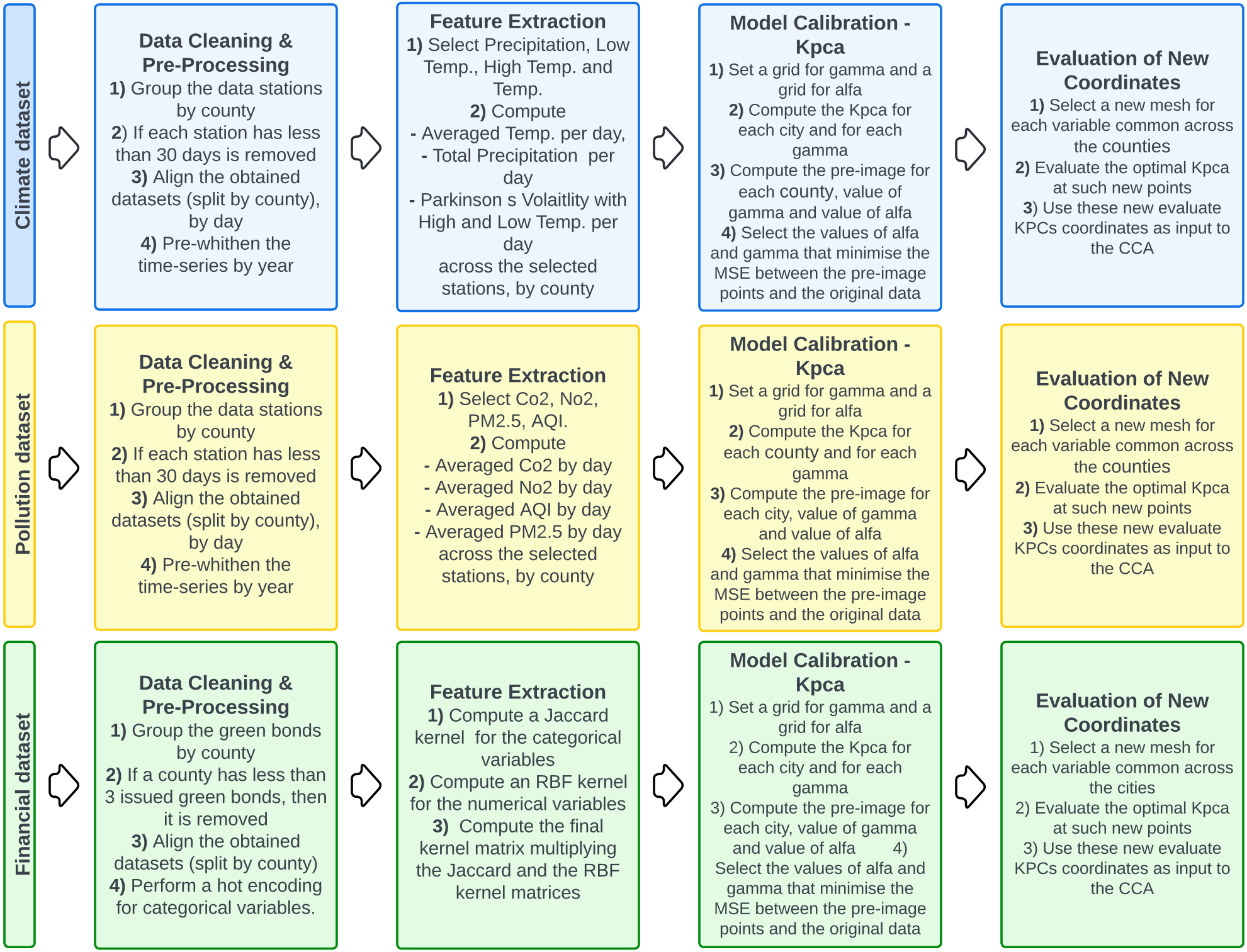
Climate dataset
Data Cleaning & Pre-Processing
1) Group the data stations by county
2) If each station has less than 30 days is removed
3) Align the obtained datasets (split by county), by day
4) Pre-whithen the time-series by year
Feature Extraction
1) Select Precipitation, Low Temp., High Temp. and Temp.
2) Compute
- Averaged Temp. per day,
- Total Precipitation per day
- Parkinson s Volaitlity with High and Low Temp. per day
across the selected stations, by county
Model Calibration - Kpca
1) Set a grid for gamma and a grid for alfa
2) Compute the Kpca for each city and for each gamma
3) Compute the pre-image for each county, value of gamma and value of alfa
4) Select the values of alfa and gamma that minimise the MSE between the pre-image points and the original data
Evaluation of New Coordinates
1) Select a new mesh for each variable common across the counties
2) Evaluate the optimal Kpca at such new points
3) Use these new evaluate KPCs coordinates as input to the CCA
Pollution dataset
Data Cleaning & Pre-Processing
1) Group the data stations by county
2) If each station has less than 30 days is removed
3) Align the obtained datasets (split by county), by day
4) Pre-whithen the time-series by year
Feature Extraction
1) Select Co2, No2, PM2.5, AQI.
2) Compute
- Averaged Co2 by day
- Averaged No2 by day
- Averaged AQI by day
- Averaged PM2.5 by day
across the selected stations, by county
Model Calibration - Kpca
1) Set a grid for gamma and a grid for alfa
2) Compute the Kpca for each county and for each gamma
3) Compute the pre-image for each city, value of gamma and value of alfa
4) Select the values of alfa and gamma that minimise the MSE between the pre-image points and the original data
Evaluation of New Coordinates
1) Select a new mesh for each variable common across the counties
2) Evaluate the optimal Kpca at such new points
3) Use these new evaluate KPCs coordinates as input to the CCA
Financial dataset
Data Cleaning & Pre-Processing
1) Group the green bonds by county
2) If a county has less than 3 issued green bonds, then it is removed
3) Align the obtained datasets (split by county)
4) Perform a hot encoding for categorical variables.
Feature Extraction
1) Compute a Jaccard kernel for the categorical variables
2) Compute an RBF kernel for the numerical variables
3) Compute the final kernel matrix multiplying the Jaccard and the RBF kernel matrices
Model Calibration - Kpca
1) Set a grid for gamma and a grid for alfa
2) Compute the Kpca for each city and for each gamma
3) Compute the pre-image for each city, value of gamma and value of alfa 4) Select the values of alfa and gamma that minimise the MSE between the pre-image points and the original data
Evaluation of New Coordinates
1) Select a new mesh for each variable common across the cities
2) Evaluate the optimal Kpca at such new points
3) Use these new evaluate KPCs coordinates as input to the CCA