**Name of the contributors:** Madhulika Gupta

**Name of the project**: Prediction of obesity rate in adults in US counties based on various factors like low cost lunch programs, proximity to farmer markets, taxes etc.

**Link to data source**: usda .gov

<https://www.ers.usda.gov/data-products/food-environment-atlas/data-access-and-documentation-downloads/#Current%20Version>

<https://www.ers.usda.gov/data-products/county-level-data-sets/download-data/>

3. Project Map:

a. technologies used: python, pandas, excel, Machine Learning, Ski-Learn

b. jupyter notebook

c. supervised learning

Time Line:

10/19/19: make required csv.s

10/21/19: do cleanup with pandas., start the ski-learn if possible.

10/23/19: ski-learn stuff

10/26/19: try to do additional tableau work, if possible. / make the presentation / final bits etc.

SNAP: Supplemental Nutrition Assistance program

What is SNAP? SNAP, the Supplemental Nutrition Assistance Program, is the program formerly known as food stamps. It is a federal nutrition program that helps you stretch your food budget and buy healthy food. SNAP benefits can be used to purchase food at grocery stores, convenience stores, and some farmers' markets and co-op food programs.

www.fns.usda.gov/snap

WIC: The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) provides federal grants to states for supplemental foods, health care referrals, and nutrition education for low-income pregnant, breastfeeding, and non-breastfeeding postpartum women, and to infants and children up to age five who are found to be at nutritional risk.

<https://www.fns.usda.gov/wic>

Summer Food Service Program : The Summer Food Service Program (SFSP) is a federally-funded, state-administered program. SFSP reimburses program operators who serve free healthy meals and snacks to children and teens in low-income areas.

<https://www.fns.usda.gov/sfsp/summer-food-service-program>

% change in population in last 8 yrs is 3.33%

cleanup to be done:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| CSV\_name | Null values | Remove columns | Rename columns | 1. Add new columns 2. Compute new columns | comments | Final csv names saved |
| Supplementa\_counties | Null |  |  |  | 1. Simply make dfs, 2. no null values 3. contains population estimates from 2010 to 2016 |  |
| supplementaData\_States | Remove null values,  No null values showing up in the excel sheet. | 1. State Population, 2010 2. S 3. state Population, 2011 4. State Population, 2012 5. State Population, 2013 6. State Population, 2014 7. State Population, 2015 8. State Population, 2016 |  | Compute average no. of participants in each program | 1. Contains data for WIC, 2. School lunch program 3. School breakfast programs 4. Child and adult care participants 5. Summer food participants |  |
| access\_county |  | |  | | --- | | PCT\_LACCESS\_POP15 | | LACCESS\_LOWI10 | | LACCESS\_LOWI15 | | PCH\_LACCESS\_LOWI\_10\_15 | | PCT\_LACCESS\_LOWI10 | | PCT\_LACCESS\_LOWI15 | | LACCESS\_HHNV10 | | LACCESS\_HHNV15 | | PCH\_LACCESS\_HHNV\_10\_15 | | PCT\_LACCESS\_HHNV10 | | PCT\_LACCESS\_HHNV15 | | LACCESS\_SENIORS10 | | LACCESS\_SENIORS15 | | PCH\_LACCESS\_SENIORS\_10\_15 | | PCT\_LACCESS\_SENIORS10 | | PCT\_LACCESS\_SENIORS15 | | LACCESS\_WHITE15 | | PCT\_LACCESS\_WHITE15 | | LACCESS\_BLACK15 | | PCT\_LACCESS\_BLACK15 | | LACCESS\_HISP15 | | PCT\_LACCESS\_HISP15 | | LACCESS\_NHASIAN15 | | PCT\_LACCESS\_NHASIAN15 | | LACCESS\_NHNA15 | | PCT\_LACCESS\_NHNA15 | | LACCESS\_NHPI15 | | PCT\_LACCESS\_NHPI15 | | LACCESS\_MULTIR15 | | PCT\_LACCESS\_MULTIR15   |  | | --- | | LACCESS\_CHILD10 | | LACCESS\_CHILD15 | | PCH\_LACCESS\_CHILD\_10\_15 | | PCT\_LACCESS\_CHILD10 | | PCT\_LACCESS\_CHILD15 | | |  |  |  |  |
| stores\_county |  |  |  |  |  | Sum no. of grocery stores , supercenters, specialized centres in 2014( to calculate total no. of stores.  Keep columns for WICS authorized stores and SNAP authoriesd stores  WICS12,  SNAPS16 |
| restaurants\_county |  |  |  |  |  | Sum no. of fast food restaurant and full service retaurants in 2014( FFR14, FSR14) |
| **assistance\_county** |  |  |  |  |  |  |
| Subcategory : SNAP |  |  |  |  |  | Keep columns   |  | | --- | | REDEMP\_SNAPS12 | | REDEMP\_SNAPS16 | | PCT\_SNAP12 | | PCT\_SNAP16 | | SNAP\_OAPP09 | | SNAP\_OAPP16 | |
| Subcategory: School Lunch Program / breakfast program  Summer Food Service program |  |  |  |  |  | Keep Columns  PCT\_NSLP15  PCT\_SBP15  PCT\_SFSP15 |
| Sub Category : WIC |  |  |  |  |  | Keep Column  PCT\_WIC15 |
| Sub Category : Child and Adult Care |  |  |  |  |  | Keep Column  PCT\_CACFP15 |
| insecurity\_county |  |  |  |  |  |  |
| localFarms\_county |  |  |  |  |  | Keep column:  FMRKT16  FMRKT\_SNAP16  FMRKT\_FRVEG16  FMRKT\_ANMLPROD16  FMRKT\_BAKED16  FMRKT\_OTHERFOOD16 |
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Bedford County is missing

Sklearn

Multilple linear regression

Scale the features.

Fit model

Score the model

Weights for each features(higher no. indicate the higher impact on the values of the features.