Artificial Intelligence: Week4-Practical

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Linear Regression: C02 Emissions

```
import pandas as pd
from sklearn import linear_model
df = pd.read_csv("data.csv")
x = df[[ 'Weight', 'Volume']]
y = df['CO2']
regr = linear_model.LinearRegression()
regr.fit(x, y)
#predict the C02 emission of a car where the weight is 2300kg, and the
volume is 1300cm³:
predictedC02 = regr.predict([[3000, 1850]])
print(predictedC02)
```

Output:

Where the car weight is 2100kg and the volume is 1100:

```
[105.48787575]
PS C:\Users\vange\Desktop\Python\AI>
```

Where the car weight is 2500kg and the volume is 1400:

```
[111.25223193]
PS C:\Users\vange\Desktop\Python\AI>
```

Where the car weight is 1600kg and the volume is 1000:

```
[100.2907499]
PS C:\Users\vange\Desktop\Python\AI>
```

Where the car weight is 2800kg and the volume is 1700:

```
[116.12322254]
PS C:\Users\vange\Desktop\Python\AI>
```

Where the car weight is 3000kg and the volume is 1850:

```
[119.00540063]
PS C:\Users\vange\Desktop\Python\AI>
```

Logistic Regression: Tumour Detection

LogisticRegression.py > ...

```python
import numpy as np
from sklearn import linear_model

x = np.array([3,78,2.44,2.09,0.14,1.72,1.65,4.92,4.37,4.96,4.52,3.69,5.88]).reshape(-1,1)
y = np.array([0,0,0,0,0,0,1,1,1,1,1,1,1])  # Added one more label

logr = linear_model.LogisticRegression()
logr.fit(x, y)

predicted = logr.predict(np.array([3.46]).reshape(-1,1))
print(predicted)
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS COMMENTS Python

```
PS C:\Users\vange\Desktop\Python\AI> & "C:/Program Files/Python313/python.exe" c:/Users/vange/Desktop/Python/AI/LogisticRegression.py
[1]
PS C:\Users\vange\Desktop\Python\AI>
```