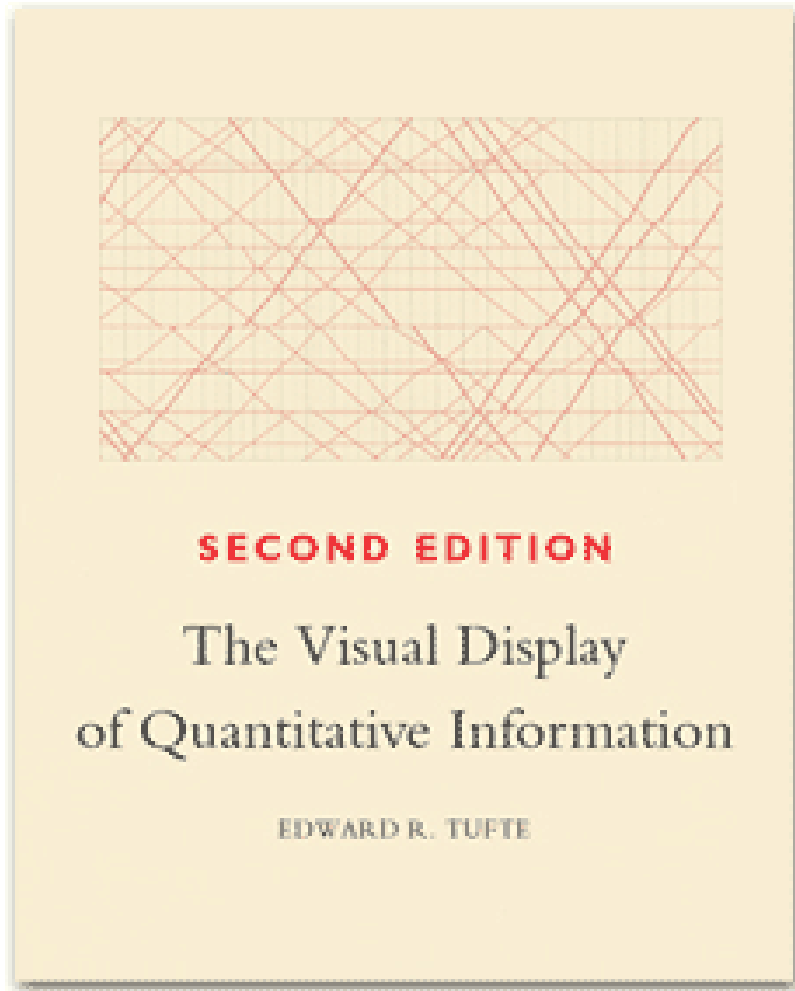


# Fundamentals of Data Science

Data Visualisation



# What is data visualisation?



[http://www.edwardtufte.com/tufte/books\\_vdqi](http://www.edwardtufte.com/tufte/books_vdqi)

# An alternative definition: Wikipedia

*"to communicate information clearly and efficiently via statistical graphs, plots and information graphics"*

*[https://en.wikipedia.org/wiki/Data\\_visualization](https://en.wikipedia.org/wiki/Data_visualization)*

# Why data visualisation?

Consider the following two slides that both display the same data.

- Which best conveys the story behind the data?
- Why?

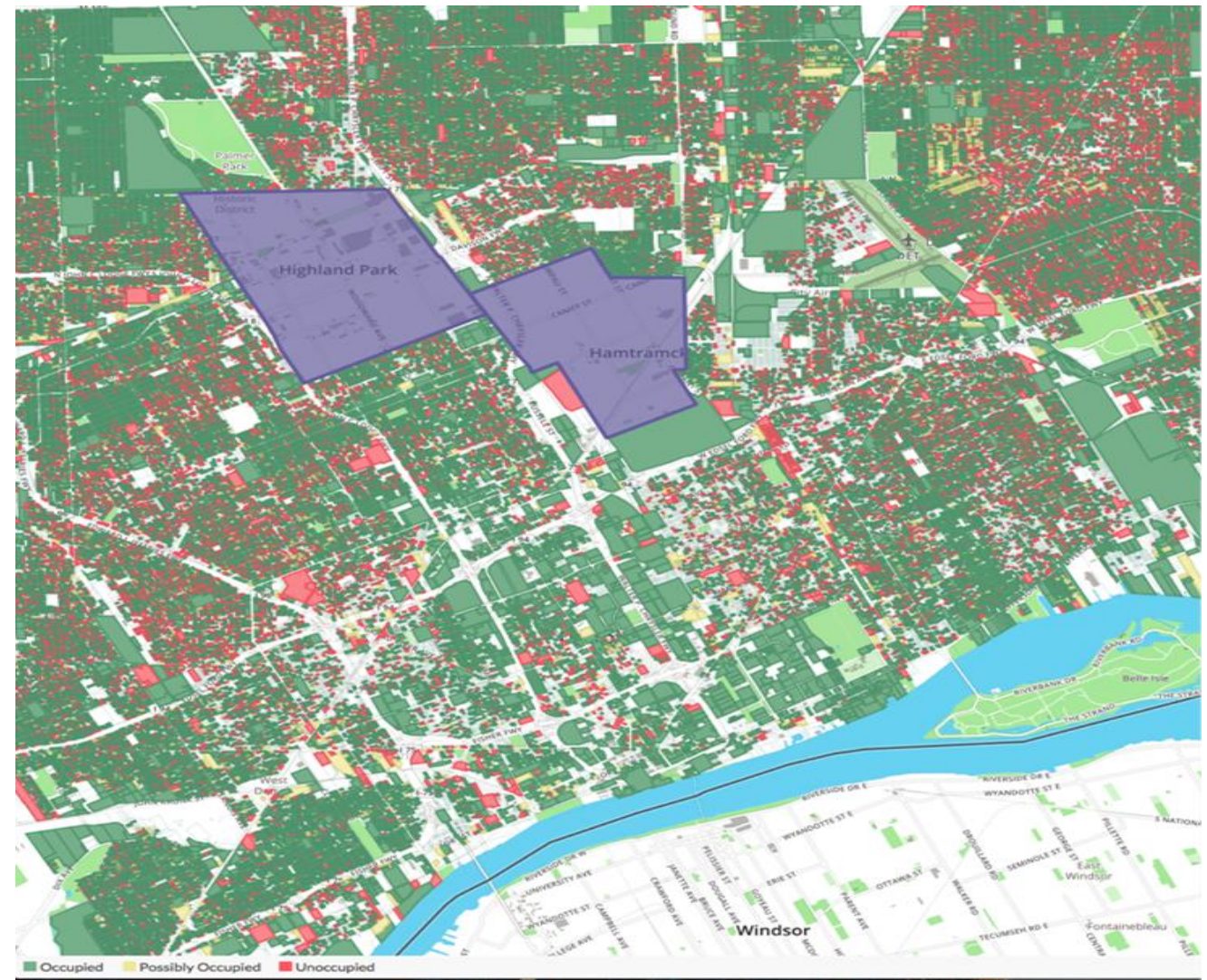
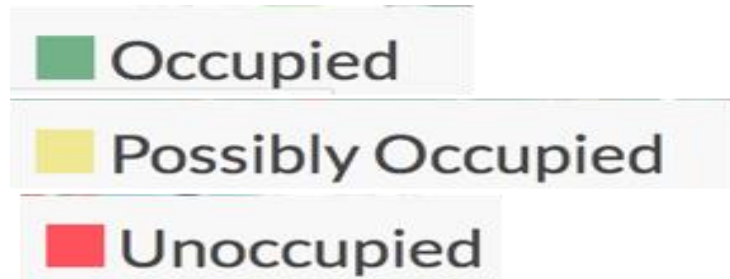
	OBJECTID	GEOID10	NAMESAD10	SqMiles	Acres	CouncilDist	Likely_Occupied	Potentially_Vacant	Likely_Vacant	VeryLikely_Vacant	Total_MCM_Parcel_Count	Pct_Likely_Occupied	Pct_Potentially_Vacant	Pct_Likely_Vacant
2	1	2.6164E+10	Census Tract 5248	0.4317877	276.34413	6	976	123	118	80	1297	75.25057826	9.483423285	9.097918273
3	2	2.6164E+10	Census Tract 5219	0.6534582	418.21325	6	444	42	27	28	541	82.0702403	7.763401109	4.990757856
4	3	2.6164E+10	Census Tract 5218	0.0868371	55.57573	6	25	1			26	96.15384615	3.846153846	
5	4	2.6164E+10	Census Tract 5215	0.5822193	372.62034	6	241	37	29	34	341	70.6744868	10.85043988	8.504398827
6	5	2.6164E+10	Census Tract 5214	0.504105	322.62721	6	310	26	19	15	370	83.78378378	7.027027027	5.135135135
7	6	2.6164E+10	Census Tract 5213	0.3742017	239.4891	6	226	61	49	30	366	61.74863388	16.66666667	13.38797814
8	7	2.6164E+10	Census Tract 5211	0.6177754	395.37627	6	387	38	25	18	468	82.69230769	8.11965812	5.341880342
9	8	2.6164E+10	Census Tract 9853	0.4267861	273.14312	6	45	18	13	5	81	55.55555556	22.22222222	16.04938272
10	9	2.6164E+10	Census Tract 5208	0.5205792	333.1707	6	72	4	3	2	81	88.88888889	4.938271605	3.703703704
11	10	2.6164E+10	Census Tract 5207	0.2963056	189.63559	6	72	15	14	7	108	66.66666667	13.88888889	12.96296296
12	11	2.6164E+10	Census Tract 5204	0.158139	101.20893	6	109	18	13	3	143	76.22377622	12.58741259	9.090909091
13	12	2.6164E+10	Census Tract 5203	0.1741772	111.47344	6	118	18	10	5	151	78.14569536	11.9205298	6.622516556
14	13	2.6164E+10	Census Tract 5169	0.2375026	152.00169	5	31	1			32	96.875	3.125	
15	14	2.6164E+10	Census Tract 5168	0.3796373	242.96785	5	228	80	62	91	461	49.45770065	17.35357918	13.44902386
16	15	2.6164E+10	Census Tract 5167	0.4630091	296.32581	5	101		2		103	98.05825243		1.941747573
17	16	2.6164E+10	Census Tract 5166	0.2668356	170.77478	5	25	6	1		32	78.125	18.75	3.125
18	17	2.6164E+10	Census Tract 5165	0.5169066	330.82024	5	73	17	14	4	108	67.59259259	15.74074074	12.96296296
19	18	2.6164E+10	Census Tract 5164	0.3978771	254.64135	5	209	70	52	54	385	54.28571429	18.18181818	13.50649351
20	19	2.6164E+10	Census Tract 5163	0.239059	152.99777	5	185	65	43	52	345	53.62318841	18.84057971	12.46376812
21	20	2.6164E+10	Census Tract 5162	0.21823	139.66717	5	187	55	30	45	317	58.99053628	17.35015773	9.463722397
22	21	2.6164E+10	Census Tract 5161	0.5209916	333.43461	5	192	65	85	69	411	46.71532847	15.81508516	20.68126521
23	22	2.6164E+10	Census Tract 5157	0.4664307	298.51566	5	103	7	3	3	116	88.79310345	6.034482759	2.586206897
24	23	2.6164E+10	Census Tract 5156	0.333939	213.72095	5	223	49	47	75	394	56.59898477	12.43654822	11.92893401
25	24	2.6164E+10	Census Tract 5154	0.3484437	223.00396	5	409	36	23	27	495	82.62626263	7.272727273	4.646464646
26	25	2.6164E+10	Census Tract 5153	0.3069975	196.47843	5	273	71	35	37	416	65.625	17.06730769	8.413461538
27	26	2.6164E+10									709	54.72496474	12.97602257	10.71932295
28	27	2.6164E+10									544	55.69852941	10.11029412	12.13235294
29	32	2.6164E+10									92	94.56521739	4.347826087	1.086956522
30	33	2.6164E+10									400	51.5	16.5	14
31	34	2.6164E+10									349	50.71633238	18.91117479	14.32664756
32	35	2.6164E+10									442	50	18.5520362	16.74208145
33	36	2.6164E+10									272	44.85294118	20.22058824	14.33823525
34	37	2.6164E+10									117	80.34188034	13.67521368	2.564102564
35	38	2.6164E+10									66	81.81818182	13.63636364	4.545454545
36	39	2.6164E+10									184	81.52173913	11.41304348	5.434782605
37	40	2.6164E+10									26	96.15384615		3.846153846
38	41	2.6164E+10									37	83.78378378	13.51351351	2.702702703
39	43	2.6164E+10									1131	55.34924845	13.3510168	9.637488948
40	44	2.6164E+10	Census Tract 5141	0.6214851	397.75046	4	648	184	157	380	1369	47.33382031	13.44046749	11.46822498
41	45	2.6164E+10	Census Tract 5139	0.4966386	317.84869	5	399	95	87	193	774	51.5503876	12.27390181	11.24031008
42	46	2.6164E+10	Census Tract 5136	0.3779577	241.89294	5	231	61	45	106	443	52.14446953	13.76975169	10.15801354
43	47	2.6164E+10	Census Tract 5133	0.6241106	399.43077	4	573	61	44	45	723	79.25311203	8.437067773	6.085753804
44	48	2.6164E+10	Census Tract 5132	0.3582623	229.28785	4	493	95	68	135	791	62.32616941	12.01011378	8.596713021
45	49	2.6164E+10	Census Tract 5129	0.5848656	374.314	4	283	89	48	105	525	53.9047619	16.95238095	9.142857143
46	50	2.6164E+10	Census Tract 5126	0.5342581	341.92515	4	367	110	86	159	722	50.83102493	15.23545706	11.91135734
47	51	2.6164E+10	Census Tract 5124	0.3867265	247.50495	4	283	79	74	139	575	49.2173913	13.73913043	12.86956522
48	52	2.6164E+10	Census Tract 5123	0.3064979	196.15868	4	305	76	49	96	526	57.98479087	14.4486692	9.315589354
49	53	2.6164E+10	Census Tract 5121	0.4607828	294.901	4	686	164	122	253	1225	56	13.3877551	9.959183673
50	54	2.6164E+10	Census Tract 5119	0.4450519	284.83318	5	299	65	90	99	553	54.06871609	11.75406872	16.27486438
51	60	2.6164E+10	Census Tract 9859	0.2414378	154.52018	5	20	5	3	2	30	66.66666667	16.66666667	10
52	61	2.6164E+10	Census Tract 9852	0.940558	601.95711	4	14	1	1	2	18	77.77777778	5.555555556	5.555555556

# Detroit – Data (1)

Data accessed from: [http://portal.datadrivendetroit.org/datasets/5efe44008cad4ea98377e7129c98c69c\\_0](http://portal.datadrivendetroit.org/datasets/5efe44008cad4ea98377e7129c98c69c_0)



# Detroit – Data (2)



<https://www.motorcitymapping.org/#t=parcels&s=detroit&f=all&x=preset2>