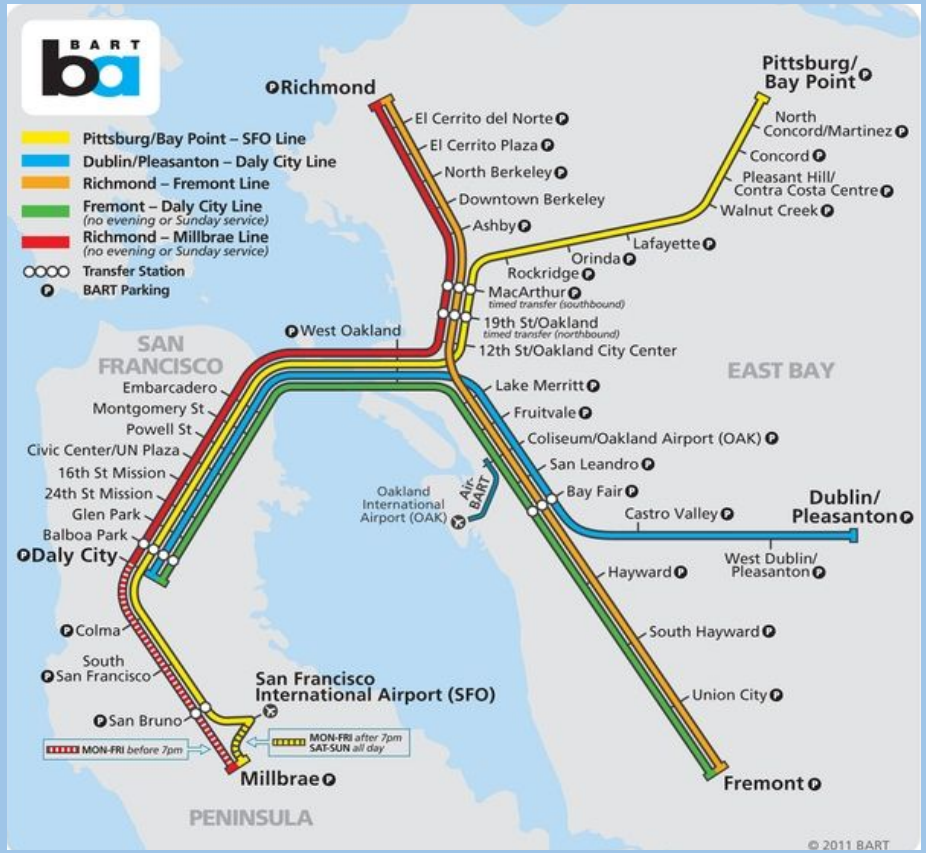
BART Beta Presentation



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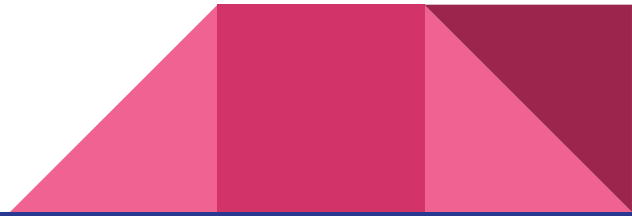
https://dongchris.github.io/bart-data-visualization/

Background

- As avid consumers of public transportation, we take BART to go to work or school everyday.
- We are interested in visualizing the number of riders for each station and any significant changes that developed for the last ~~16 years (from 2001 to 2017)~~ 7 years (2011 to 2017)

Questions

- How does BART traffic change according to time of day and day of week?
- When is it the best time to take BART and what line should a user take?
- At this time, is it best to take Uber, BART, or bus?



Data Processing

Date	Hour	Origin	Destination	# riders
1/1/2016	0	12TH	12TH	1
1/1/2016	0	12TH	16TH	1
1/1/2016	0	12TH	24TH	4
1/1/2016	0	12TH	ASHB	4
1/1/2016	0	12TH	BALB	2
1/1/2016	0	12TH	BAYF	2
1/1/2016	0	12TH	CIVC	7
1/1/2016	0	12TH	CONC	2
1/1/2016	0	12TH	DBRK	6
1/1/2016	0	12TH	DELN	2
1/1/2016	0	12TH	DUBL	1
1/1/2016	0	12TH	EMBR	2
1/1/2016	0	12TH	FTVL	1
1/1/2016	0	12TH	LAFY	4
1/1/2016	0	12TH	LAKE	2
1/1/2016	0	12TH	MCAR	13
1/1/2016	0	12TH	MONT	23
1/1/2016	0	12TH	NBRK	5
1/1/2016	0	12TH	ORIN	3
1/1/2016	0	12TH	PHIL	3

name	id	abbr	gtfs_latitude	gtfs_longitude
12th St. Oakland City Center	12	12TH	37.803664	-122.271604
16th St. Mission	16	16TH	37.765062	-122.419694
19th St. Oakland	19	19TH	37.80787	-122.269029

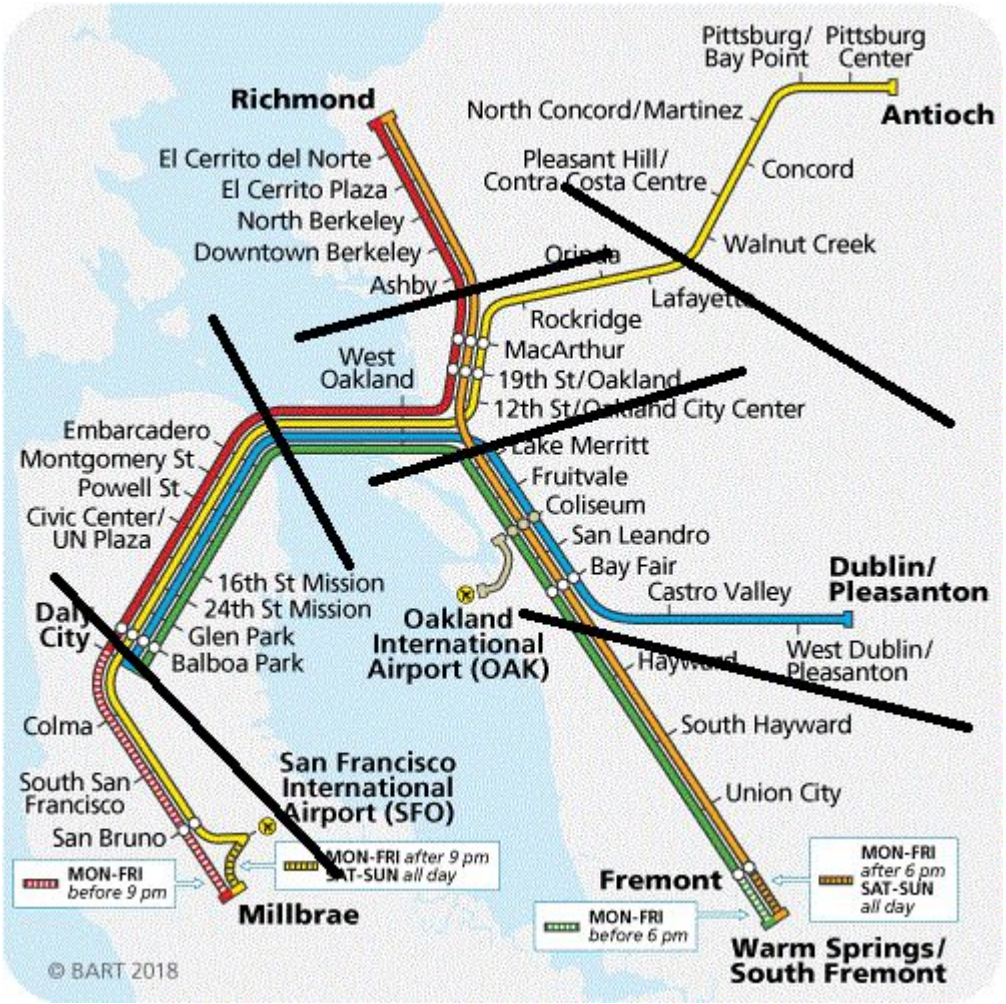
Monthly data (from Nick's class)

	mon	yr	daytype	start	term	riders
0	3	2009	WEEKDAY	RM	RM	7.409091
1	3	2009	WEEKDAY	RM	EN	143.681818
2	3	2009	WEEKDAY	RM	EP	137.590909
3	3	2009	WEEKDAY	RM	NB	82.954545
4	3	2009	WEEKDAY	RM	BK	424.545455
5	3	2009	WEEKDAY	RM	AS	90.909091
6	3	2009	WEEKDAY	RM	MA	144.363636
7	3	2009	WEEKDAY	RM	19	142.954545
8	3	2009	WEEKDAY	RM	12	198.090909
9	3	2009	WEEKDAY	RM	LM	34.681818
10	3	2009	WEEKDAY	RM	FV	114.863636

nearby stations ordered together

term	MB	SO	SB	SS	CM	DC	BP
start							
MB	1084.699618	10604.930436	1438.042645	1300.133179	2310.775744	5839.488727	4053.057731
SO	13046.802653	1612.049624	1958.988122	1471.144805	3275.590179	6466.951494	3663.353752
SB	1380.228673	1570.961125	371.704605	1205.255778	2071.208702	4438.856430	4578.681787
SS	1385.970989	1264.585407	1202.958020	341.648682	516.787169	1773.628780	1948.718143
CM	2345.716979	2933.334782	2146.080408	479.022599	336.259109	1279.768086	3150.021455
DC	6106.203158	5265.491515	4586.052702	1822.104291	1295.332233	849.940722	3334.374523
BP	4458.449466	3118.797455	4900.938429	2067.936493	3173.212057	3726.178799	1748.904602

total ridership per year per station combination



- Dividing BART station into 7 different areas

DEMO

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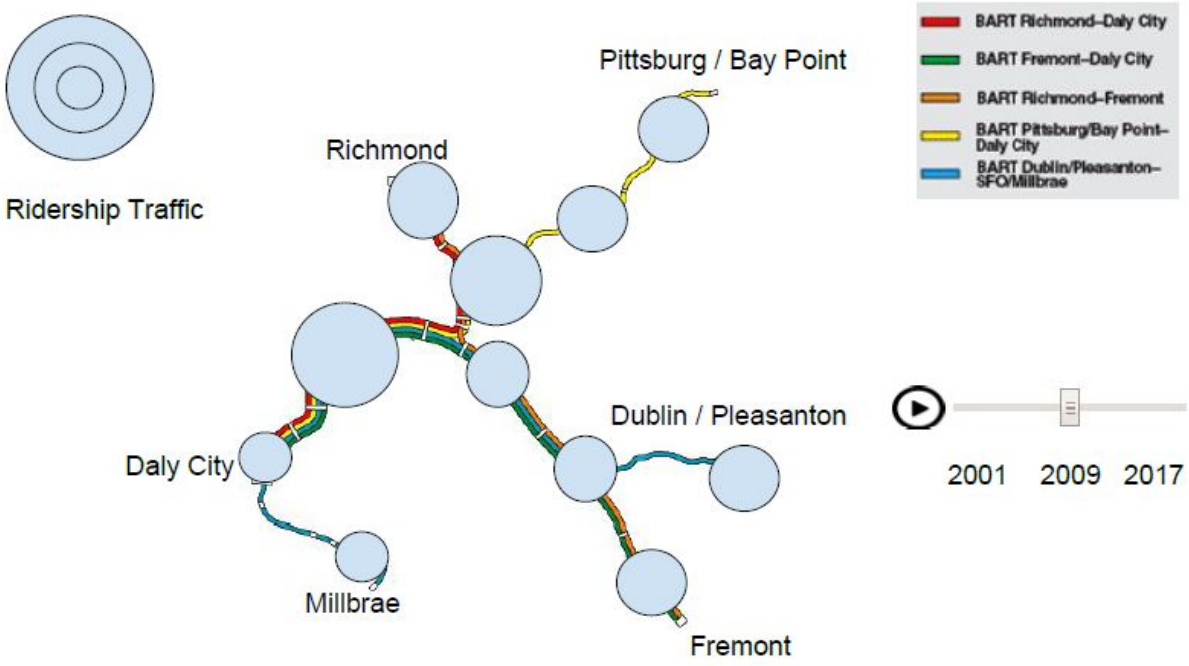
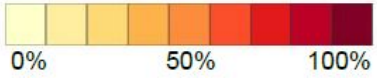
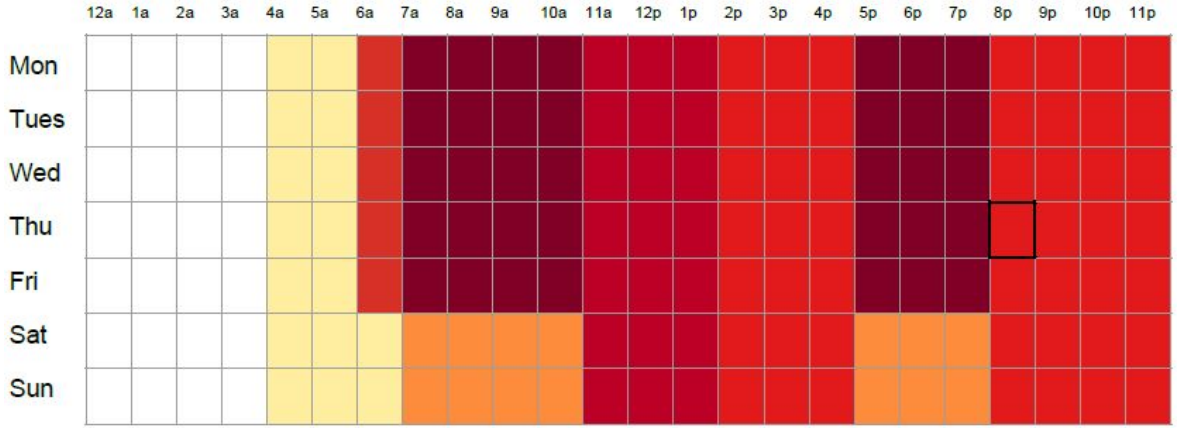
Bart Traffic for Clusters of Different Stations based on Geographic Location

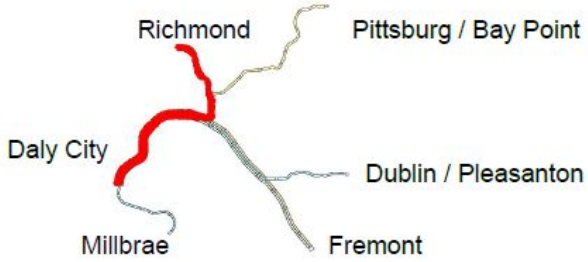


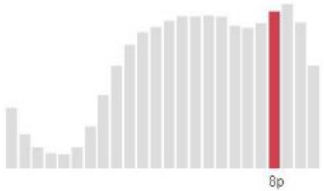
BART Heatmap for <Line Number> on <Month> <Year>



Select train	Select year	Select month
1.Line1	1.1998	1. Jan
2.Line2	2.1999	2. Feb
3.Line3	....	....
4.Line4	4.2017	11. Nov
5.Line5	5.2018	12. Dec







ALL traffic on Thursdays