KNTU IPM machine learning

Classification exercise

Predicting Exam Pass Based on Study Hours
(you can add more variables)

You will predict whether a student passes an exam based on the number of hours they studied.
This is a one-variable logistic regression task, making it an excellent starting point for understanding how logistic regression fits a sigmoid curve to binary data.

Here's a simple dataset with 10 data points:

```
X_train1 = np.array([[1], [2], [3], [4], [5], [6], [7], [8], [9], [10]])
y_train1 = np.array([0, 0, 0, 0, 0, 1, 1, 1, 1, 1])
```

Explanation:

Students who studied less than 5.5 hours generally failed (y=0).

Students who studied 5.5 hours or more generally passed (y=1).

The data has a clear trend, with the transition from failing to passing occurring around 5–6 hours, making it ideal for fitting a sigmoid curve.

To predict whether a student passes an exam based on study hours, we can consider additional variables beyond just the number of hours studied.
These variables can provide a more comprehensive picture of factors that influence exam performance.
Here are some more variable options that could be included in the prediction model:

Class Attendance
Number of Practice Problems Completed
Sleep Hours Before the Exam

Send your answers to :
Tel: @elysianv13
Email: armingh186@gmail.com