The objectives of the project:
➢ Find out relationship between factors affecting voting decision and voting result
➢ Use machine learning algorithms to experiment with feasibility of predicting electoral results
➢ Visualize election data result to public

The datasets are from:
➢ Public Opinion Program, the University of Hong Kong (HKUPOP)
➢ ANES Time Series Study (ANES)
➢ American Community Survey (US Census Bureau)
➢ US & HK similar 2-party system
➢ Recollection of election public opinion data
➢ Find out the Pearson correlation between the factors and voting result
➢ Parameterize nominal data by one-hot-encoding parameters
➢ Predict probable voter outcome with a Feed Forward Neural Network (2 Layers, 10 Nodes) using the Keras library
➢ Count total votes for each party with weighted population
➢ Repeat predictions 100 times to obtain a sample
➢ Approximate sample with a cont. probability distribution
➢ Obtain appropriate moments of the distribution to describe the measurements (average and variance)

Can election outcomes be predicted using state census data?
The ANES Time Series studies provide rich information on individuals opinion of public and political matters (eg. elections). The Clinton era was chosen as the beginning of modern american politics to serve as the basis of training.

Predicting US House of Representatives elections:
➢ Identify parameters also existent in US Census Bureau surveys (ACS)
➢ Homogenize data to have same format
➢ Train NN model using ANES surveys from 1992 - 2014
➢ Test prediction accuracy with 2016 survey data
➢ Predict 2016 election outcome in state by evaluating ACS data using trained model. Compare to actual results.

Demographics can only go so far. Variance in estimates can render some predictions inconclusive.
➢ Maximize voter prediction accuracy by identifying most relevant factors impacting vote outcome
➢ Use of other machine learning algorithms or neural network architectures may provide better results
➢ Develop an interactive visualization of election results for the US and HK

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