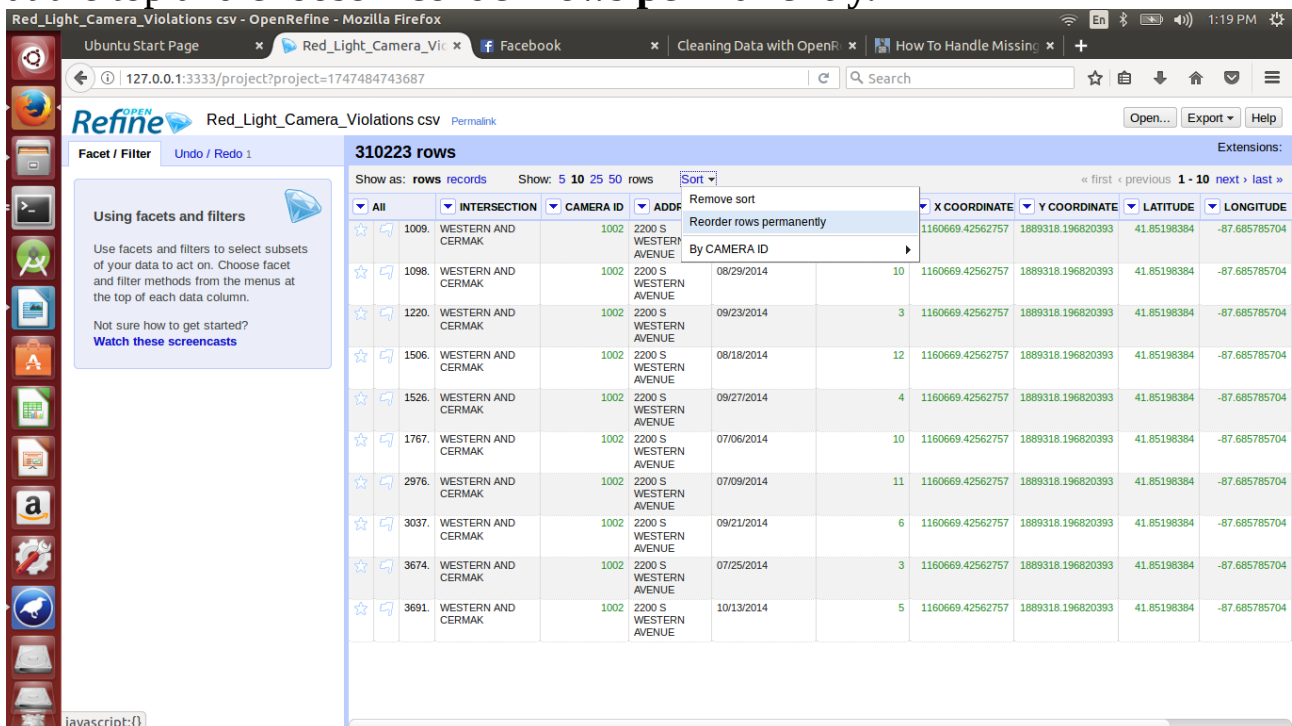
## 2)Remove Duplicates:

As,in this data set the record id is expected to be unique and so,the dupliactes should be deleted to make data clean.

So,first select **Sort** option from dropdown menu of Camera id and then select **Numbers** radiobutton.



Now, as to prevent variation in order of data later we make these sorted rows permanent. To do this we click the **Sort menu** that has just appeared at the top and choose **Reorder rows permanently**.



Now, **blank the Camera ID** of rows that have the same CameraID as the row above them, marking them duplicates. To do this, click on the Record ID choose **Edit cells -Blank down**.

Red\_Light\_Camera\_Violations csv - OpenRefine - Mozilla Firefox

Ubuntu Start Page x Red\_Light\_Camera\_Vic x Facebook x Cleaning Data with OpenR x How To Handle Missing x +

127.0.0.1:3333/project?project=1747484743687

Refine Red\_Light\_Camera\_Violations csv Permalink

Facet / Filter Undo / Redo 2

Using facets and filters

Use facets and filters to select subsets of your data to act on. Choose facet and filter methods from the menus at the top of each data column.

Not sure how to get started? [Watch these screencasts](#)

310223 rows

Show as: rows records Show: 5 10 25 50 rows

Extensions: « first < previous 1 - 10 next > last »

		INTERSECTION	CAMERA ID	ADDRESS	VIOLATION DAT	VIOLATIONS	X COORDINATE	Y COORDINATE	LATITUDE	LONGITUDE
1.	WESTERN AND CERMAK	Facet	1002	2200 S WESTERN AVENUE	08/11/2014	11	1160669.42562757	1889318.196820393	41.85198384	-87.685785704
2.	WESTERN AND CERMAK	Text filter				10	1160669.42562757	1889318.196820393	41.85198384	-87.685785704
3.	WESTERN AND CERMAK	Edit cells				3	1160669.42562757	1889318.196820393	41.85198384	-87.685785704
4.	WESTERN AND CERMAK	Edit column				12	1160669.42562757	1889318.196820393	41.85198384	-87.685785704
5.	WESTERN AND CERMAK	Transpose				4	1160669.42562757	1889318.196820393	41.85198384	-87.685785704
6.	WESTERN AND CERMAK	Sort...				10	1160669.42562757	1889318.196820393	41.85198384	-87.685785704
7.	WESTERN AND CERMAK	View				11	1160669.42562757	1889318.196820393	41.85198384	-87.685785704
8.	WESTERN AND CERMAK	Reconcile				6	1160669.42562757	1889318.196820393	41.85198384	-87.685785704
9.	WESTERN AND CERMAK					3	1160669.42562757	1889318.196820393	41.85198384	-87.685785704
10.	WESTERN AND CERMAK					5	1160669.42562757	1889318.196820393	41.85198384	-87.685785704

javascript:()

Now, to separate these blank cells from other select **Facet- Customized facets-Facet by blank**.

Red\_Light\_Camera\_Violations csv - OpenRefine - Mozilla Firefox

Ubuntu Start Page x Red\_Light\_Camera\_Vic x Facebook x Cleaning Data with OpenR x How To Handle Missing x +

127.0.0.1:3333/project?project=1747484743687

Refine Red\_Light\_Camera\_Violations csv Permalink

Facet / Filter Undo / Redo 3

Using facets and filters

Use facets and filters to select subsets of your data to act on. Choose facet and filter methods from the menus at the top of each data column.

Not sure how to get started? [Watch these screencasts](#)

310223 rows

Show as: rows records Show: 5 10 25 50 rows

Extensions: « first < previous 1 - 10 next > last »

		INTERSECTION	CAMERA ID	ADDRESS	VIOLATION DAT	VIOLATIONS	X COORDINATE	Y COORDINATE	LATITUDE	LONGITUDE
1.	WESTERN AND CERMAK	Facet	1002	2200 S WESTERN AVENUE	09/27/2014	11	1160669.42562757	1889318.196820393	41.85198384	-87.685785704
2.	WESTERN AND CERMAK	Text filter				10	1160669.42562757	1889318.196820393	41.85198384	-87.685785704
3.	WESTERN AND CERMAK	Edit cells				3	1160669.42562757	1889318.196820393	41.85198384	-87.685785704
4.	WESTERN AND CERMAK	Edit column				12	1160669.42562757	1889318.196820393	41.85198384	-87.685785704
5.	WESTERN AND CERMAK	Transpose								
6.	WESTERN AND CERMAK	Sort...								
7.	WESTERN AND CERMAK	View								
8.	WESTERN AND CERMAK	Reconcile								
9.	WESTERN AND CERMAK									
10.	WESTERN AND CERMAK					5	1160669.42562757	1889318.196820393	41.85198384	-87.685785704

javascript:()

Then select true (i.e blank rows). Now to delete these rows we select **All-Edit rows-Remove all matching rows**.

Red\_Light\_Camera\_Violations csv - OpenRefine - Mozilla Firefox

127.0.0.1:3333/project?project=1747484743687

Refine Red\_Light\_Camera\_Violations csv

Facet / Filter Undo / Redo 3

Refresh Reset All Remove All

2 choices Sort by: name count

false 354

true 309869

Facet by choice counts

309869 matching rows (310223 total)

Show as: rows records Show: 5 10 25 50 rows

Extensions: first < previous 1 - 10 next > last >

	INTERSECTION	CAMERA ID	ADDRESS	VIOLATION DAT	VIOLATIONS	X COORDINATE	Y COORDINATE	LATITUDE	LONGITUDE
Transform	N AND CERMAK	1002	2200 S WESTERN AVENUE	08/29/2014	10	1160669.42562757	1889318.196820393	41.85198384	-87.685785704
Facet	N AND CERMAK	1003	2400 W CERMAK ROAD	09/23/2014	3	1160669.42562757	1889318.196820393	41.85198384	-87.685785704
Edit rows	N AND CERMAK	1011	6000 N WESTERN AVE	08/18/2014	12	1160669.42562757	1889318.196820393	41.85198384	-87.685785704
Edit columns	N AND CERMAK	1014	2400 W PETERSON	09/27/2014	4	1160669.42562757	1889318.196820393	41.85198384	-87.685785704
View	N AND CERMAK	1023	6400 W IRVING PK	07/06/2014	10	1160669.42562757	1889318.196820393	41.85198384	-87.685785704
Star rows	N AND CERMAK	1024	6400 W IRVING PK	07/09/2014	11	1160669.42562757	1889318.196820393	41.85198384	-87.685785704
Unstar rows	N AND CERMAK	1025	6400 W IRVING PK	09/21/2014	6	1160669.42562757	1889318.196820393	41.85198384	-87.685785704
Flag rows	N AND CERMAK	1031	5200 N NAGLE	07/25/2014	3	1160669.42562757	1889318.196820393	41.85198384	-87.685785704
Unflag rows	N AND CERMAK	1034	6400 W FOSTER	10/13/2014	5	1160669.42562757	1889318.196820393	41.85198384	-87.685785704
Remove all matching rows	N AND CERMAK	1041	4800 N CICERO AVE	09/10/2014	5	1160669.42562757	1889318.196820393	41.85198384	-87.685785704

javascript:()

### 3)Extracting and Cleaning values for dates:

First we want to convert everything to text - Edit cells -> Common transformations -> To text, and then you need to Edit cells -> Common transformations -> To date. If you did not convert all the values to text first, then you may find that some of the years are represented as numbers, and have not been converted. The initial format of violation date is MM/dd/yyyy

Red\_Light\_Camera\_Violations csv - OpenRefine - Mozilla Firefox

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Refine Red\_Light\_Camera\_Violations csv

Facet / Filter Undo / Redo 4

Extract... Apply...

Filter:

0. Create project

1. Remove 356 rows

2. Reorder rows

3. Blank down 309869 cells in column CAMERA ID

4. Remove 309869 rows

5. Text transform on 354 cells in column VIOLATION DATE: value.toDate()

354 rows

Show as: rows records Show: 5 10 25 50 rows

Extensions: first < previous 1 - 10 next > last >

RESECTION	CAMERA ID	ADDRESS	VIOLATION DAT	VIOLATIONS	X COORDINATE	Y COORDINATE	LATITUDE	LONGITUDE	LOCATION
N AND CERMAK	1002	2200 S WESTERN AVENUE	Facet	11	1160669.42562757	1889318.196820393	41.85198384	-87.685785704	(41.85198383957328, -87.68578570420526)
N AND CERMAK	1003	2400 W CERMAK ROAD	Text filter	29	1889375.645335924	41.852141307	-87.685752642	-87.6857526415569)	(41.85214130680468, -87.6857526415569)
N AND CERMAK	1011	6000 N WESTERN AVE	Edit cells	Common transforms	Trim leading and trailing whitespace	689822473	(41.99058604241958, -87.6882247294417)		
N AND CERMAK	1014	2400 W PETERSON	Edit column	Fill down	Collapse consecutive whitespace	689735481	(41.990609009807294, -87.68973548092968)		
N AND CERMAK	1023	6400 W IRVING PK	Transpose	Blank down	Unescape HTML entities	786683238	(41.95302475075328, -87.78668323766634)		
N AND CERMAK	1024	6400 W IRVING PK	Sort...	Split multi-valued cells...	To titlecase	786683238	(41.95302475075328, -87.78668323766634)		
N AND CERMAK	1031	5200 N NAGLE	Reconcile	Join multi-valued cells...	To uppercase	786683238	(41.95302475075328, -87.78668323766634)		
N AND CERMAK	1034	6400 W FOSTER	Cluster and edit...	To lowercase	To number	788020406	(41.97568566971868, -87.78802040620296)		
N AND CERMAK	1041	4800 N CICERO AVE	08/02/2014	4	1132552.893142	787934296	(41.97576257447203, -87.7879342955108)		
N AND CERMAK	1042	4800 N CICERO AVENUE	05/31/2017	7	1143464.651785	747875985	(41.968048007293845, -87.74787598468126)		
N AND CERMAK	1042	4800 N CICERO AVENUE	05/31/2017	10	1143464.651785	747875985	(41.968048007293845, -87.74787598468126)		

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RSECTION	CAMERA ID	ADDRESS	VIOLATION DATE	VIOLATIONS	X COORDINATE	Y COORDINATE	LATITUDE	LONGITUDE	LOCATION
N AND	1002	2200 S WESTERN AVENUE	2014-08-02T00:00:00Z	11	1160669.42562757	1889318.196820393	41.85198384	-87.685785704	(41.85198383957328, -87.68578570420526)
N AND	1003	2400 W CERMAK ROAD	2014-07-26T00:00:00Z	2	1160678.000607329	1889375.645335924	41.852141307	-87.685752642	(41.85214130680468, -87.6857526415569)
ON AND N	1011	6000 N WESTERN AVE	2017-06-01T00:00:00Z	4	1159190.625032041	1939816.75471116	41.990586042	-87.689822473	(41.99058604241958, -87.68982247294417)
ON AND N	1014	2400 W PETERSON	2014-08-23T00:00:00Z	8	1159214.211316277	1939825.301874586	41.99060901	-87.689735481	(41.990609009807294, -87.68973548092968)
ARK AND ANSETT	1023	6400 W IRVING PK	2014-08-06T00:00:00Z	4	1132945.939118726	1925946.304925137	41.953024751	-87.786683238	(41.95302475075328, -87.78668323766634)
ARK AND ANSETT	1024	6400 W IRVING PK	2014-09-11T00:00:00Z	4	1132945.939118726	1925946.304925137	41.953024751	-87.786683238	(41.95302475075328, -87.78668323766634)
AND NAGLE	1031	5200 N NAGLE	2014-08-02T00:00:00Z	5	1132529.656558223	1934201.702060651	41.97568567	-87.788020406	(41.97568566971868, -87.78802040620296)
AND NAGLE	1034	6400 W FOSTER	2014-09-27T00:00:00Z	4	1132552.893142153	1934229.875527466	41.975762574	-87.787934296	(41.97576257447203, -87.7879342955108)
CE AND	1041	4800 N CICERO AVE	2017-05-31T00:00:00Z	7	1143464.651785526	1931490.551883203	41.968048007	-87.747875985	(41.968048007293845, -87.74787598468126)
CE AND	1042	4800 N CICERO AVENUE	2017-05-31T00:00:00Z	10	1143464.651785526	1931490.551883203	41.968048007	-87.747875985	(41.968048007293845, -87.74787598468126)

Now the format changed to:

To further clean up the dates, we need to use Facet -> Timeline facet and select only "Non-Time" values. But as the dataset set taken has no nontime values we need not clean further.

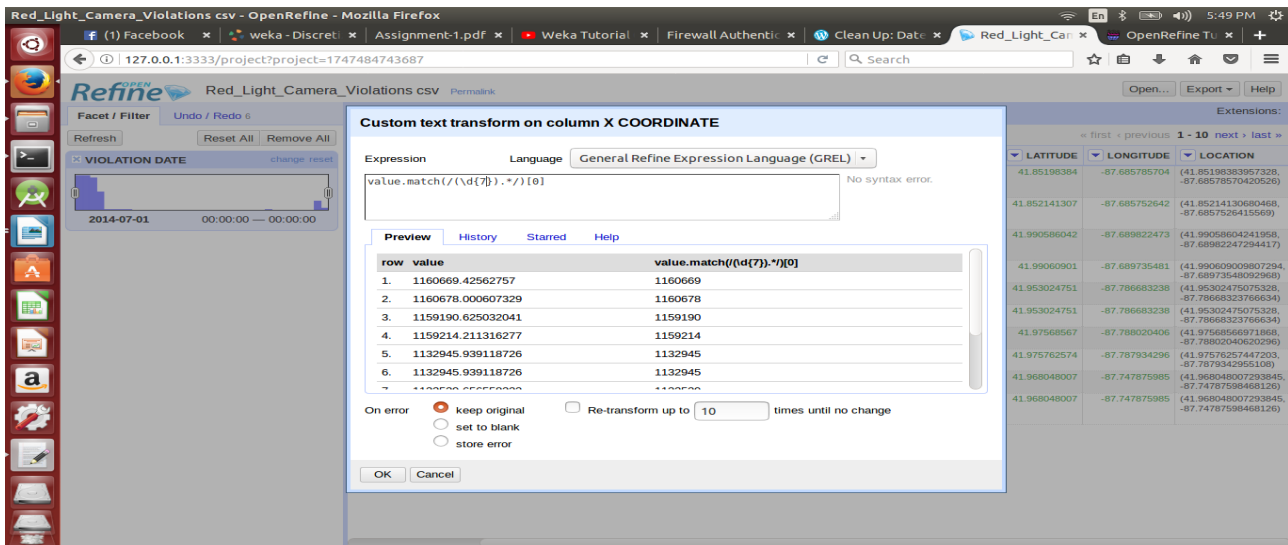
RSECTION	CAMERA ID	ADDRESS	VIOLATION DATE	VIOLATIONS	X COORDINATE	Y COORDINATE	LATITUDE	LONGITUDE	LOCATION
N AND	1002	2200 S WESTERN AVENUE	2014-08-11T00:00:00Z	11	1160669.42562757	1889318.196820393	41.85198384	-87.685785704	(41.85198383957328, -87.68578570420526)
N AND	1003	2400 W CERMAK ROAD	2014-07-26T00:00:00Z	2	1160678.000607329	1889375.645335924	41.852141307	-87.685752642	(41.85214130680468, -87.6857526415569)
ON AND N	1011	6000 N WESTERN AVE	2017-06-01T00:00:00Z	4	1159190.625032041	1939816.75471116	41.990586042	-87.689822473	(41.99058604241958, -87.68982247294417)
ON AND N	1014	2400 W PETERSON	2014-08-23T00:00:00Z	8	1159214.211316277	1939825.301874586	41.99060901	-87.689735481	(41.990609009807294, -87.68973548092968)
ARK AND ANSETT	1023	6400 W IRVING PK	2014-08-06T00:00:00Z	4	1132945.939118726	1925946.304925137	41.953024751	-87.786683238	(41.95302475075328, -87.78668323766634)
ARK AND ANSETT	1024	6400 W IRVING PK	2014-09-11T00:00:00Z	4	1132945.939118726	1925946.304925137	41.953024751	-87.786683238	(41.95302475075328, -87.78668323766634)
AND NAGLE	1031	5200 N NAGLE	2014-08-02T00:00:00Z	5	1132529.656558223	1934201.702060651	41.97568567	-87.788020406	(41.97568566971868, -87.78802040620296)
AND NAGLE	1034	6400 W FOSTER	2014-09-27T00:00:00Z	4	1132552.893142153	1934229.875527466	41.975762574	-87.787934296	(41.97576257447203, -87.7879342955108)
CE AND	1041	4800 N CICERO AVE	2017-05-31T00:00:00Z	7	1143464.651785526	1931490.551883203	41.968048007	-87.747875985	(41.968048007293845, -87.74787598468126)
CE AND	1042	4800 N CICERO AVENUE	2017-05-31T00:00:00Z	10	1143464.651785526	1931490.551883203	41.968048007	-87.747875985	(41.968048007293845, -87.74787598468126)

To get only year we can use this grel expression

value.match(/.\*(\d{4}).\*/)[0].

#### 4) Converting decimal values to integers using GREL (Transformation of Numeric Data):

Do Edit cells -> Transform, and use the code below. The "." means a sequence of zero or more characters (letters, numbers, symbols, etc). The "\d" indicates that we're looking for a digit. The "{7}" shows that we want to match exactly 7 digits. The value.match function returns an array of results, so we use "[0]" to retrieve only the first match.



Repeat this for x-coordinate, Y-coordinate, latitude and longitude and this expression convert to their corresponding integer values which helps further. So, now the data set looks like:

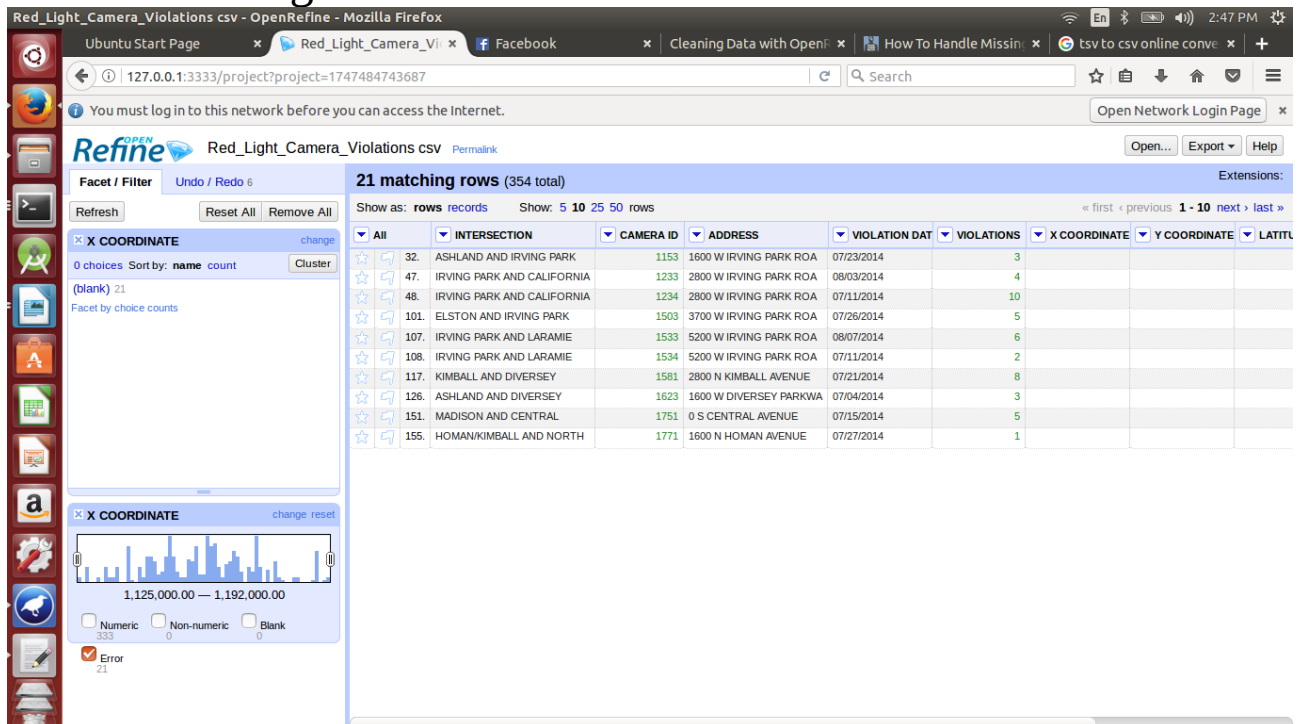
The screenshot shows the OpenRefine web interface displaying a table with 354 rows. The table has columns: INTERSECTION, CAMERA ID, ADDRESS, VIOLATION DATE, VIOLATIONS, X COORDINATE, Y COORDINATE, and LATITUDE. The data is sorted by X COORDINATE. The table shows the results of the text transformation applied to the X COORDINATE, Y COORDINATE, and LATITUDE columns, converting decimal values to integers.

	INTERSECTION	CAMERA ID	ADDRESS	VIOLATION DATE	VIOLATIONS	X COORDINATE	Y COORDINATE	LATITUDE
1.	WESTERN AND CERMAK	1002	2200 S WESTERN AVENUE	2014-08-11T00:00:00Z	11	1160669	1889318	41
2.	WESTERN AND CERMAK	1003	2400 W CERMAK ROAD	2014-07-26T00:00:00Z	2	1160678	1889375	41
3.	PETERSON AND WESTERN	1011	6000 N WESTERN AVE	2017-06-01T00:00:00Z	4	1159190	1939816	41
4.	PETERSON AND WESTERN	1014	2400 W PETERSON	2014-08-23T00:00:00Z	8	1159214	1939825	41
5.	IRVING PARK AND NARRAGANSETT	1023	6400 W IRVING PK	2014-08-06T00:00:00Z	4	1132945	1925946	41
6.	IRVING PARK AND NARRAGANSETT	1024	6400 W IRVING PK	2014-09-11T00:00:00Z	4	1132945	1925946	41
7.	FOSTER AND NAGLE	1031	5200 N NAGLE	2014-08-02T00:00:00Z	5	1132529	1934201	41
8.	FOSTER AND NAGLE	1034	6400 W FOSTER	2014-09-27T00:00:00Z	4	1132552	1934229	41
9.	LAWRENCE AND CICERO	1041	4800 N CICERO AVE	2017-05-31T00:00:00Z	7	1143464	1931490	41
10.	LAWRENCE AND CICERO	1042	4800 N CICERO AVENUE	2017-05-31T00:00:00Z	10	1143464	1931490	41

So,all the decimal values got replaced with their integer values.

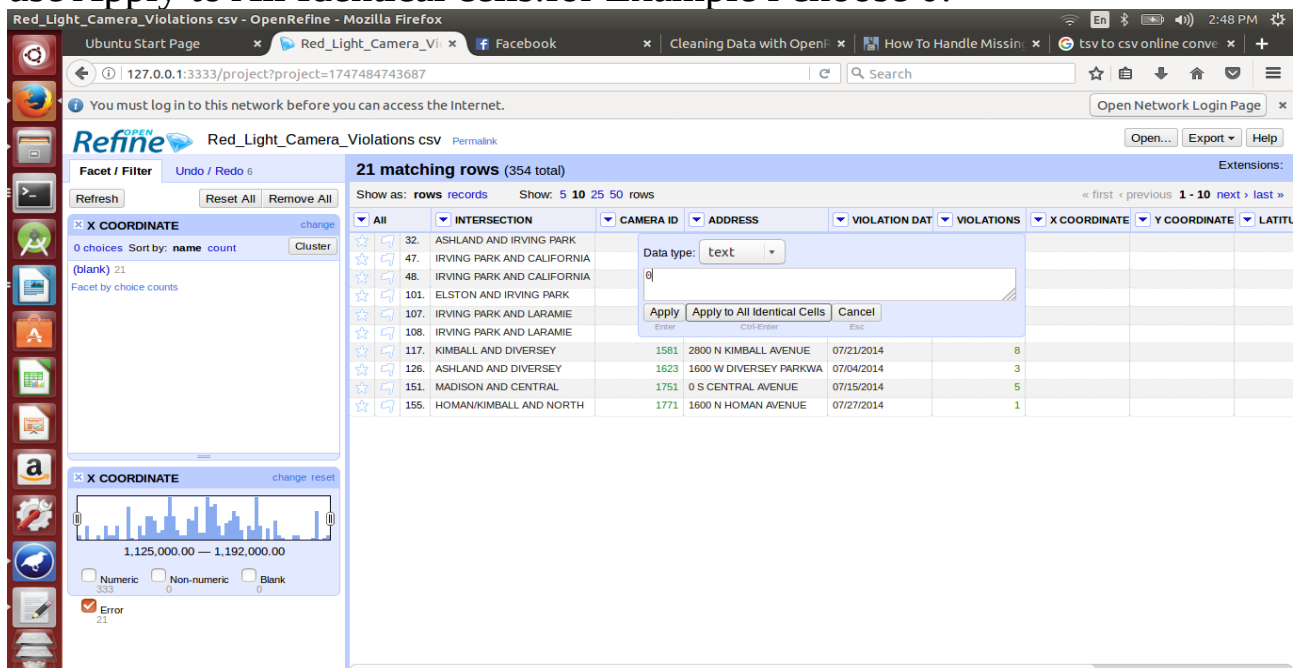
## 5)MISSING VALUES:

On Selecting Numeric facet from drop-down menu of X-coordinate we get:



Now on selecting Error tuples,(i.e which have x-coordinate as null)

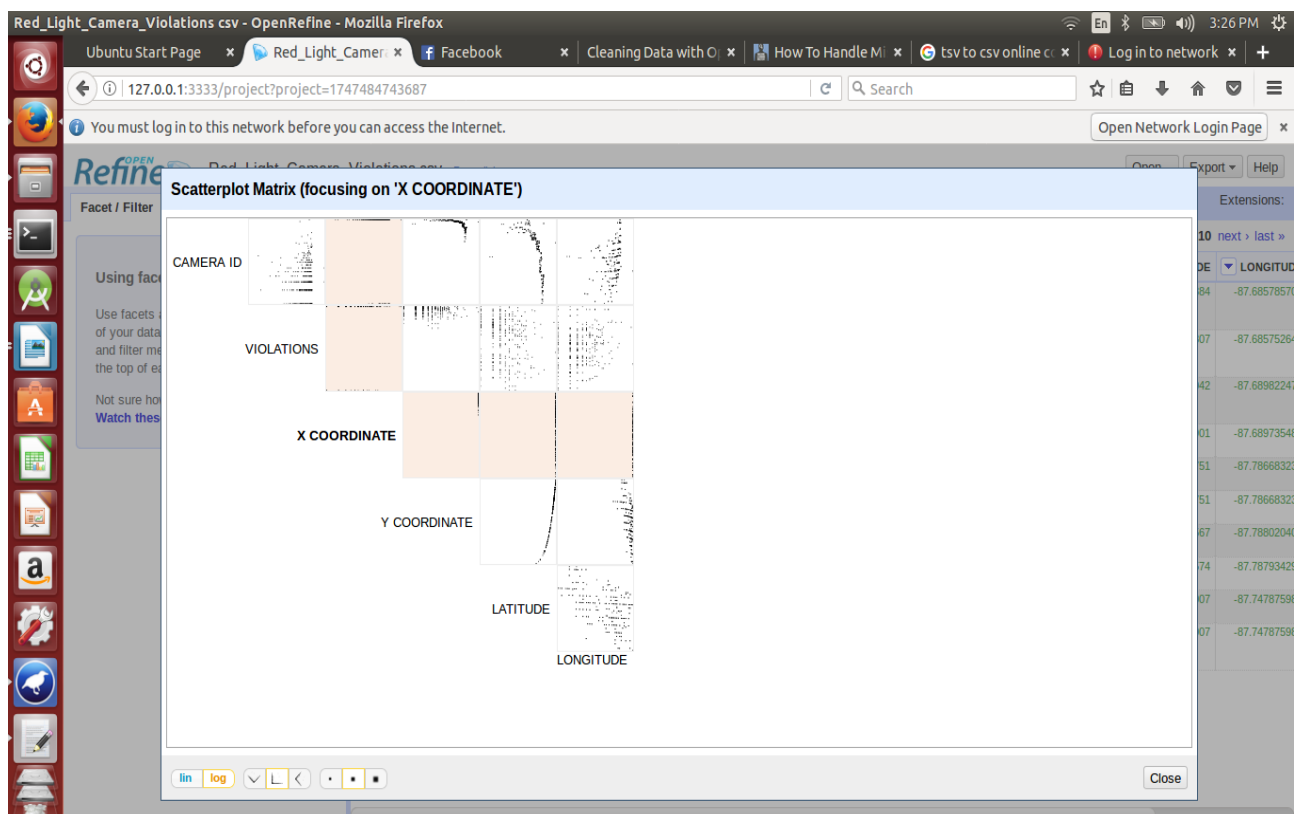
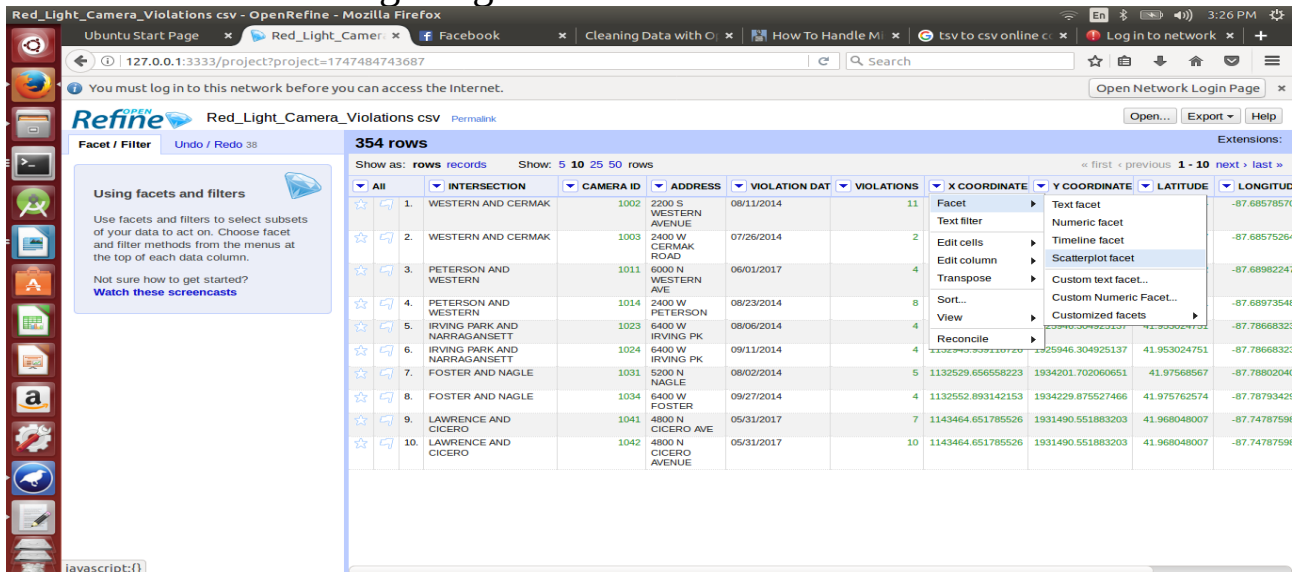
**We donot have a direct option in open refine to fill the missing values whereas weka has.**we can fill them only by specifying particular value required value on selecting edit write the value and then use Apply to All Identical cells.for Example i choose 0:



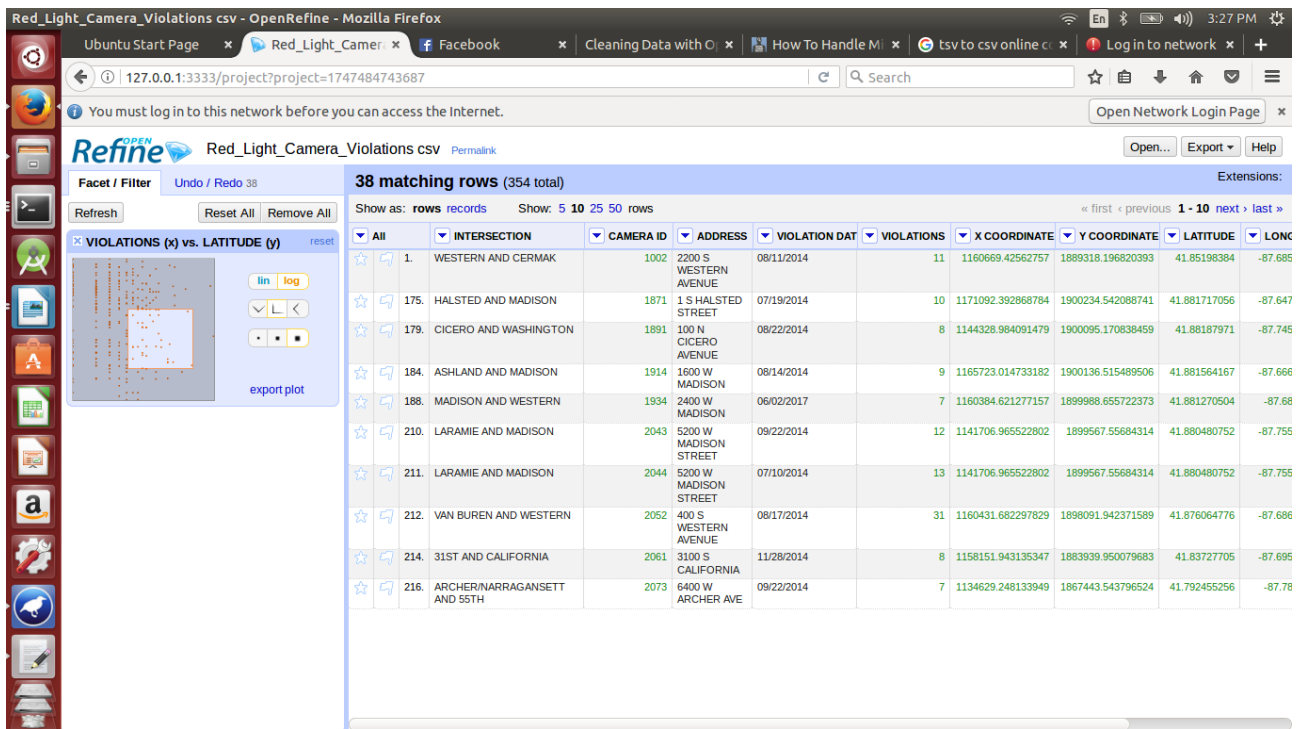


## 6)ScatterPlot:

Click on the "X COORDINATE" column, Facet -> Scatterplot facet. This shows the relationships between all of the numeric values in each of the columns. Click on "log" to get a better view.



Click on the plot for Violations vs. X COORDINATE. You can now drag select a portion of the plot, and then see the rows corresponding to that selection.



## 7)EXPORT DATA:

The data can be exported to formats such as Excel.

Red\_Light\_Camera\_Violations csv - OpenRefine - Mozilla Firefox

127.0.0.1:3333/project?project=1747484743687

OpenRefine Tu Cleaning Data with How To Handle tsv to csv online scatterplot - c Firewall Authentication

Refine Red\_Light\_Camera\_Violations csv

Facet / Filter Undo / Redo 5

Extract... Apply...

Filter:

- Create project
- Remove 356 rows
- Reorder rows
- Blank down 309869 cells in column CAMERA ID
- Remove 309869 rows
- Edit single cell on row 32, column X COORDINATE
- Mass edit 0 cells in column X COORDINATE
- Edit single cell on row 32, column X COORDINATE
- Mass edit 1 cells in column X COORDINATE
- Mass edit 0 cells in column X COORDINATE
- Edit single cell on row 47, column X COORDINATE
- Edit single cell on row 48, column X

354 rows

Show as: rows records Show: 5 10 25 50 rows

		INTERSECTION	CAMERA ID	ADDRESS	VIOLATION DAT	VIOLATIONS	X COORDINATE	Y COORDINATE	LATITUDE	LONGITUDE
1.		WESTERN AND CERMAK	1002	2200 S WESTERN AVENUE	08/11/2014	11	1160669.42562757	1889318.196820393	41.85198384	-87.685
2.		WESTERN AND CERMAK	1003	2400 W CERMAK ROAD	07/26/2014	2	1160678.00060	1889318.196820393	41.85198384	-87.685
3.		PETERSON AND WESTERN	1011	6000 N WESTERN AVE	06/01/2017	4	1159190.62503	1889318.196820393	41.85198384	-87.685
4.		PETERSON AND WESTERN	1014	2400 W PETERSON	08/23/2014	8	1159214.21131	1889318.196820393	41.85198384	-87.685
5.		IRVING PARK AND NARRAGANSETT	1023	6400 W IRVING PK	08/06/2014	4	1132945.93911	1889318.196820393	41.85198384	-87.685
6.		IRVING PARK AND NARRAGANSETT	1024	6400 W IRVING PK	09/11/2014	4	1132945.939118726	1925946.304925137	41.953024751	-87.7866832
7.		FOSTER AND NAGLE	1031	5200 N NAGLE	08/02/2014	5	1132529.65658223	1934201.702060651	41.97568567	-87.7880204
8.		FOSTER AND NAGLE	1034	6400 W FOSTER	09/27/2014	4	1132552.893142153	1934229.875527466	41.975762574	-87.7879342
9.		LAWRENCE AND CICERO	1041	4800 N CICERO AVE	05/31/2017	7	1143464.651785526	1931490.551883203	41.968048007	-87.7478759
10.		LAWRENCE AND CICERO	1042	4800 N CICERO AVENUE	05/31/2017	10	1143464.651785526	1931490.551883203	41.968048007	-87.7478759

Export project

- Tab-separated value
- Comma-separated value
- HTML table
- Excel (xls)
- Excel 2007+ (xlsx)
- ODF spreadsheet
- Triple loader
- SQLWrite
- Custom tabular exporter...
- Templating...