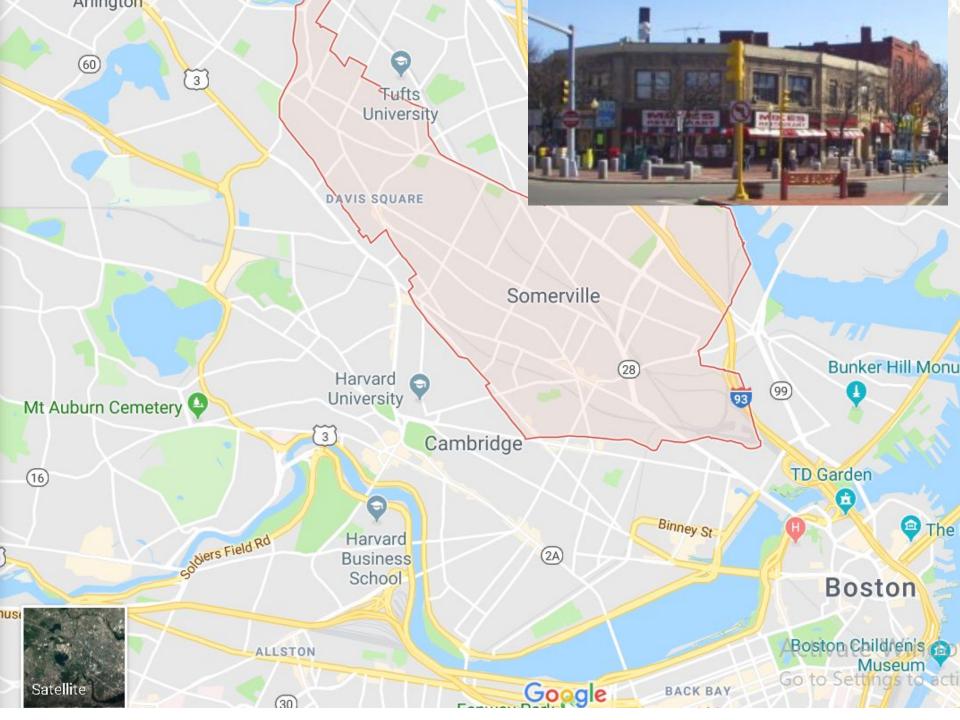


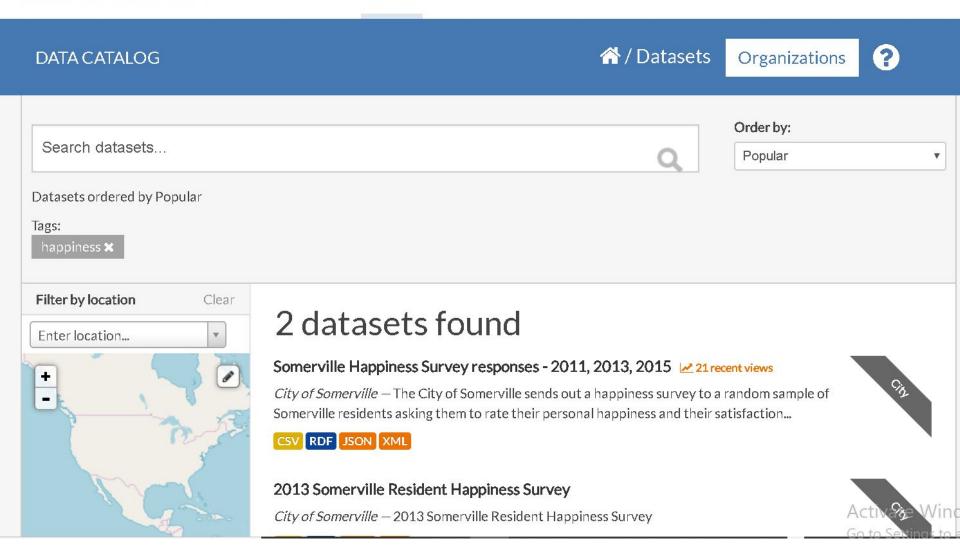
Classification with the Somerville Dataset

John Stinson - johnstinson99@gmail.com



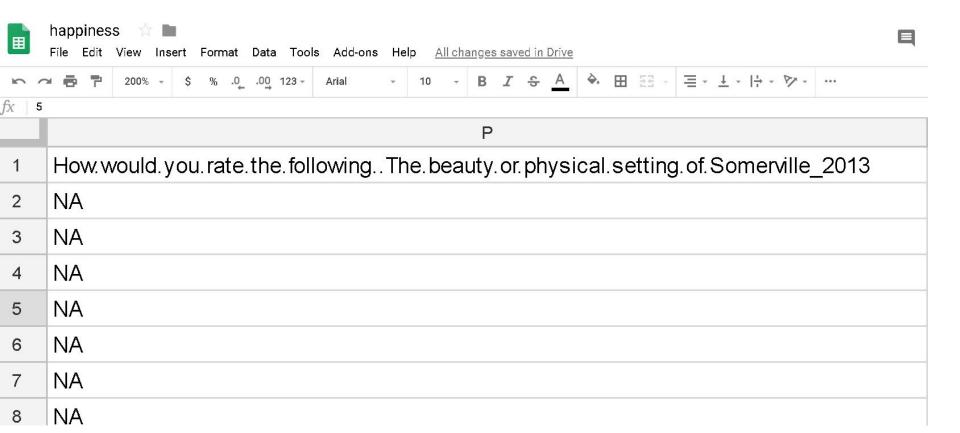


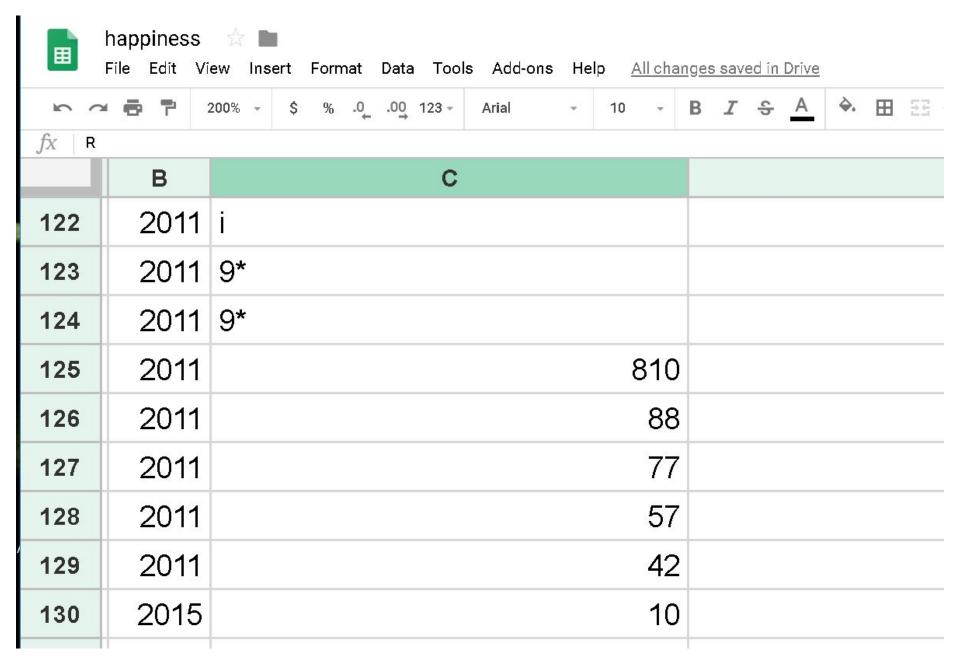
DATA TOPICS - IMPACT APPLICATIONS DEVELOPERS CONTACT



В	С	D
Year	How.happy.do.you.feel.right.now.	How.satisfied.are.you.with.your.life.in.general.
2015	7	5
2015	8	8
2015	5	9
2015	5	8
2015	7	9
2015	7	8
2015	10	10
2015	7	8

Demo





Demo: Data Munging with Pandas: Somerville Happiness Dataset

- Different columns each year.
- Free text fields, so invalid characters
- Many irrelevant columns
- Long column names
- Strings in numeric columns eg '0-5 years'
- Non-sequential values e.g. Marital Status

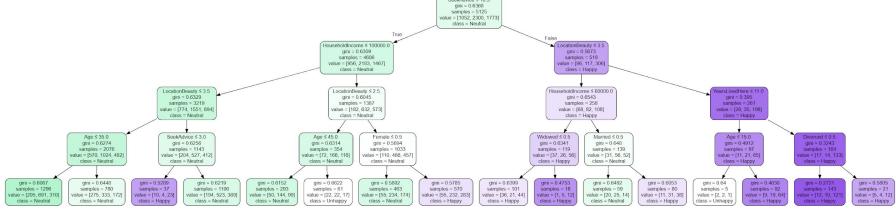
Decision Tree - 5 levels

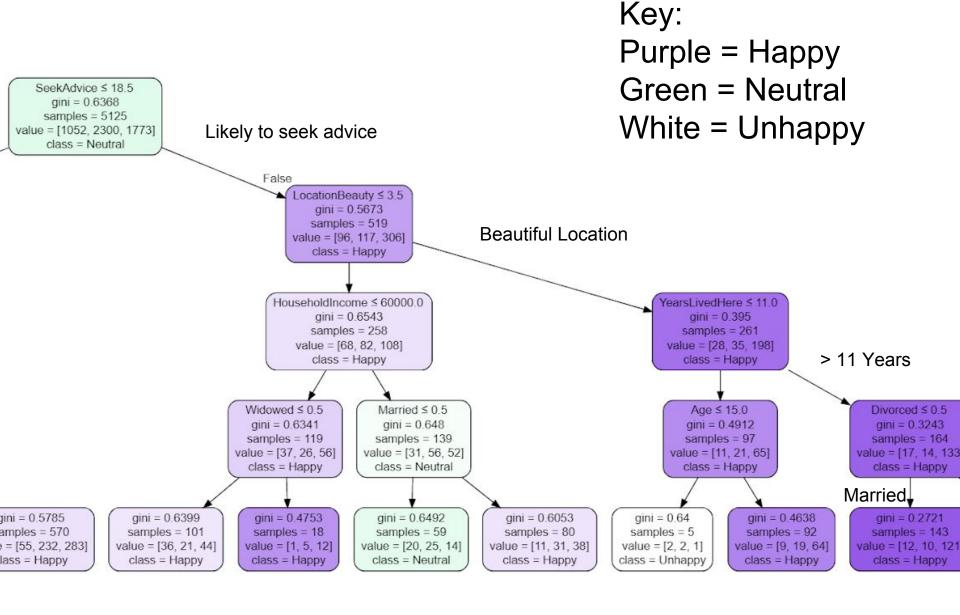
Key:

Purple = Happy

Green = Neutral

White = Unhappy





Key: Purple = Happy Green = Neutral SeekAdvice ≤ 18.5 gini = 0.6368White = Unhappy samples = 5125 Unlikely to seek value = [1052, 2300, 1773] class = Neutral advice True False HouseholdIncome ≤ 100000.0 LocationBeauty ≤ 3.5 aini = 0.6309gini = 0.5673samples = 4606 samples = 519 value = [956, 2183, 1467] value = [96, 117, 306] class = Neutral class = Happy Earn less than \$100K LocationBeauty ≤ 2.5 HouseholdIncome ≤ 60000.0 gini = 0.6045gini = 0.6543samples = 1387 samples = 258 value = [182, 632, 573] value = [68, 82, 108] class = Neutral class = Happy Not beautiful location. Widowed ≤ 0.5 Married ≤ 0.5 Age ≤ 45.0 Female ≤ 0.5 qini = 0.6314gini = 0.5894gini = 0.6341gini = 0.648samples = 354 samples = 1033 samples = 119 samples = 139 value = [72, 166, 116] value = [110, 466, 457] value = [37, 26, 56] value = [31, 56, 52 class = Neutral class = Neutral class = Happy class = Neutral Over 45 Married gini = 0.6152gini = 0.6399gini = 0.4753gini = 0.6492219 gini = 0.6622qini = 0.5892gini = 0.57851106 samples = 293 samples = 61 samples = 463 samples = 570 samples = 101 samples = 18 samples = 59 value = [36, 21, 44] value = [55, 232, 283] value = [20, 25, 14 23, 389] value = [50, 144, 99] value = [22, 22, 17] value = [55, 234, 174] value = [1, 5, 12] utral class = Neutral class = Unhappy class = Neutral class = Happy class = Happy class = Happy class = Neutral

Next Steps

Experiment with

- Different number of levels of decision tree
- Including/additional variables
- Use alternative output columns
- Alternative classification models

Questions?

John Stinson - johnstinson99@gmail.com