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0.1 ML Lab Assignment - 9 (Logistic Regression)

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[1]:
```
from sklearn.datasets import load_breast_cancer
from sklearn.model_selection import train_test_split
from sklearn.linear_model import LogisticRegression
from sklearn.metrics import accuracy_score
```

[2]:
```
data = load_breast_cancer()
```

[3]:
```
X = data.data
y = data.target

X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2,␣
↪random_state=42)
```

[12]:
```
y[0]
```

[12]: 0

[4]:
```
model = LogisticRegression()
model.fit(X_train, y_train)
```

```
c:\Users\chakr\AppData\Local\Programs\Python\Python310\lib\site-
packages\sklearn\linear_model\_logistic.py:458: 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
  n_iter_i = _check_optimize_result(
```

[4]: LogisticRegression()

[5]:
```
y_pred = model.predict(X_test)
```

[6]:
```
accuracy = accuracy_score(y_test, y_pred)
print("Accuracy: {:.2f}".format(accuracy))
```

```
Accuracy: 0.96
```

[14]:
```
new_instance = [[1.799e+01, 1.038e+01, 1.228e+02, 1.001e+03, 1.184e-01, 2.
 ↪776e-01,
       3.001e-01, 1.471e-01, 2.419e-01, 7.871e-02, 1.095e+00, 9.053e-01,
       8.589e+00, 1.534e+02, 6.399e-03, 4.904e-02, 5.373e-02, 1.587e-02,
       3.003e-02, 6.193e-03, 2.538e+01, 1.733e+01, 1.846e+02, 2.019e+03,
       1.622e-01, 6.656e-01, 7.119e-01, 2.654e-01, 4.601e-01, 1.189e-01]]  # i␣
 ↪have considered the first row as new instance


prediction = model.predict(new_instance)

if prediction == 0:
    result = "No Breast Cancer"
else:
    result = "Breast Cancer"

print("Prediction:", result)
```

```
Prediction: No Breast Cancer
```