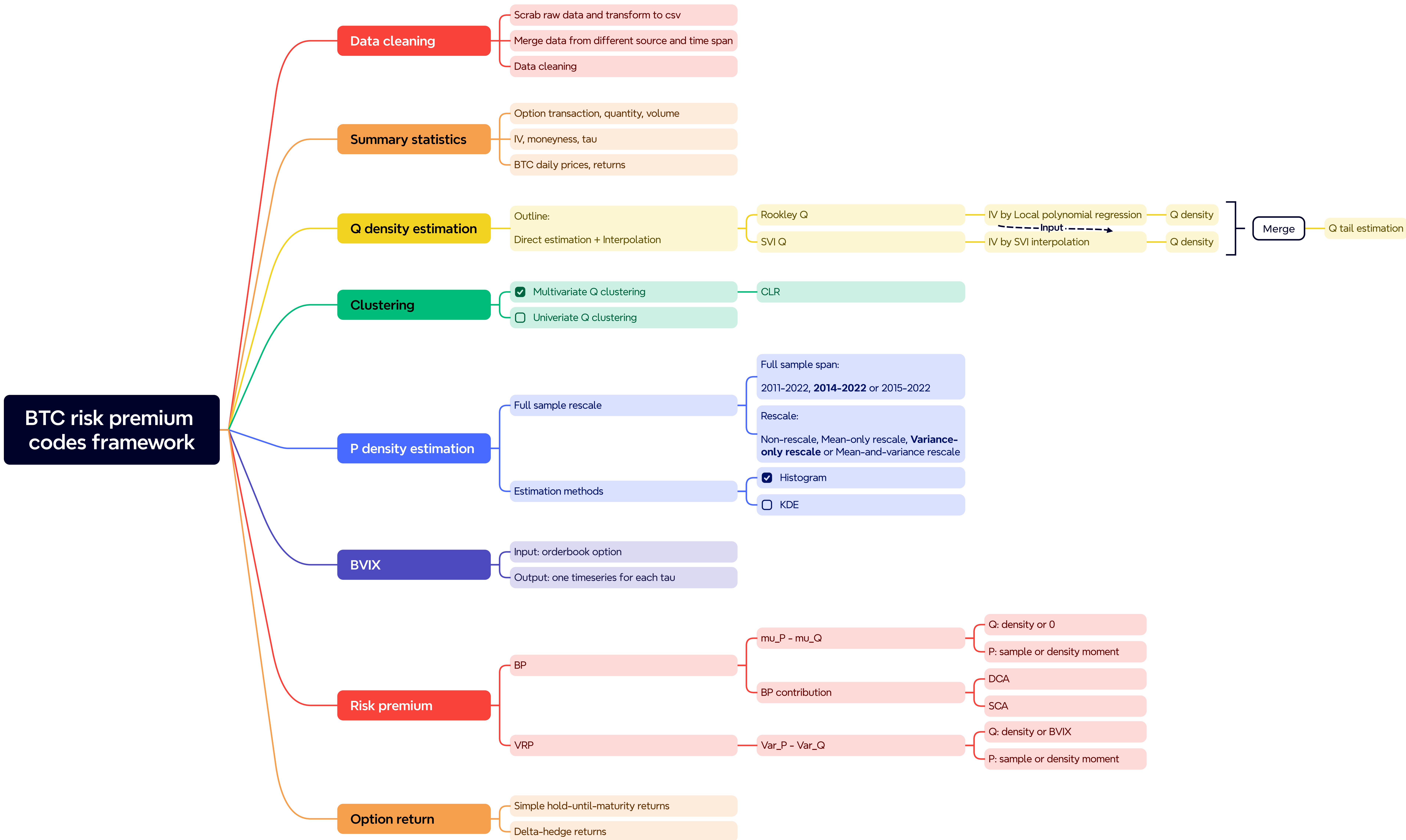
BTC risk premium codes framework
Data cleaning
Scrab raw data and transform to csv
Merge data from different source and time span
Data cleaning
Summary statistics
Option transaction, quantity, volume
IV, moneyness, tau
BTC daily prices, returns
Q density estimation
Outline:
Direct estimation + Interpolation
Rookley Q
SVI Q
IV by Local polynomial regression
Input
IV by SVI interpolation
Q density
Q density
Merge
Q tail estimation
Clustering
Multivariate Q clustering
Univeriate Q clustering
CLR
P density estimation
Full sample rescale
Full sample span:
2011-2022, **2014-2022** or 2015-2022
Rescale:
Non-rescale, Mean-only rescale, **Variance-only rescale** or Mean-and-variance rescale
Estimation methods
Histogram
KDE
BVIX
Input: orderbook option
Output: one timeseries for each tau
Risk premium
BP
mu_P - mu_Q
Q: density or 0
P: sample or density moment
BP contribution
DCA
SCA
VRP
Var_P - Var_Q
Q: density or BVIX
P: sample or density moment
Option return
Simple hold-until-maturity returns
Delta-hedge returns