

Part1: Housing price vs housing market

Labels and explanation:

- Real Time Availability Rate : $(\text{Total Apartments Currently Vacant (Not in the market)} + \text{Apartments Set to Become Available on a Later Day}) / \text{total apartment in database}$
- Real Time Vacancy Rate : $(\text{Total apartments currently available to rent(In the market)} + \text{all of those becoming available in the future}) / \text{total number of apartments}$

Part2: Vocab frequency

Labels and explanation:

- Words
- Counts

Part3: possible customer and their expected prices

Labels and explanation:

- Year (YEAR)
 - Include sample in 2016, 2017 and 2018
- State (STATEFIP)
 - We only use data in MA which has state code 25
- City (CITY)
 - Narrow down our city choosing to Boston, Cambridge and Brookline
 - Boston is 0, Brookline is 1, Cambridge is 2
- Mortgage status (MORTGAGE)
 - Indicate whether the person is encumbered by mortgage or loan
 - N/A is 0, No is 1, Yes with mortgage is 3, Yes with contract is 4
- Monthly contract rent (RENT)
 - Reports the amount of household's monthly contract rent payment
 - N/A is 0000
- Kitchen or cooking facilities (KITCHEN)
 - Indicates whether the housing unit contained kitchen facilities.
 - N/A is 0, No is 1, Yes is 4
- Refrigerator (FRIDGE)
 - Indicates whether the housing unit provided access to a refrigerator
 - N/A is 0, No is 1, Yes is 2
- Telephone availability (PHONE)
 - Indicates whether residents of the housing unit had telephone access.
 - N/A is 0, No is 1, Yes is 2
- Access to Internet (CINETHH)

- Indicate whether any member of the household accesses the Internet.
 - N/A is 0, Yes with subscription to internet is 1, Yes without subscription is 2, No is 3
- Number of family member (FAMSIZE)
 - Counts the number of own family members residing with each individual, including the person her/himself.
- Sex (SEX)
 - Male is 1, Female is 2
- Age (AGE)
- Marital status (MARST)
 - Married with spouse present is 1, Married without spouse present is 2, Separated is 3, Divorced is 4, Widow is 5, Single is 6
- Race (RACE)
 - White is 1, Black/African American/Negro is 2, American Indian or Alaska Native is 3, Chinese is 4, Japanese is 5, Other Asian or Pacific Islander is 6, Other race is 7
- Citizenship status (CITIZEN)
 - Reports the citizenship status of respondents, distinguishing between naturalized citizens and non-citizens.
 - N/A is 0, Born abroad of American parents is 1, Naturalized citizen is 2, Not citizen is 3
- School attendance (SCHOOL)
 - Indicates whether the respondent currently attend school
 - N/A is 0, No is 1, Yes is 2
- Education attainment (EDUC)
 - Indicates respondents' educational attainment, as measured by the highest year of school or degree completed.
 - N/A is 0, grade 4 or below is 1, grade 5,6,7,8 is 2, grade 9 is 34 years of college is 10, 5+ years of college is 11
- Grade level attending (GRADEATT)
 - Reports the grade or level of recent schooling for people who attended "regular school or college"
 - N/A is 0, preschool is 1, Kindergarten is 2, Grade 1-4 is 3, Grade 5-8 is 4, Grade 9-12 is 5, College undergraduate is 6, Graduate or professional school is 7
- Employment status (EMPSTAT)
 - Indicates whether the respondent was a part of the labor force -- working or seeking work -- and, if so, whether the person was currently unemployed.

- N/A is 0, Employed is 1, Unemployed is 2, Not in labor force is 3
- Total personal income (INCTOT)
 - Reports each respondent's total pre-tax personal income
- Total family income (FTOTINC)
 - Reports the total pre-tax money income earned by one's family