Result:

- Problem 11, 12:

Output:

```
========  gamma: 32  lambda: 0.001  ========
Ein:  0.0
Eout: 0.44
========  gamma: 32  lambda: 1  ========
Ein:  0.0
Eout: 0.44
========  gamma: 32  lambda: 1000  ========
Ein:  0.0
Eout: 0.44
========  gamma: 2  lambda: 0.001  ========
Ein:  0.0
Eout: 0.44
========  gamma: 2  lambda: 1  ========
Ein:  0.0
Eout: 0.44
========  gamma: 2  lambda: 1000  ========
Ein:  0.0
Eout: 0.44
========  gamma: 0.125  lambda: 0.001  ========
Ein:  0.0
Eout: 0.46
========  gamma: 0.125  lambda: 1  ========
Ein:  0.03
Eout: 0.45
========  gamma: 0.125  lambda: 1000  ========
Ein:  0.2425
Eout: 0.39

Minimum Ein is 0.0 when
        gamma: 32  lambda: 0.001
        gamma: 32  lambda: 1
        gamma: 32  lambda: 1000
        gamma: 2  lambda: 0.001
        gamma: 2  lambda: 1
        gamma: 2  lambda: 1000
        gamma: 0.125  lambda: 0.001
Minimum Eout is 0.30 when
        gamma: 0.125  lambda: 1000
```

- Problem 13, 14:

Output:

```
========  lambda: 0.01  ========
Ein:  0.3175
Eout: 0.36
========  lambda: 0.1  ========
Ein:  0.3175
Eout: 0.36
========  lambda: 1  ========
Ein:  0.3175
Eout: 0.36
========  lambda: 10  ========
Ein:  0.32
Eout: 0.37
```

======== lambda: 100 ========
Ein: 0.3125
Eout: 0.39

Minimum Ein is 0.3125 when lambda: 100
Minimum Ein is 0.36 when lambda: 0.01, 0.1, 1.

- Problem 15, 16:

======== lambda: 0.01 ========
Ein: 0.32
Eout: 0.36
======== lambda: 0.1 ========
Ein: 0.3175
Eout: 0.36
======== lambda: 1 ========
Ein: 0.32
Eout: 0.36
======== lambda: 10 ========
Ein: 0.3175
Eout: 0.37
======== lambda: 100 ========
Ein: 0.3125
Eout: 0.39

Minimum Ein is 0.3125 when lambda: 100
Minimum Eout is 0.36 when lambda: 0.01, 0.1, 1.

The result of 15 and 16 is very similar with 13 and 14. I expected that boostrapping would make the performance much better. However, the result didn't match what I expected. This may caused by some reasons:

1. Number of iterations is not big enough.
2. The hypothesis sets are not so different.
3. The data set can't be separated by linear or nonlinear algorithm.
4. The voting could be implemented by non-uniform.