Methods Used to Evaluate and Score Products:

1. establishing a set of evaluation criteria and, as appropriate, dividing the criteria among a  set of categories (who, shall, what)
   1. Building
      1. City = Greentrike shall want Tacoma. Greentrike shall want Puyallup
      2. PostalCode = GT shall want 98499(T). GT shall want 98373(P).
      3. PropertyType = GT shall want Office. GT shall want Retail.
      4. Price = GT shall want >500,000. GT shall want < 1,500,000
      5. YearBuilt = GT shall want >1985. GT shall want <2010
      6. SaleType = GT shall want Investment. GT shall want Owner User
      7. Initial Criteria: Tacoma, 98499, Office, >500,000, >1985, investment
      8. Second Criteria add the second option.
      9. What can you ask with this information? The score could tell you that in these two zip codes, the buildings that the building price we are looking for (in the range of $500,000 to $1,500,000) are predominately in the two zip codes are not. This could prompt us to consider a different area by zip code if there isn’t enough properties suitable for our price range based only on price.
   2. Applying the function method to my criteria was the same for viii. This is because the function method allows for a more dynamic score, and rather than separating say Tacoma and Puyallup they can be combined into the same score for more building opportunities.
      1. Determining the weights
         1. City: 1 is the target city and 0.5 is the other opportunity, 0 is everything else
         2. Postal code: same as city, 98499 = 1, 98373 = 0.5
         3. Property Type: same as city and postal code, office = 1, retail = 035
         4. Price: 1 is the amount that would most commonly be expected for building purchase, 0.5 is is the larger amount that GT might be willing to pay for a building, and 0 is everything else
         5. Year Built: 1 if for a newer building which I assume GT would prefer, 0.5 is for a moderately older building, and 0 is for everything else
         6. Sale Type: same as city, postal code, and property type, investment = 1, owner user = 0.5
   3. Census
      1. Breaking household income so that the minimum of range criteria falls within
         1. (0, 66,665) = 1, (66,666, 133,331) = 2, (133,332, inf+) = 3
         2. 1 = (B19001\_012E, B19001\_007E, B19001\_006E, B19001\_011E, B19001\_010E, B19001\_008E, B19001\_009E, B19001\_002E, B19001\_004E, B19001\_005E, B19001\_003E)
         3. 2 = (B19001\_015E, B19001\_013E, B19001\_014E)
         4. 3 = (B19001\_016E, B19001\_017E)
      2. Sex by Age Male under 5 and five to 9 five respectively = B01001\_003E, B01001\_004E
      3. Sex by Age Female under 5 and five to 9 respectively = B01001\_027E, B01001\_028E
      4. Zip\_code will be the same as building criteria
         1. They will include 98499 = (Lakewood, Airforce base) and 98373 = (Summit, South Hill, Puyallup)
      5. Criteria 1 = 1, Sex by Age (both), 98499, 98373
      6. Criteria 2 = 2, Sex by Age (both), 98499, 98373
      7. Criteria 1 = 3, Sex by Age (both), 98499, 98373
      8. Breakdown of Values per variable\_id
      9. The argument for keeping zip codes in our score is that it can still affect the score. So maybe it is negligible, but looking at a higher score, there is a higher chance of this location being in a target zip code.
      10. What can this tell you? Per our target criteria, for example Sex by Age Male, we could find the highest concentration based off of bg\_block\_id.
   4. **The function method is what will primarily be used and will be finished, the original method will not be finished.** 
      * 1. **To determine the optimal scoring, there will be three “categories” of each variable\_id. Each weighted as 1=target, 0.5=other consideration, 0=everything else. This is to show that 1 is explicitly what we are looking for, 0.5 is acceptable, and 0 is off target and will not be included in the score. How the scoring will be determined are from the summary stats listed below for each variable.**
        2. **A rule of thumb I am following for sex related variable\_id’s, the maximum amount divisable by three, 1 = upper most amount, 0.5 = middle amount, 0 = lowest amount.**
        3. **Total Population will not be included in this scoring because it is the same as Sex by Age Total**
        4. **The totals represent areas by geocodeid where there are a lot of people. Any total will have the same rule as sex.**
        5. **Generally speaking, people who can afford childcare are making a certain minimum to be able to pay for it (assuming that the expansion location is a for profit portion of GT).** [**https://www.doughroller.net/smart-spending/cost-of-childcare/**](https://www.doughroller.net/smart-spending/cost-of-childcare/)**. According to that link, income around 35,000 and you will have to break the 10 percent rule, thus, any variable with income lower than 40,000 will not be considered in the scoring. Although individuals who earn 40,000 or less can and most likely will be potential customers of GT, optimizing the location based off of household incomes that are more likely to pay will benefit the model more than if those that could not pay were included, for the time being.**
        6. **Again, looking at the amount of potential customers in an area, a larger amount of users will have a higher weight than that of lower amounts in a certain area.**
      1. Sex by Age Total:
         1. 0-1982 = 0
         2. 1983-3963 = 0.5
         3. 3964-5946 = 1
      2. Sex by Age Males Total
         1. 0-1131 = 0
         2. 1132-2262 = 0.5
         3. 2263-3395 = 1
      3. Sex by Age Males Under 5 Years Old
         1. 0-114 = 0
         2. 115-230 = 0.5
         3. 231-345 - 1
      4. Sex by Age Males 5 to 9 Years Old
         1. 0-106 = 0
         2. 107-212 = 0.5
         3. 213-318 = 1
      5. Sex by Age Female Total
         1. 0-1006 = 0
         2. 1007-2012 = 0.5
         3. 2013-3019 =1
      6. Sex by Age Females Under 5 Years Old
         1. 0-134 = 0
         2. 135-268 = 0.5
         3. 269-403 = 1
      7. Sex by Age Females 5 to 9 Years Old
         1. 0-108 = 0
         2. 109-216 = 0.5
         3. 217-326 = 1
      8. Median Age by Sex
         1. 0-26 = 0
         2. 27-49 = 0.5
         3. 50-78 = 1
      9. Total Population
      10. Income in Last 12 Total
          1. 0-683 = 0
          2. 684-1366 = 0.5
          3. 1367-2051 = 1
      11. Income in Last 12 < $10,000
      12. Income in last 12 $10,000 to $14,999
      13. Income in last 12 $15,000 to $19,999
      14. Income in last 12 $20,000 to $24,999
      15. Income in last 12 $25,000 to $29,999
      16. Income in last 12 $30,000 to $34,999
      17. Income in last 12 $35,000 to $39,999
      18. Income in last 12 $40,000 to $44,999
          1. 0-57 = 0
          2. 58-144 = 0.5
          3. 154-172 = 1
      19. Income in last 12 $45,000 to $49,999
          1. 0-41 = 0
          2. 42-82 = 0.5
          3. 83-125 = 1
      20. Income in last 12 $50,000 to $59,999
          1. 0-81 = 0
          2. 82-162 = 0.5
          3. 163-245 = 1
      21. Income in last 12 $60,000 to $74,999
          1. 0-132 = 0
          2. 133-264 = 0.5
          3. 265-398 = 1
      22. Income in last 12 $75,000 to $99,999
          1. 0-162 = 0
          2. 163-324 = 0.5
          3. 325-486 = 1
      23. Income in last 12 $100,000 to $124,999
          1. 0-147 = 0
          2. 148-294 = 0.5
          3. 295 – 441 = 1
      24. Income in last 12 $125,000 to $149,999
          1. 0-62 = 0
          2. 63-124 = 0.5
          3. 125-186 = 1
      25. Income in last 12 $150,000 to $199,999
          1. 0-88 = 0
          2. 89-176 = 0.5
          3. 177-265 = 1
      26. Income in last 12 $200,000 or more
          1. 0-163 = 0
          2. 164-326 = 0.5
          3. 237-490 = 1
2. determining a scheme for scoring products against the evaluation criteria
3. providing a set of numerical weights to determine the relative importance of the criteria  and evaluation categories.
4. computing the overall score for each product