

Identifying Precinct Neighbors Precincts Dataframe Determine Adjacencies Foreach Precinct Adjacencies Dataframe Foreach Adjacent Precinct Has common boundary? Reject As Neighbor Boundary within 200 ft? Associate As Neighbor Map of precincts to list of their adjacent neighbors Create GeoDataFrame from mapping GeoDataFrame with listed precincts and their neighbors

New Precinct GeoDataFrame Columns:

ID: The precinct's ID
DISTRICT: The distric

DISTRICT: The district that the precinct belongs to

STATE: The state that the precinct belong to # TOT_POP: The precinct's total population

WHITE_POP: The precinct's white population # BLACK_POP: The precinct's black population

HISP_POP: The precinct's hispanic population

ASIAN_POP: The precinct's asian population

2020 DEMOCRATIC: The precinct's number of democratic votes for the 2020 presidential election

2020_REPUBLICAN: The precinct's number of republican votes for the 2020 presidential election # 2020_WINNER: The precinct's elected party in the 2020 presidential election

NEIGHBORS: The precinct's neighbooring precincts

GEOMETRY: The precinct's fleighboom

New District GeoDataFrame Columns:

ID: The district's ID

STATE: The state that the precinct belongs to

REP_NAME: The district's representative's name

REP_PARTY: The district's representative's party # REP_RACE: The district's representative's race

REP_PIC: The link to the district's representative's picture # REP_VOTE_MARGIN: The vote margin of the district's representative

TOT_POP: The district's total population

WHITE_POP: The district's white population
BLACK_POP: The district's black population

BLACK_POP: The district's black population
HISP_POP: The district's hispanic population

HISP_POP: The district's hispanic population # ASIAN_POP: The district's asian population

2020_DEMOCRATIC: The district's number of democratic votes for the 2020 presidential election

2020_REPUBLICAN: The district's number of republican votes for the 2020 presidential election

2020_WINNER: The district's elected party in the 2020 presidential election # GEOMETRY: The district's geometry

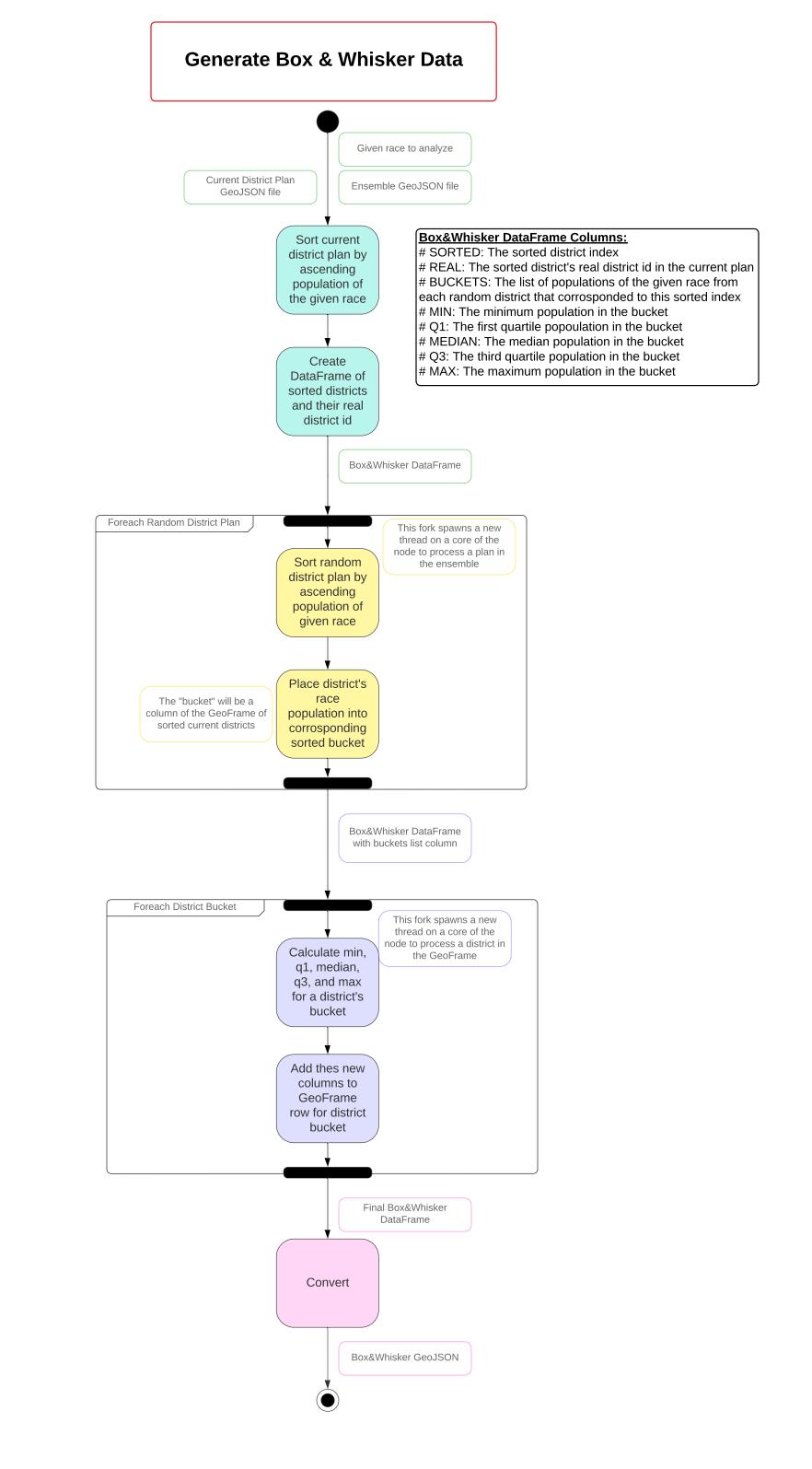
MGGG GerryChain SeaWulf Top Level Precinct GeoJSON file Foreach State GeoJSON Create Initial Partition from Existing MGGG MGGG gerrychain.Graph gerrychain.Partition functools.partial GerryChain GerryChain The 3 objects from setup Large (5000) Ensemble GeoJSON Small (250) Ensemble GeoJSON This fork spawns a new thread on a core of the node to generate a plan Create The 2 Ensemble GeoJSONs District Plan GeoDataFrame District GeoDataFrame Notable District Plans Run MarkovChain The 2 Ensemble GeoJSONs with notable districts Foreach Race gerrychain.MarkovChain Foreach District Generate Box Precincts in & Whisker Ecological District Data Inference Data Partition Ecological Inference Sum Republican Box&Whisker GeoJSON GeoJSON and Democratic Votes Store in database Determine District's Elected Party **District Plan GeoDataFrame Columns:** # ID: The id of the district in the plan # STATE: The state that the district belong to # TOT POP: The district's total population district plan # WHITE POP: The district's white population GeoDataFrame # BLACK_POP: The district's black population # HISP_POP: The district's hispanic population # ASIAN_POP: The district's asian population # 2020_DEMOCRATIC: The district's number of democratic votes for the 2020 presidential election (aggregated from precincts that make up the partiton) District Plan GeoDataFrame # 2020 REPUBLICAN: The district's number of republican votes for the 2020 presidential election (aggregated from precincts that make up the partition) # 2020_WINNER: The district's elected party in the 2020 presidential election # GEOMETRY: The district's geometry End of thread

Convert

Ensemble GeoJSON

Has all plans for the ensemble size

been generated?



Generate Ecological Inference Data Precincts GeoJSON Given race to analyze Foreach Precinct percentage of percentage of percentage of population for Democratic Republican the given race votes votes Array of race populations Array of republican vote percentages Array of democratic vote percentages Republican Democratic TwoByTwoEl TwoByTwoEl Object Object Precentages pyei.TwoByTwoEl Precentages pyei.TwoByTwoEl Fit model Fit model Generate report report DataFrame DataFrame Republican El Democratic EI DataFrame DataFrame **Ecological Inference DataFrame Columns:** # CANDIDATE: The candidate of who's support we are analyzing # RACE: The race we are analyzing # POSTIER_MEAN_RACE: The postier mean for the district-level voiting preference of race for candidate

POSTIER_MEAN_NON_RACE: The postier mean for the district-level

INTERVAL RACE: The 95% equal-tailed Bayesian credible interval for

INTERVAL_NON_RACE: The 95% equal-tailed Bayesian credible interval

voting preference of non_race for candidate

Ecological Inference JSONs

for each candidate

district-level voting preference of race for candidate

for district-level voting preference of non_race for candidate

Identify Notable District Plans

