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Machine Learning homework 4

First of all I classified the countries as ‘EUROPE’ and ‘NOT EUROPE’:

```
def transform_data(y):
    res = []
    for i in y:
        res.append('EUROPE' if i == 'EUROPE' else 'NOT EUROPE')
    return res
```

This was done to define result as True or False

Then we iterate ESTIMATORS_NUM times

```
def iterate(prev_alphas, iter_num):
    # Stop condition for recursion
    if iter_num >= ESTIMATORS_NUM -1:
        return prev_alphas
    cur_alphas = []
    # We select the f[t]
    dt = f[iter_num + 1]
    for j in range(len(y)):
        sample = x[iter_num].reshape(1, -1)
        # Add e^(w) or e^(-w) according to result of prediction
        cur_alphas.append(prev_alphas[j] * math.exp(-w[iter_num] if dt.predict(sample) == y[j] else
w[iter_num]))
    return iterate(cur_alphas, iter_num + 1)
```

After all we normalise alphas:

```
alphas = iterate([1 / len(y) for i in range(len(y))], 0)
```

Then I select outliers indexes and drop them from our dataset:

```
if i not in outliers_indexes:
        new_x.append(x[i])
        new_y.append(y[i])
```

Then we retrain model and print the new score

```
→ hw4 python3 hw.py
0.9955947136563876
1.0
```

The score improved