**All code is implemented by python 3.11, the description of the code is as follow**

1. **Necessary package**

pytorch 2.2.0

scikit-learn 1.4.1.post1

liac-arff 2.5.0

scipy 1.22.0

1. **Files**

MCENB.py is the is the code for the algorithm proposed in the paper.

WeightedGaussNB.py is the code for the attribute weighted NB used in the paper.

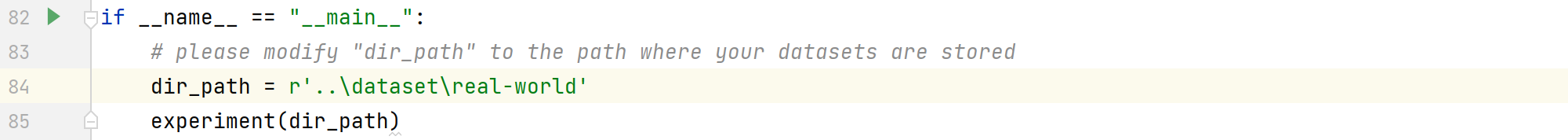
LBFGS.py is the code providing the weighting function for gradient descent search.

experiment.py is the code used to run the hold-out validations on datasets.

utils.py is the code providing some functions used to read and preprocess datasets.

1. **Implement the experiments on the real-world and the synthetic datasets**

Modify the variable “dir\_path” in line 84 of the file “experiment.py” to the path where the real-world or the synthetic datasets are stored.



1. **Implement the ablation experiments**

When invoking the function MCENB.run() in line 36 of the file “experiment.py”, modify the parameter “abla\_var” in it to “1”, “2”, “3”, and “4”, and the four parameter values sequentially correspond to MCENB\_noA, MCENB\_noW, MCENB\_noL1 and MCENB\_noL2. While the parameter value “0” corresponds to the complete MCENB. The rest of the steps are the same as experiments on the real-world datasets the second point.

