

机器学习 C2-Lab解决问题

安装

pip install tensorflow==2.15.0

pip install keras==2.15.0

C2_W1_Lab02_CoffeeRoasting_TF

```
model.fit 语句运行梯度下降并将权重拟合到数据。
```

```
In [*]: model.compile(
        loss = tf.keras.losses.BinaryCrossentropy(),
        optimizer = tf.keras.optimizers.Adam(learning_rate=0.01),
    )

    model.fit(
        Xt,Yt,
        epochs=10,
    )
```

```
WARNING:absl:At this time, the v2.11+ optimizer `tf.keras.optimizers.Adam` runs slowly on M1/M2 Macs, please use the legacy Keras optimizer instead, located at `tf.keras.optimizers.legacy.Adam`.
```

```
Epoch 1/10
6250/6250 [=====] - 2s 275us/step - loss: 6.1578e-05
Epoch 2/10
2613/6250 [=====>.....] - ETA: 0s - loss: 5.8316e-05
```

M2的Mac更新

```
241: model.compile(
        loss = tf.keras.losses.BinaryCrossentropy(),
        optimizer = tf.keras.optimizers.legacy.Adam(learning_rate=0.01),
    )

    model.fit(
        Xt,Yt,
        epochs=10,
    )
```

```
WARNING:absl:At this time, the v2.11+ optimizer `tf.keras.optimizers.Adam` runs slowly on M1/M2 Macs, please use the legacy Keras optimizer instead, located at `tf.keras.optimizers.legacy.Adam`.
```

C2_W2_Relu

```
In [12]: yhat = model.predict(X.reshape(-1,1))
        fig,ax = plt.subplots(1,1, figsize=(2,2))
        widgvis(fig)
        ax.plot(X,y)
        ax.plot(X,yhat)
        plt.show()
```

```
NameError                                Traceback (most recent call last)
Cell In[12], line 1
----> 1 yhat = model.predict(X.reshape(-1,1))
      2 fig,ax = plt.subplots(1,1, figsize=(2,2))
      3 widgvis(fig)

NameError: name 'model' is not defined
```

```
In [ ]: model = Sequential(
        )
```

换位置：

```
In [13]: model = Sequential(
[
    d10,
    tf.layers.Activation(activations.relu),
    d11,
    tf.layers.Activation(activations.relu),
    Dense(1, activation = 'linear')
]
)
model.compile(
    loss=tf.keras.losses.MeanSquaredError(),
    optimizer=tf.keras.optimizers.Adam(0.1),
)

model.fit(
    X,y,
    epochs=1000
)
```

```
AttributeError                                Traceback (most recent call last)
Cell In[13], line 4
      1 model = Sequential(
      2     [
      3         d10,
----> 4         tf.layers.Activation(activations.relu),
      5         d11,
      6         tf.layers.Activation(activations.relu),
      7         Dense(1, activation = 'linear')
      8     ]
      9 )
     10 model.compile(
     11     loss=tf.keras.losses.MeanSquaredError(),
     12     optimizer=tf.keras.optimizers.Adam(0.1),
     13 )
     14 model.fit(
     15     X,y,
     16     epochs=1000
     17 )
```

```
In [12]: yhat = model.predict(X.reshape(-1,1))
fig,ax = plt.subplots(1,1, figsize=(2,2))
widgevis(fig)
ax.plot(X,y)
ax.plot(X,yhat)
plt.show()
```

```
NameError                                Traceback (most recent call last)
Cell In[12], line 1
----> 1 yhat = model.predict(X.reshape(-1,1))
      2 fig,ax = plt.subplots(1,1, figsize=(2,2))
      3 widgevis(fig)

NameError: name 'model' is not defined
```

解决错误AttributeError: module 'tensorflow' has no attribute 'layers'
更改为:

```
:
model = Sequential(
[
    d10,
    tf.keras.layers.Activation(relu),
    d11,
    tf.keras.layers.Activation(relu),
    Dense(1, activation = 'linear')
]
)
model.compile(
    loss=tf.keras.losses.MeanSquaredError(),
    optimizer=tf.keras.optimizers.Adam(0.1),
)

model.fit(
    X,y,
    epochs=1000
)
```

```
WARNING:absl:At this time, the v2.11+ optimizer `tf.keras.optimizers.Adam` runs slowly on M1/M2 Macs, please use the legacy Keras optimizer instead, located at `tf.keras.optimizers.legacy.Adam`.
```

```
Epoch 1/1000
4/4 [=====] - 0s 2ms/step - loss: 1.3367
Epoch 2/1000
4/4 [=====] - 0s 984us/step - loss: 0.8091
```