

实验 5 基于逻辑回归算法预测考试成绩能否及格实习指导书

一、实验代码

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```
# -*- coding: utf-8 -*-
from sklearn.linear_model import LogisticRegression

# 复习情况.格式为(时长,效率),其中时长单位为小时
# 效率为[0,1]之间的小数,数值越大表示效率越高
X_train = [(0,0), (2,0.9), (3,0.4), (4,0.9), (5,0.4), (6,0.4), (6,0.8), (6,0.7), (7,0.2),
(7.5,0.8), (7,0.9), (8,0.1), (8,0.6), (8,0.8)]
# 0 表示不及格,1 表示及格
y_train = [0, 0, 0, 1, 0, 0, 1, 1, 0, 1, 1, 0, 1, 1]
# 创建并训练逻辑回归模型
reg = LogisticRegression()
reg.fit(X_train, y_train)
# 测试模型
X_test = [(3,0.9), (8,0.5), (7,0.2), (4,0.5), (4,0.7)]
y_test = [0, 1, 0, 0, 1]
score = reg.score(X_test, y_test)
# 预测并输出预测结果
learning = [(8, 0.9)]
result = reg.predict_proba(learning)
msg = ""模型得分:{0}
复习时长为:{1[0]}, 效率为:{1[1]}
您不及格的概率为:{2[0]}
您及格的概率为:{2[1]}
综合判断, 您会: {3}"".format(score, learning[0], result[0], '不及格' if result[0][0]>0.5 else
'及格')
print(msg)
```