Here is the list of functions in package FlagAE and brief description of them

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| Function name | Input | Output | Note |
| preprocess | Raw data | Data set containing summary information of AE | We can perform exploratory analysis on the output |
| preprocess2 | Raw data | Dataset can be used for further modeling building |  |
| gci | Output from preprocess2 | Plot the top AE with incidence difference between treatment and control group |  |
| gci2 | Raw data | Same as gci |  |
| gci3 | Output from preprocee2 | Return the PT of AEs with the highest ptnum (a parameter for the function) incidence rate difference between treatment and control group |  |
| Hier\_history | Output from preprocess2 and other MCMC parameters | Result from 3-stage Hierarchical model | The output is the direct result from each iteration of MCMC |
| param.summary | Output from Hier0 | Summary for each column |  |
| Hier | Output from preprocess2 and other MCMC parameters | Summary result from Hierarchical model for each AE together with the raw data |  |
| Ising\_history | Output from preprocess2 and other Bayesian analysis parameters | Result from Bayesian model with Ising prior | The output is the direct result from Ising model |
| sum.Ising | Output from Ising0 | Summary statistics for each AE |  |
| Ising | Output from preprocess2 and other Bayesian analysis parameters | Summary result from Bayesian model with Ising prior for each AE together with the raw data |  |
| PLOT | Output from Ising, from Hier, output from raw data | Plot the AEs selected by both Bayesian methods according to one criteria (either “risk difference” or “odds ratio”) also highlighted the AEs that were also selected by fisher exact test |  |
| Hiergetpi | Output from preprocess2 and output from Hier\_history | Output a list with two elements, one element is the incidence rate for each AE in treatment group and the other is the incidence rate for each AE in control group |  |
| Isinggetpi | Output from preprocess2 and output from Ising\_history | Output a list with two elements, one element is the incidence rate for each AE in treatment group and the other is the incidence rate for each AE in control group |  |
| Lossfun | Output from preprocess2 and output from Hiergetpi or Isinggetpi | Return a number which is the loss calculated |  |
| kfdpar | Raw data and fold k | first call function preprocess to process the data and produce a temporary dataset and also call function preprocess2 to process the data to get the whole AE dataset, then this temporary dataset will be randomly divided into k equal parts, this function will generate a list with k elements with each element is a also a list, a list contains two elements, named traindf and testdf, traindf is used to train the model and testdf is usesd to calcualte the loss, this result is going to be used for further crossvalidation to calculate loss |  |
| CVhier | Output from kfdpar and also parameters for MCMC in hierarchical model | It will calculate the train loss and test loss for each partition of the dataset and return the sum as the final train and test loss |  |
| CVising | Output from kfdpar and also parameters for MCMC in Ising prior model | It will calculate the train loss and test loss for each partition of the dataset and return the sum as the final train and test loss |  |