Untitled

March 27, 2019

```
In [1]: from main import *
        from PlotBuilder import *
```

- 'yielding_pas' mean how many **rows** you learn between each testing process.
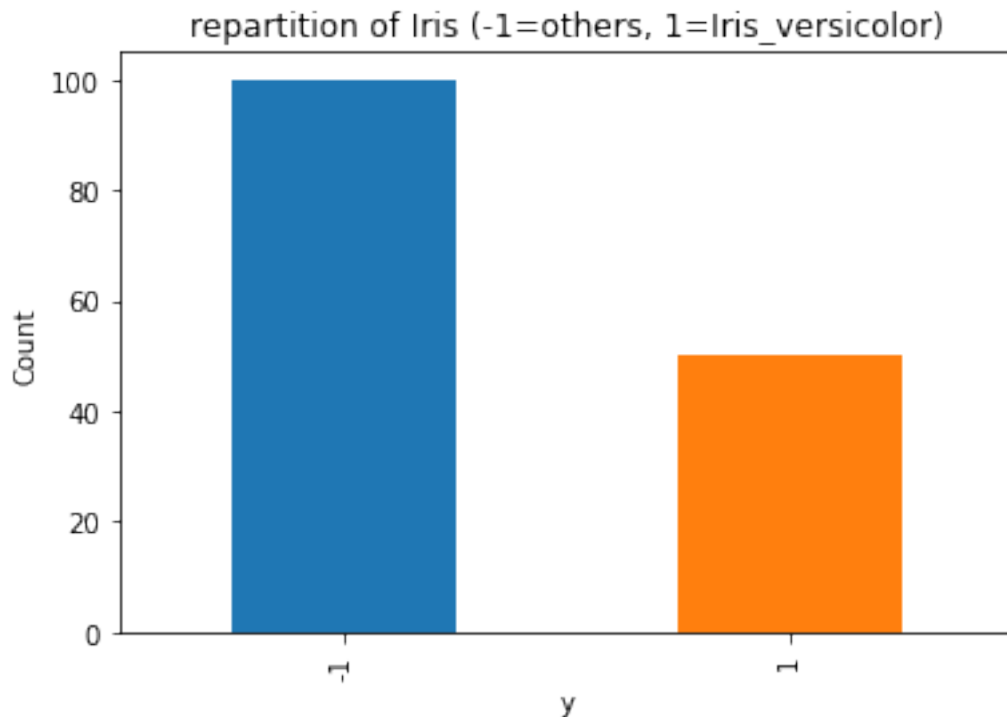
the data is readed in cycle.
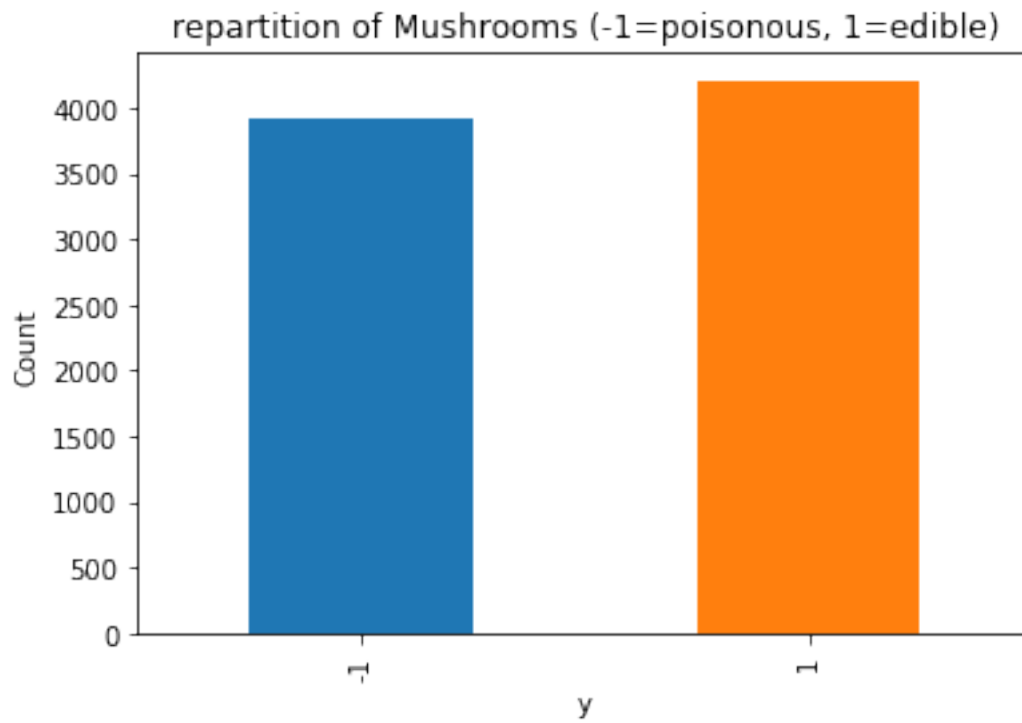during all testing process we add an other point on the plot graph.

```
In [2]: MAX_PLOT_X_PERCEPTRON = 100
        MAX_PLOT_X = 4500

        iris_X, iris_y = Data.load_iris_data()
        mushroom_X, mushroom_y = Data.load_mushroom_data()
        spambase_X, spambase_y = Data.load_spambase_data()
```
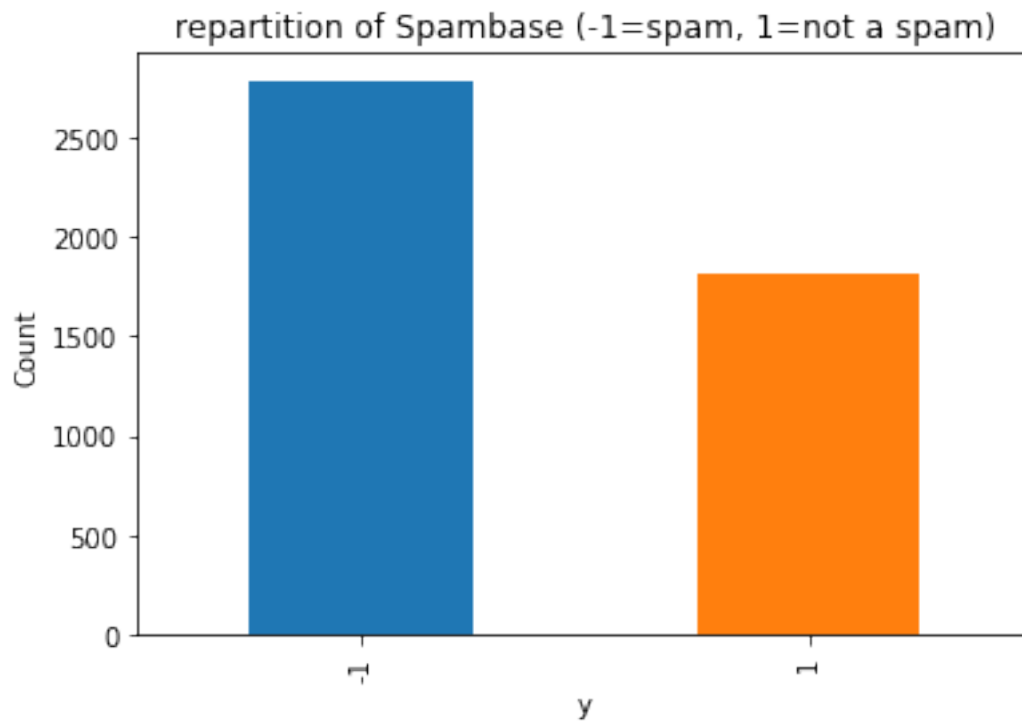
```
In [3]: Plot_builder.y_repartition(iris_y, title="repartition of Iris (-1=others, 1=Iris_versi
```

In [4]: Plot_builder.y_repartition(mushroom_y, title="repartition of Mushrooms (-1=poisonous, 1

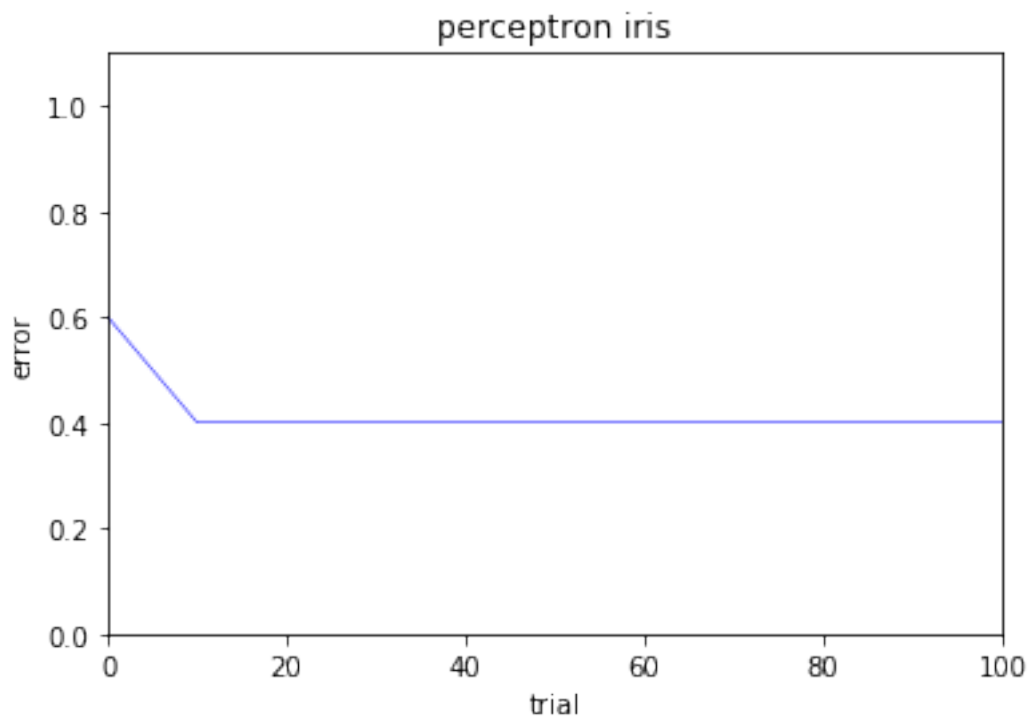In [5]: Plot_builder.y_repartition(spambase_y, title="repartition of Spambase (-1=spam, 1=not a

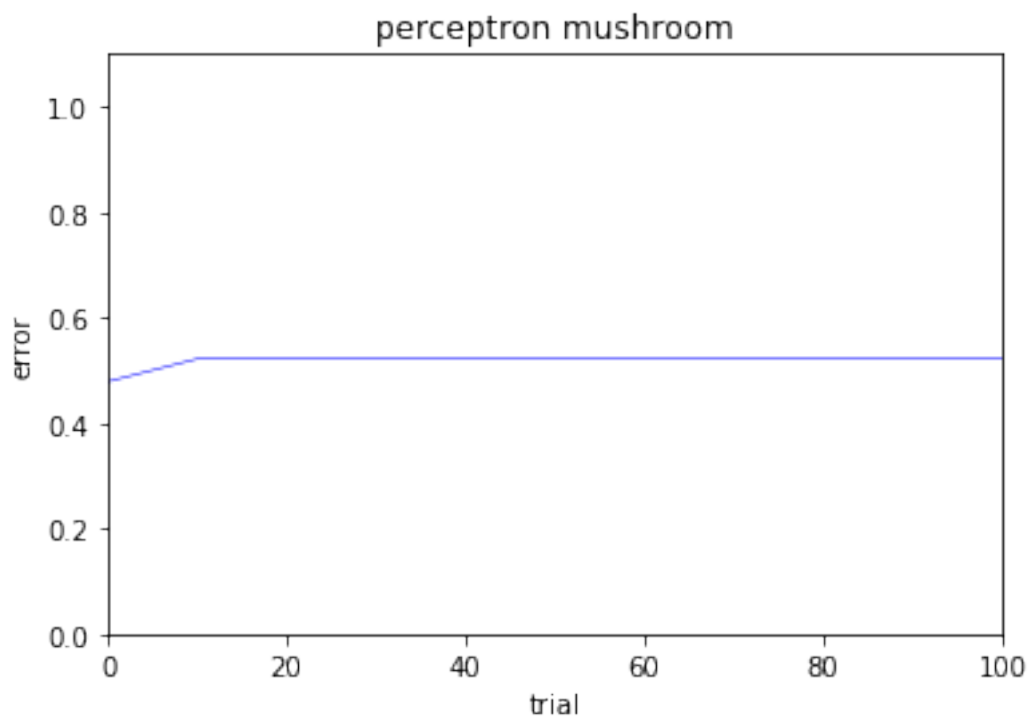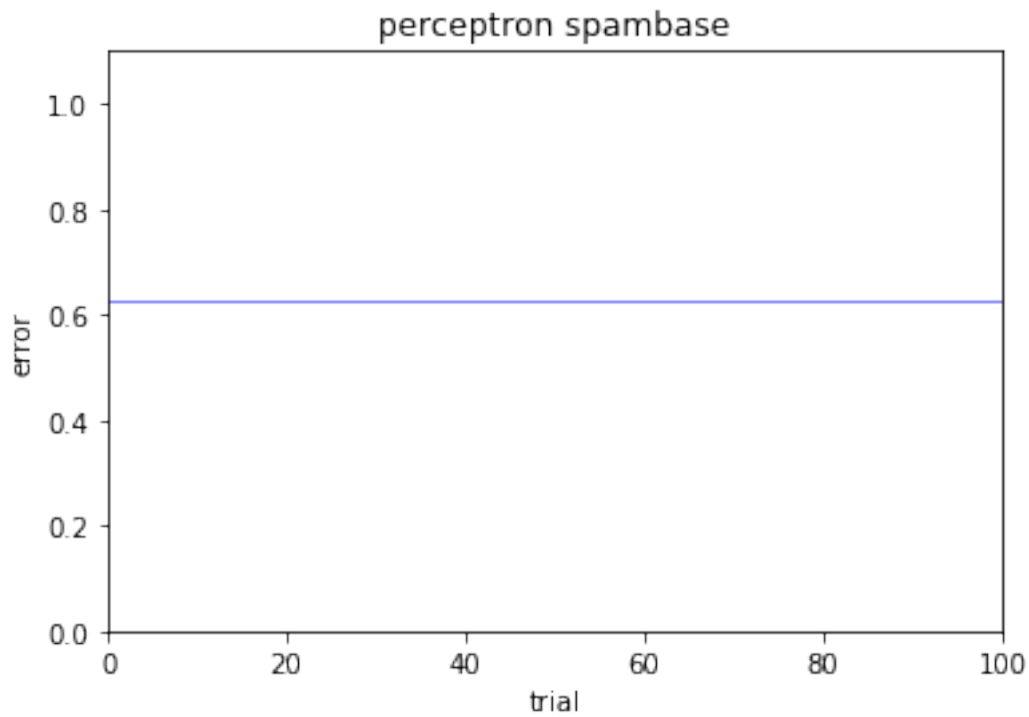repartition of Spambase (-1=spam, 1=not a spam)

1 Perceptron

```
In [6]: perceptron = Algo(iris_X, iris_y, algo=Perceptron, yielding_pas=10)
        perceptron.do_all(nb_iterations=MAX_PLOT_X_PERCEPTRON,name="perceptron iris", max_x=MA
```

perceptron iris

In [7]: perceptron = Algo(mushroom_X, mushroom_y, algo=Perceptron, yielding_pas=10)
        perceptron.do_all(nb_iterations=MAX_PLOT_X_PERCEPTRON,name="perceptron mushroom", max_
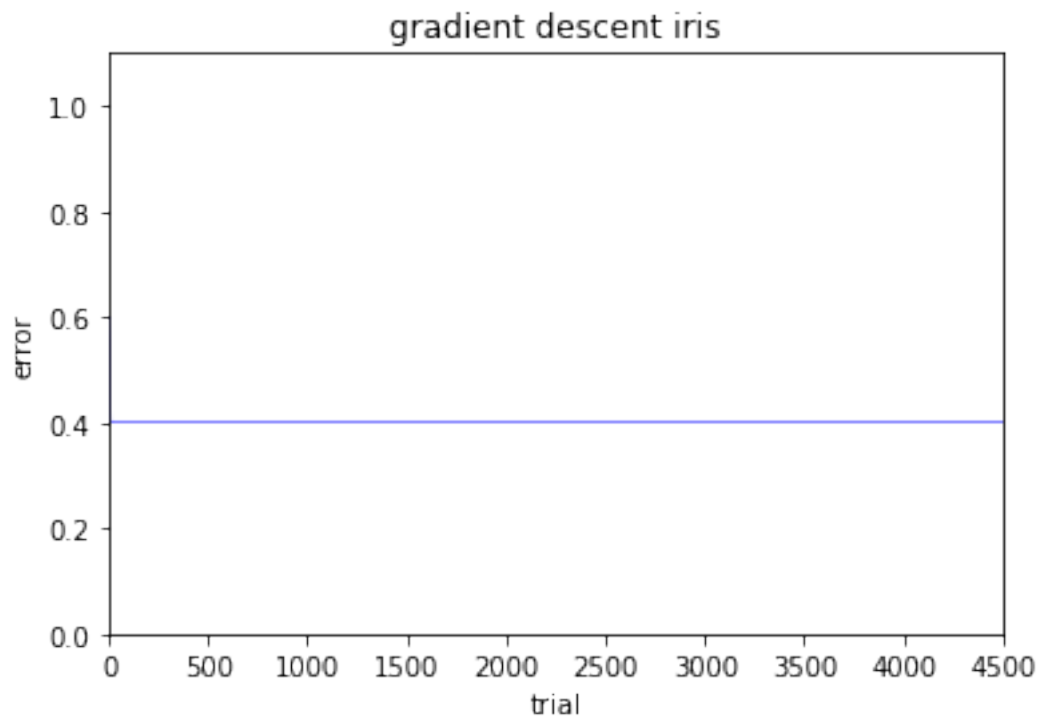

perceptron mushroom

```
In [8]: perceptron = Algo(spambase_X, spambase_y, algo=Perceptron, yielding_pas=10)
        perceptron.do_all(nb_iterations=MAX_PLOT_X_PERCEPTRON,name="perceptron spambase", max_
```


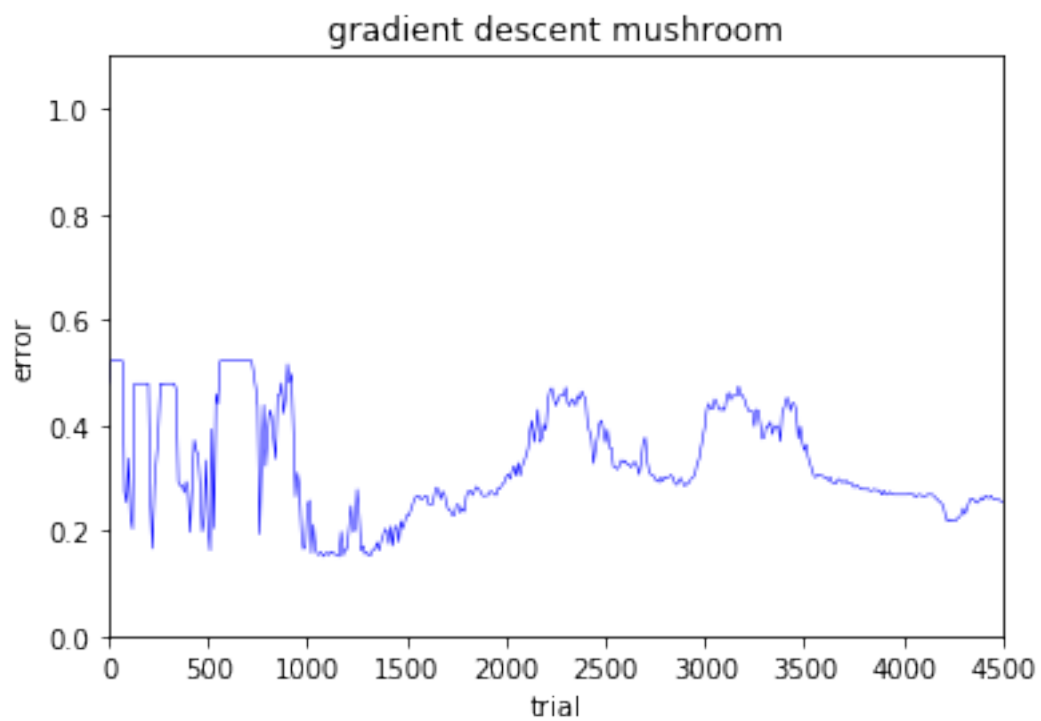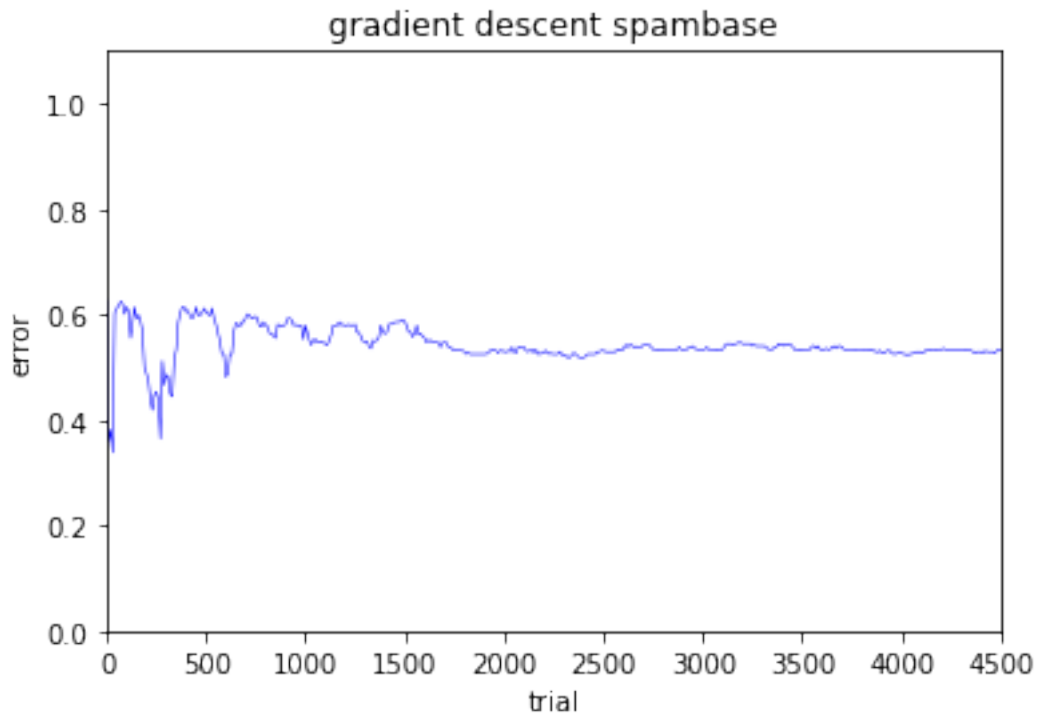## 2   Descent gradient

```
In [9]: gradient_descent = Algo(iris_X, iris_y, algo=GradientDescent, yielding_pas=10, gradien
        gradient_descent.do_all(nb_iterations=MAX_PLOT_X,name="gradient descent iris", max_x=MA
```

gradient descent iris

In [10]: gradient_descent = Algo(mushroom_X, mushroom_y, algo=GradientDescent, yielding_pas=10
         gradient_descent.do_all(nb_iterations=MAX_PLOT_X,name="gradient descent mushroom", ma
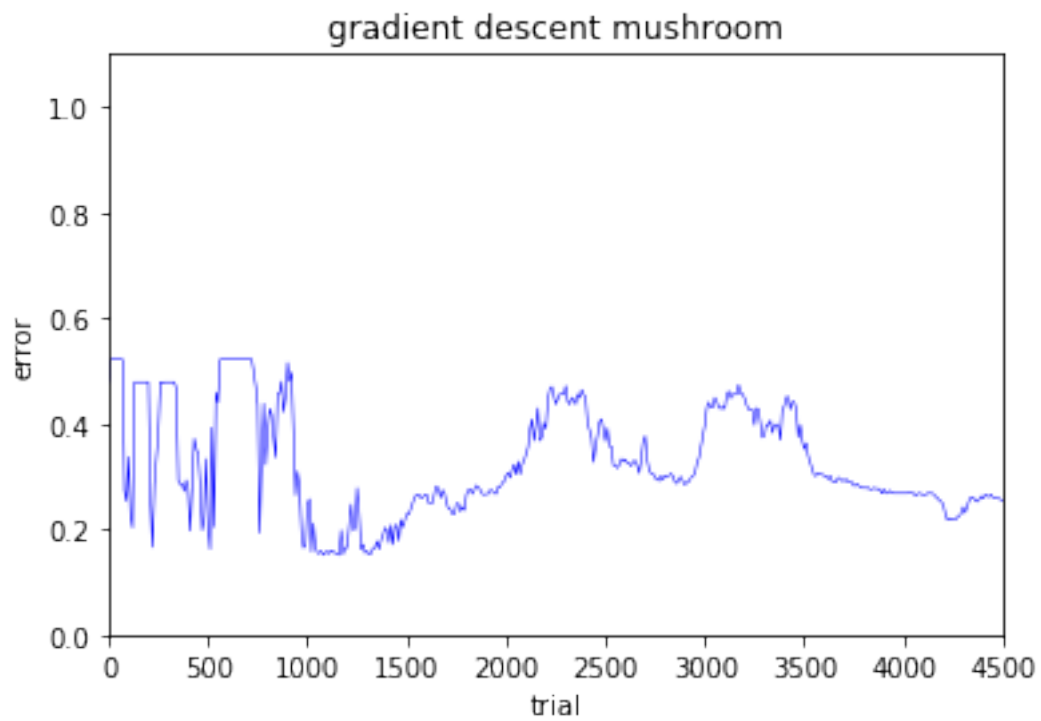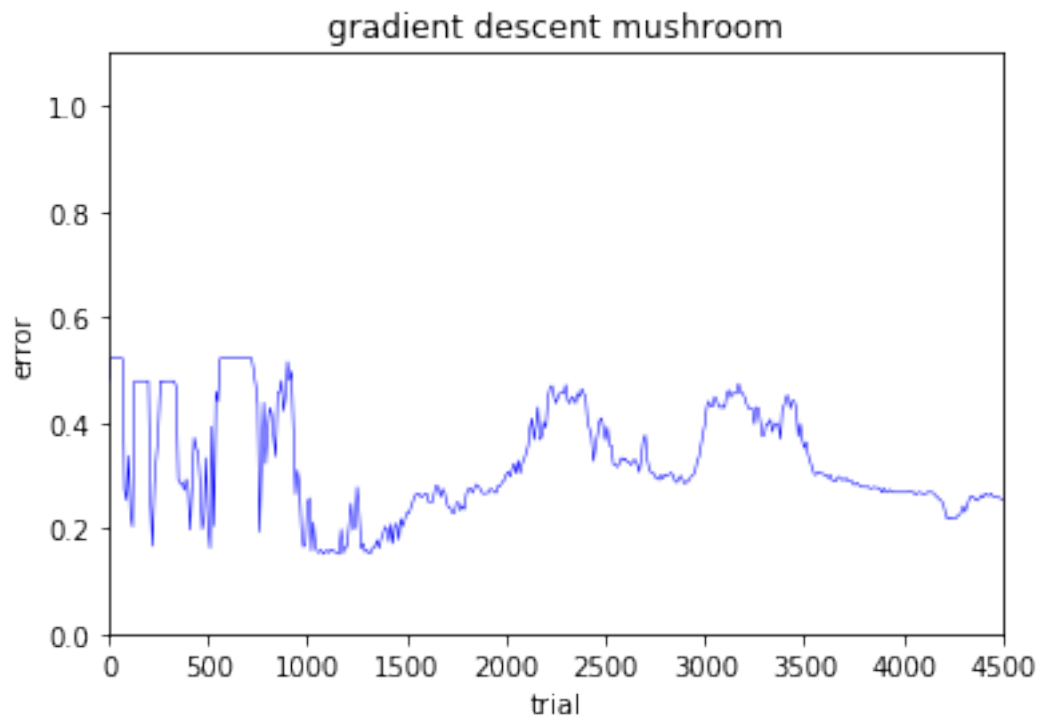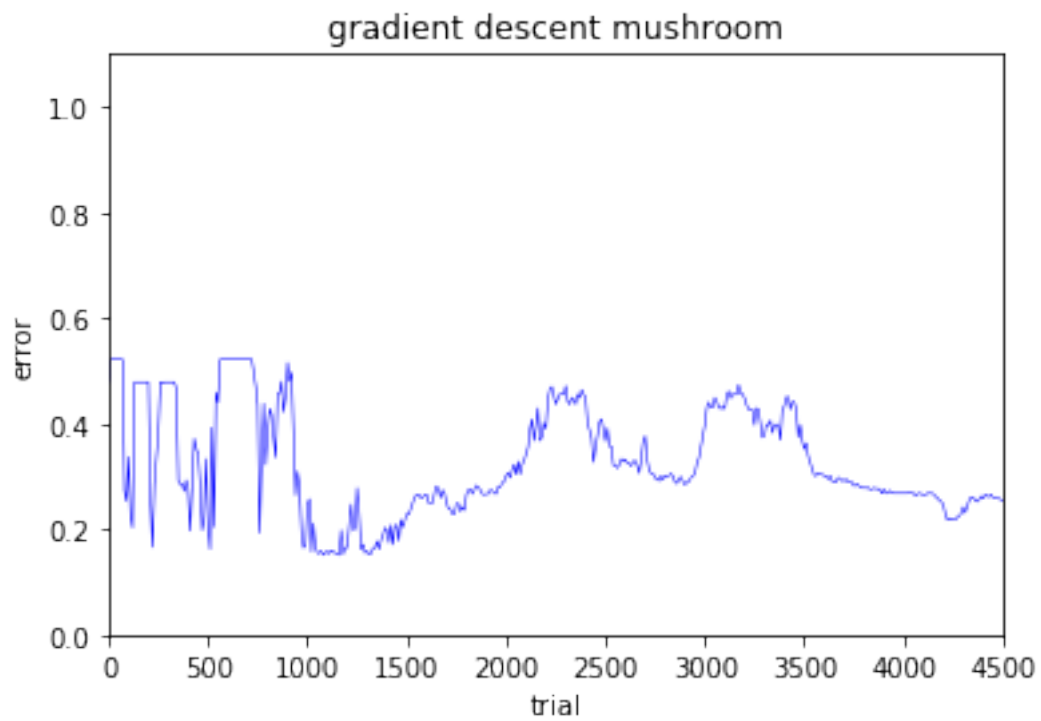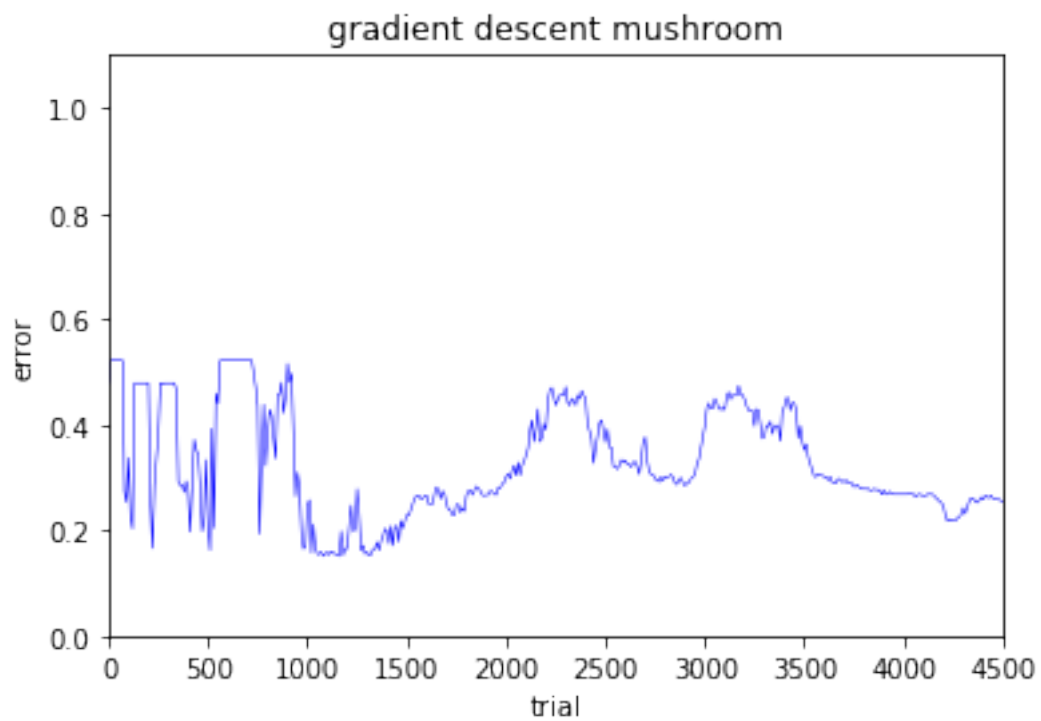
gradient descent mushroom

```
In [11]: gradient_descent = Algo(spambase_X, spambase_y, algo=GradientDescent, yielding_pas=10
         gradient_descent.do_all(nb_iterations=MAX_PLOT_X,name="gradient descent spambase", ma
```


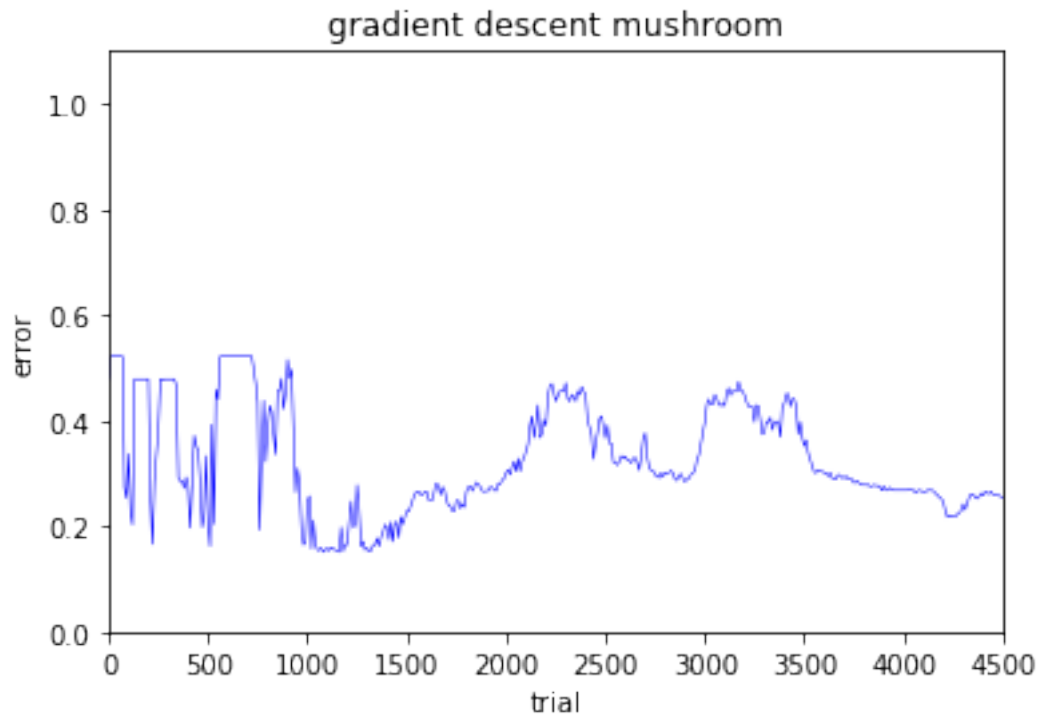gradient descent spambase

3 searching for best ETA

```
In [15]: for eta in range(100,1000,200):
             gradient_descent = Algo(mushroom_X, mushroom_y, algo=GradientDescent, yielding_pa
             gradient_descent.do_all(nb_iterations=MAX_PLOT_X,name="gradient descent mushroom"
```
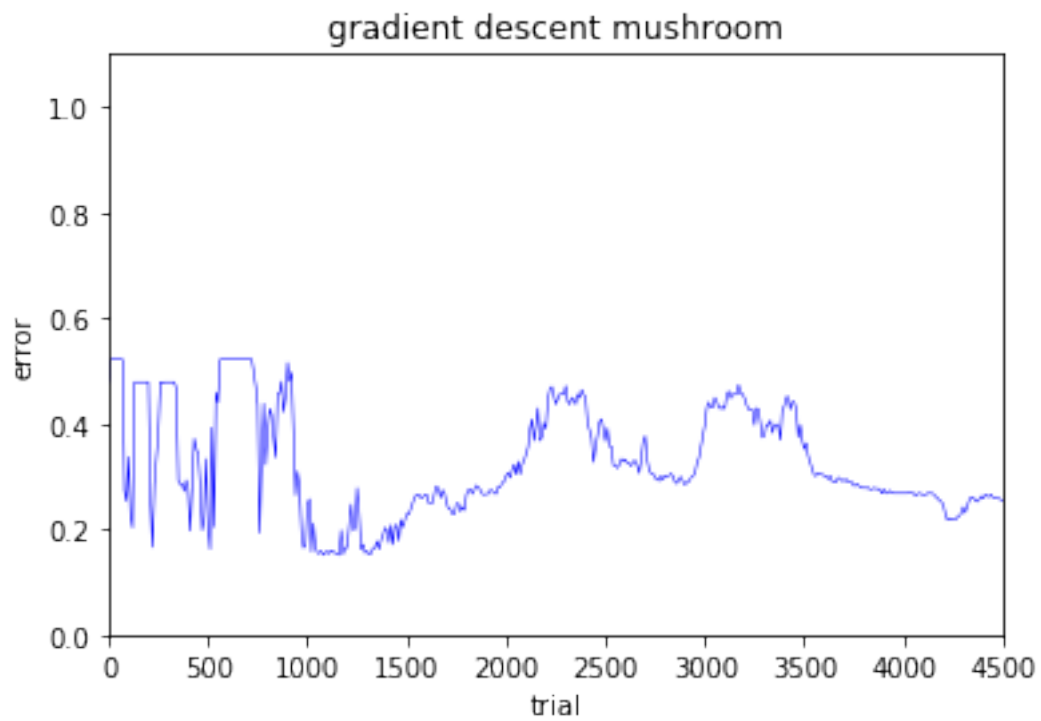
gradient descent mushroom

gradient descent mushroom

gradient descent mushroom

gradient descent mushroom

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gradient descent mushroom

3.1 notting change

```
In [18]: for eta in [-1000,-500,-100]:
             gradient_descent = Algo(mushroom_X, mushroom_y, algo=GradientDescent, yielding_pas
             gradient_descent.do_all(nb_iterations=MAX_PLOT_X,name="gradient descent mushroom"
```
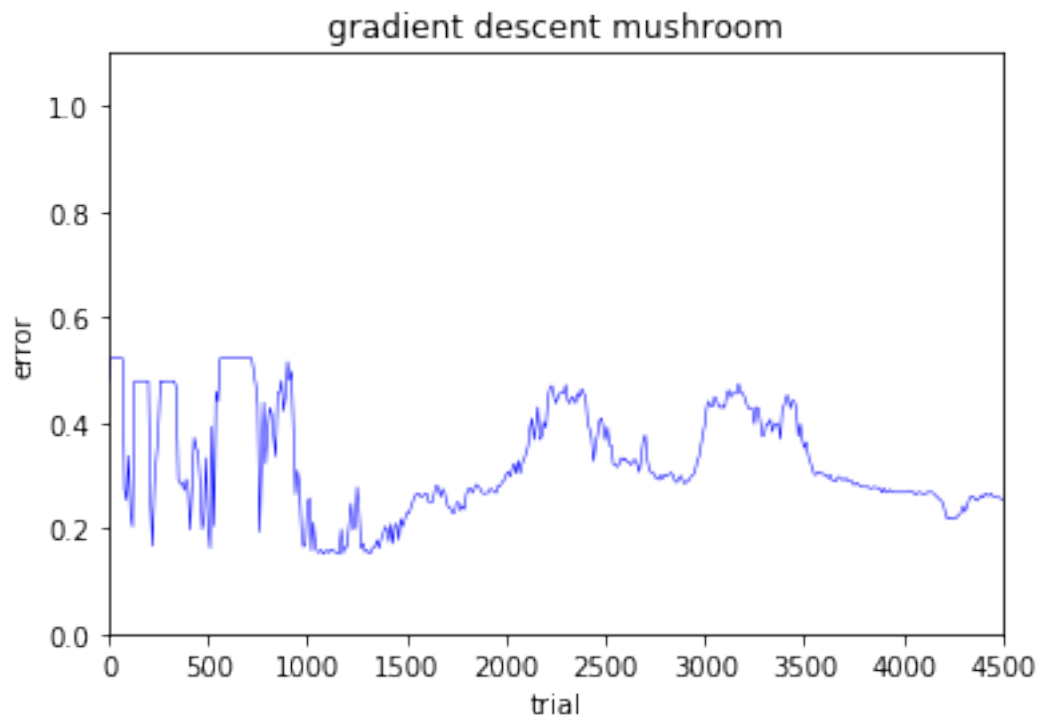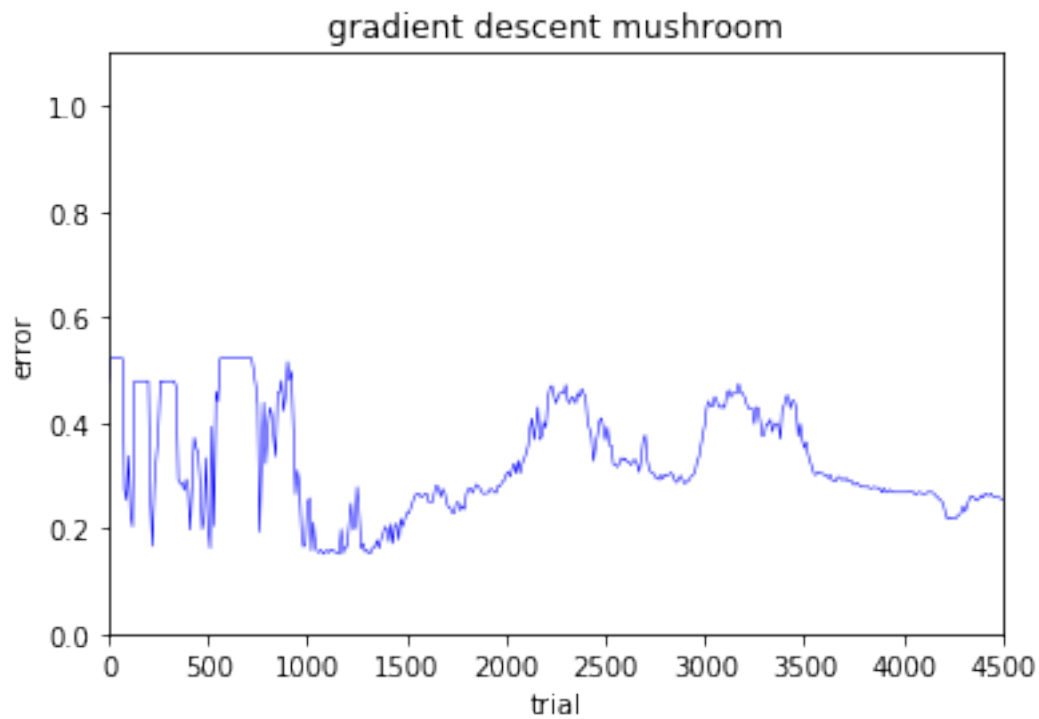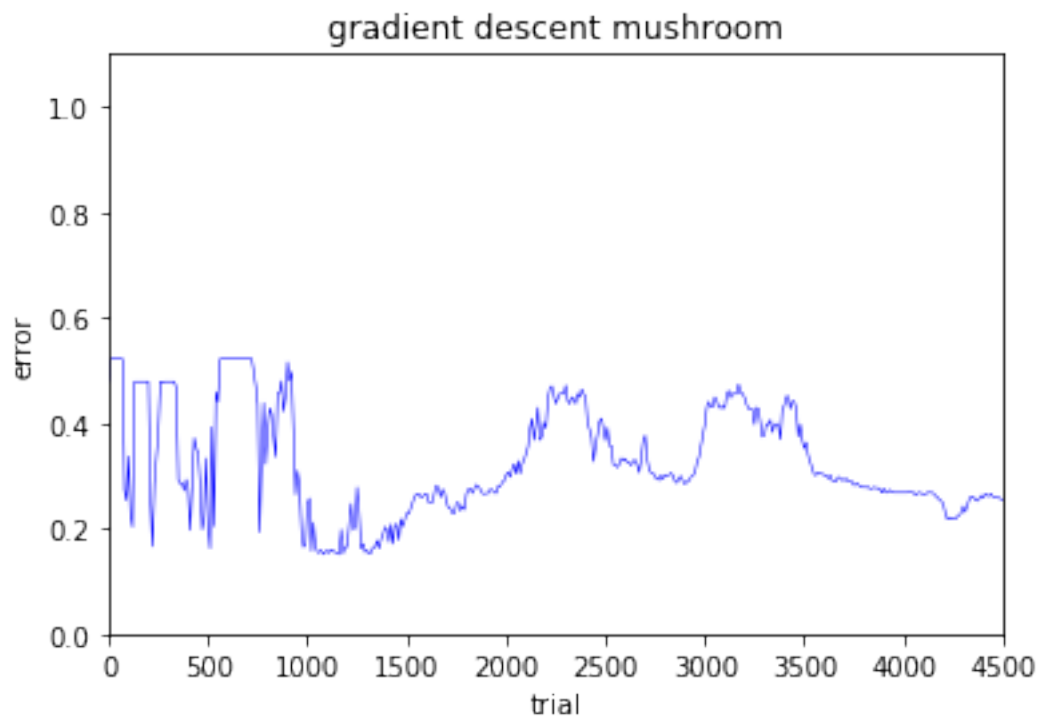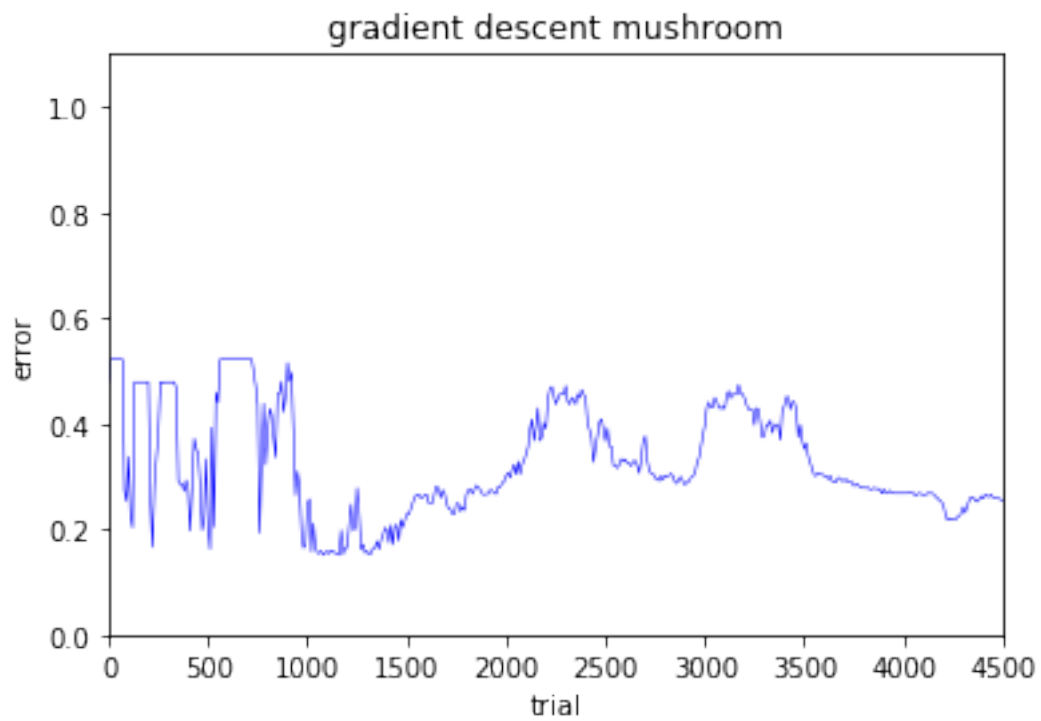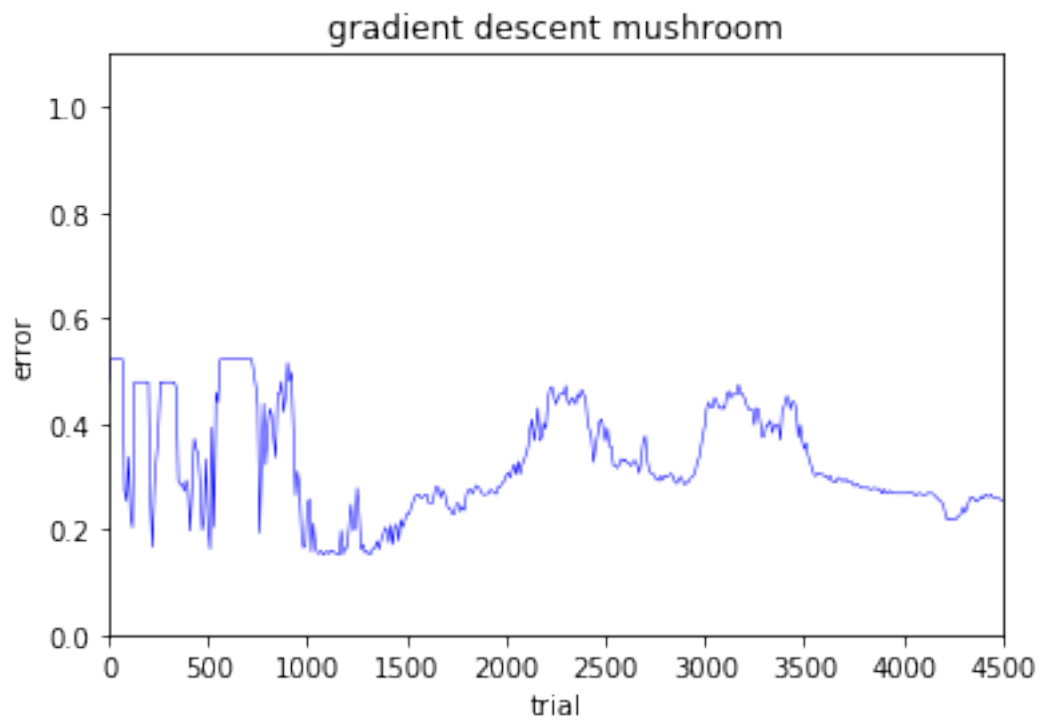
gradient descent mushroom

gradient descent mushroom

gradient descent mushroom
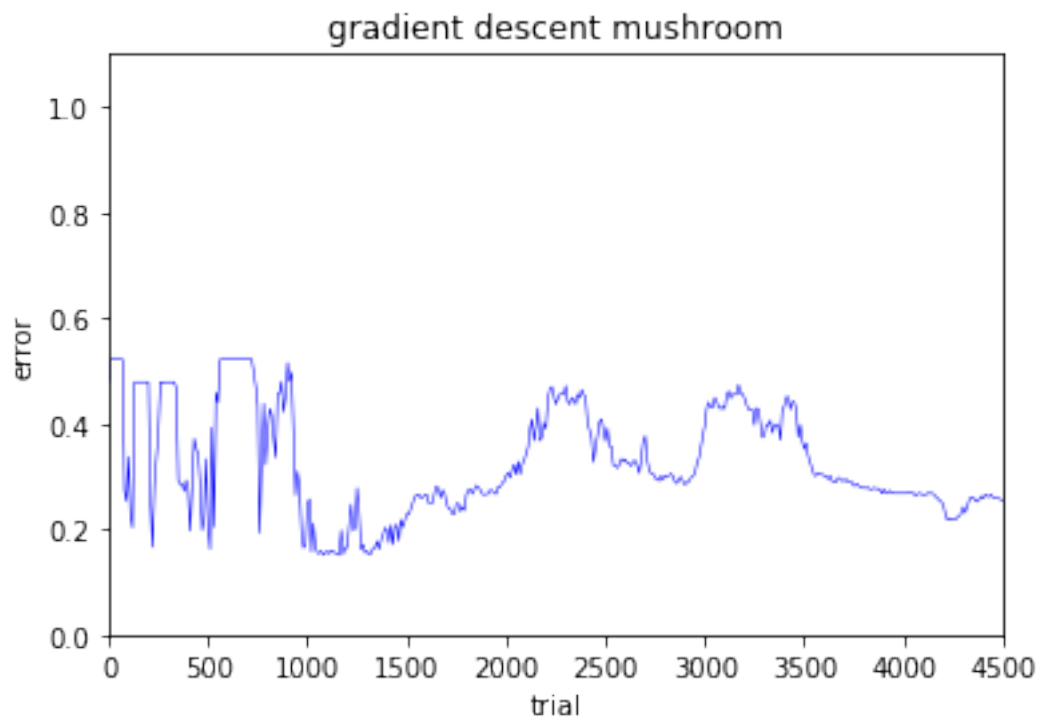


```
In [19]: for eta in [0.2, 0.8, -0.3, -0.7]:
             gradient_descent = Algo(mushroom_X, mushroom_y, algo=GradientDescent, yielding_pas
             gradient_descent.do_all(nb_iterations=MAX_PLOT_X,name="gradient descent mushroom"
```

gradient descent mushroom

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gradient descent mushroom

gradient descent mushroom

gradient descent mushroom

Still the same.