

▼ model building

```
✓ [16] from sklearn.linear_model import LogisticRegression  
0s      model=LogisticRegression()  
      model.fit(x_train,y_train)
```

```
/usr/local/lib/python3.7/dist-packages/sklearn/utils/validation.py:993: DataConversionWarning: A column-vector y was passed when a 1d array was expected. Please c  
y = column_or_1d(y, warn=True)  
/usr/local/lib/python3.7/dist-packages/sklearn/linear_model/_logistic.py:818: ConvergenceWarning: lbfgs failed to converge (status=1):  
STOP: TOTAL NO. of ITERATIONS REACHED LIMIT.
```

Increase the number of iterations (max_iter) or scale the data as shown in:

<https://scikit-learn.org/stable/modules/preprocessing.html>

Please also refer to the documentation for alternative solver options:

https://scikit-learn.org/stable/modules/linear_model.html#logistic-regression

```
extra_warning_msg=_LOGISTIC_SOLVER_CONVERGENCE_MSG,  
LogisticRegression()
```

```
[19] from sklearn.metrics import accuracy_score  
     y_predlog=model.predict(x_train)  
     accuracy_score(y_predlog,y_train)
```

0.9999515292520964



```
▶ import joblib  
   joblib.dump(model, "engine_model.sav")
```

['engine_model.sav']
