IS OBESITY AN OUTCOME OF FINANCIAL STRESS?

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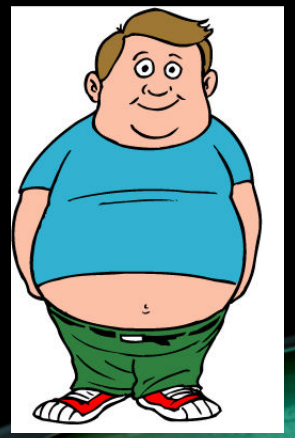
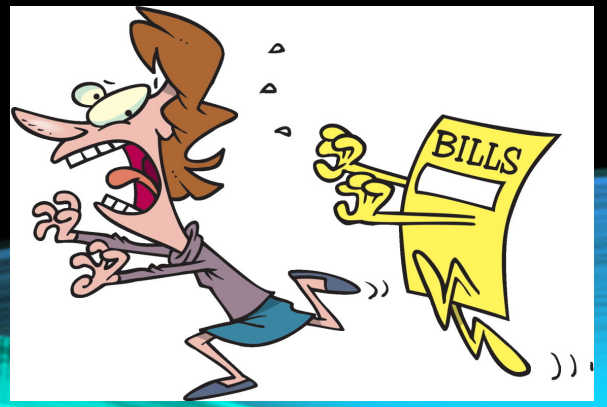
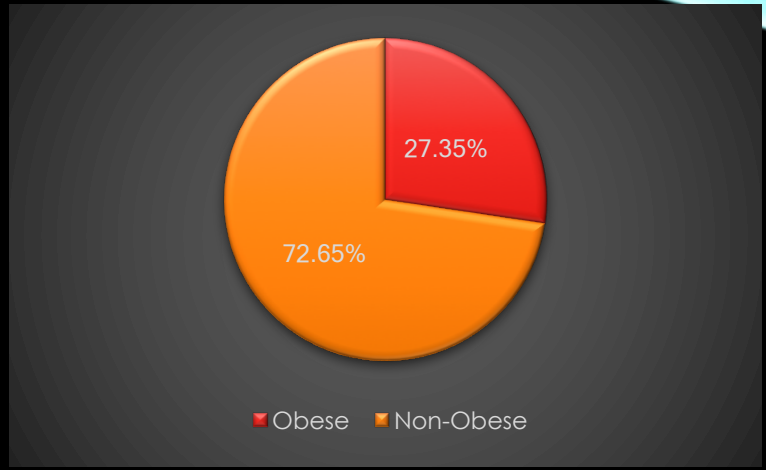


VS.



WHY?



- Percentage of Obese population in Victoria : 27.35%
- Main reason for many serious health conditions : Obesity
- Less obese population, less severe and deadly illnesses to treat.
- This will decrease the expenses at hospitals.
- Therefore, will benefit the Health and Financial sectors

DATASETS

1. Health Risk factors by LGA – Percentage of People Obese by gender for each LGA (Contains other risk factors such as diabetes)
2. Personal and Financial Stressors by LGA – Percentage of people undergoing activities which causes Financial stress.
    - Cash flow problem in the last 12 months. (high stress) (R1)
    - Government support as main source of income in the last 2 years. (high stress) (R2)
    - At least one dissaving action in the last 6 months (high stress) (R3)
    - Could Raise 2000 dollars within a week. (low stress) (R4)

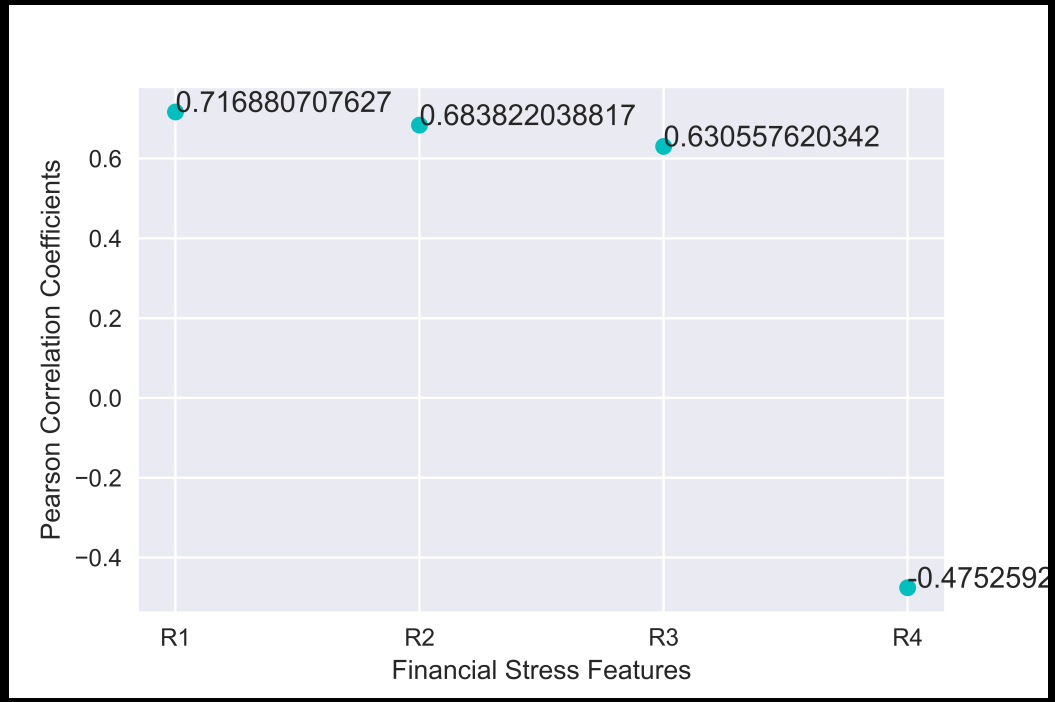
❖ These features show us different types of financial stress levels allowing us to do better comparisons.

DATA WRANGLING

1. *"Unincorporated Vic"* was removed since *Personal and Financial Stressors dataset did not contain data for this LGA*.
2. *Inner Join*
3. Plotting
4. Pearson Correlation Coefficient
5. Regression
6. K-nearest Neighbour
7. Decision Tree

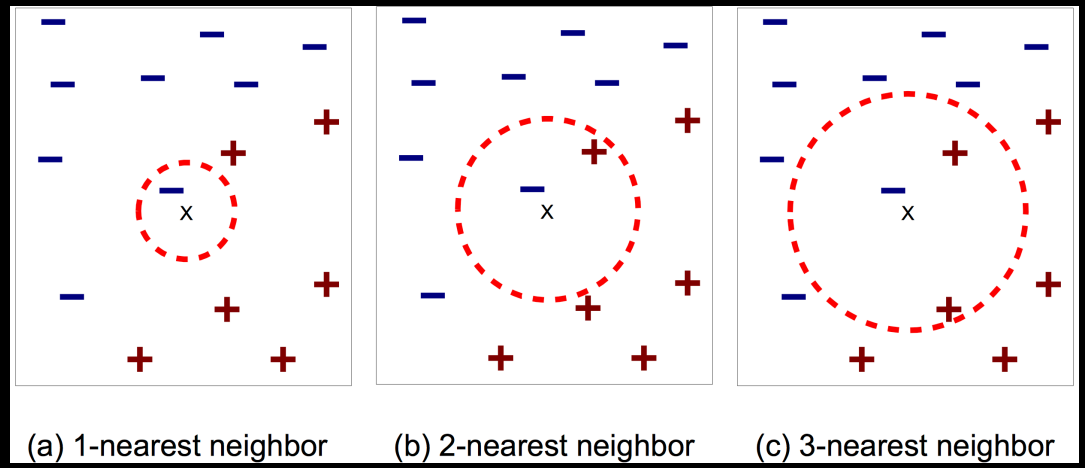
RESULTS

- Percentage of males and females who are obese change in a similar pattern – found by plotting.
- Therefore, following results apply for both the genders equally.
- Pearson Correlation
  - R1, R2 and R3 – High Stress
  - R4 – Low Stress
- Strong Positive Correlation between Obesity and R1,R2 and R3.
- Moderate Negative Correlation between Obesity and R4.



RESULTS

- Training Dataset : 54 LGAs
- Testing Dataset : 25 LGAs
- Divided Percentage Obesity to 2 classes



- K-Nearest Neighbour
- Optimal K = 9
- Accuracy = 84%
- Shows how the relationship between Financial stress features and Obesity can be used to predict the obesity class.

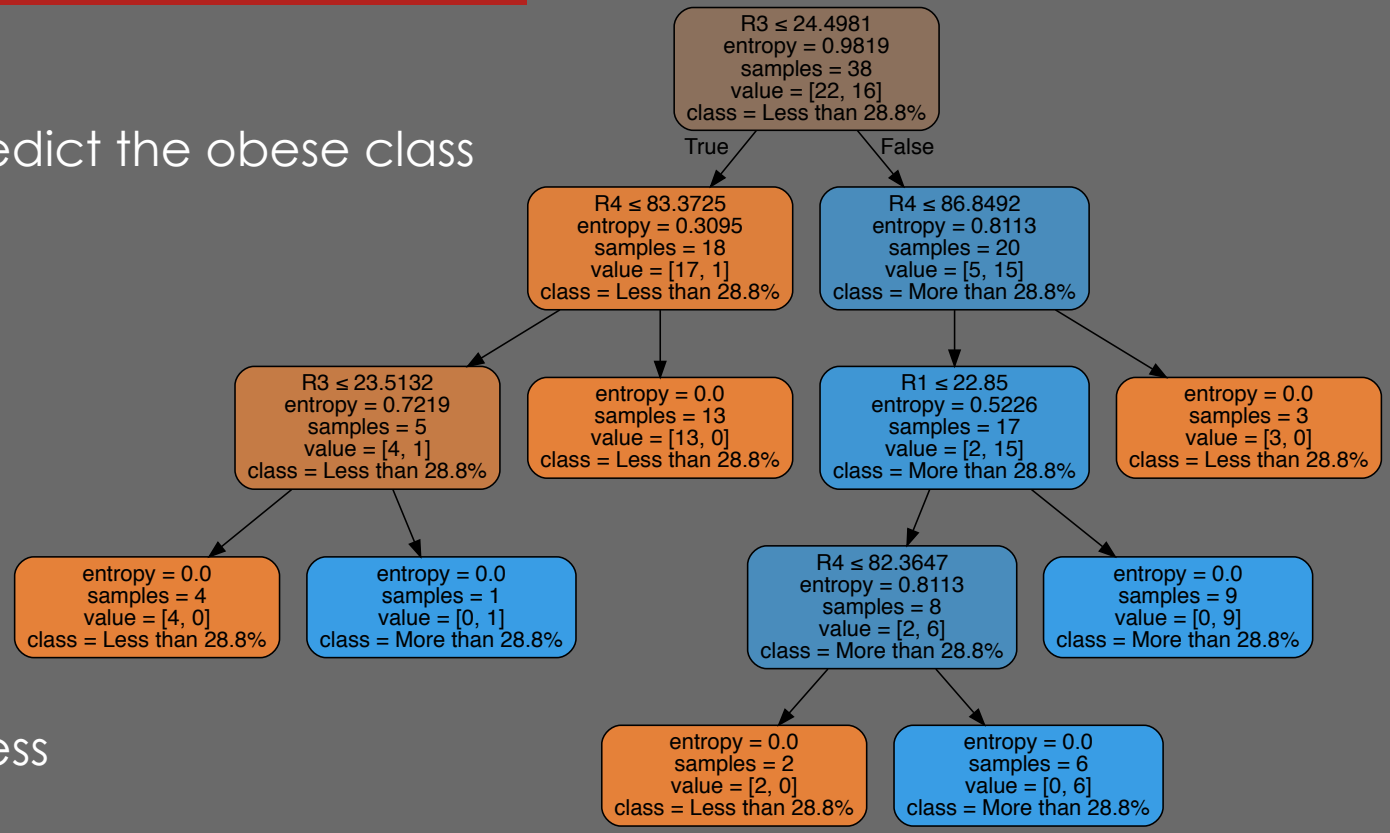
DECISION TREES

Test Record

LGA Name	csh_flow_12_per R1	gov_sup_24_per R2	dissaving_12_per R3	2000_per R4	obese_p_per
Alpine (S)	20.48849239	31.66456393	25.37028726	84.32114973	30.74372675

- Easy and Simple conditions to follow to predict the obese class

Accuracy : 71.9%
Entropy: Measure of Uncertainty



➢ The conditions used show a positive relationship between Obesity and Financial Stress

CHALLENGES

- Finding a dataset for Financial Stress that would allow us to do a deep analysis.
- Finding 2 datasets with time periods not too far apart.
- Would have created more classes for Obesity to carry out KN-Neighbour and Decision Trees rather than 2.

✓All the results obtained supports that Obesity is an outcome of Financial Stress