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Ai Lab 1st Assignment

Problem In My Words:

We're developing a machine learning model for a leading e-commerce company to determine the lowest prices for products sold by local artisans during an upcoming sale. With millions of paid subscribers, the company wants to support the artisans without negatively impacting their livelihoods through excessive discounts. Our model will analyze product characteristics and market dynamics to predict the optimal minimum price for each item. This ensures a balance between offering discounts to subscribers while fairly compensating the local artists.

By leveraging machine learning, our model predicts the lowest price point, benefiting both the e-commerce company and the artisans. Factors like product uniqueness, consumer demand, and market trends are considered in the analysis. This approach allows the company to promote and support local artisans while avoiding undervaluing their work with overly discounted prices. Ultimately, the predictive model empowers the e-commerce company to make informed pricing decisions that benefit their subscribers and create a sustainable environment for the thriving of local artists.

Explain how linear regression can help solve this problem:

Linear regression can be used to solve the problem of determining the lowest prices for products sold by local artisans during the e-commerce company's sale. By analyzing the relationship between factors such as product features, market demand, and pricing information, linear regression can establish a mathematical equation that predicts the lowest price based on these inputs. This enables the e-commerce company to make informed pricing decisions that support the artisans while offering discounts to subscribers, ensuring a fair and sustainable environment for both parties.

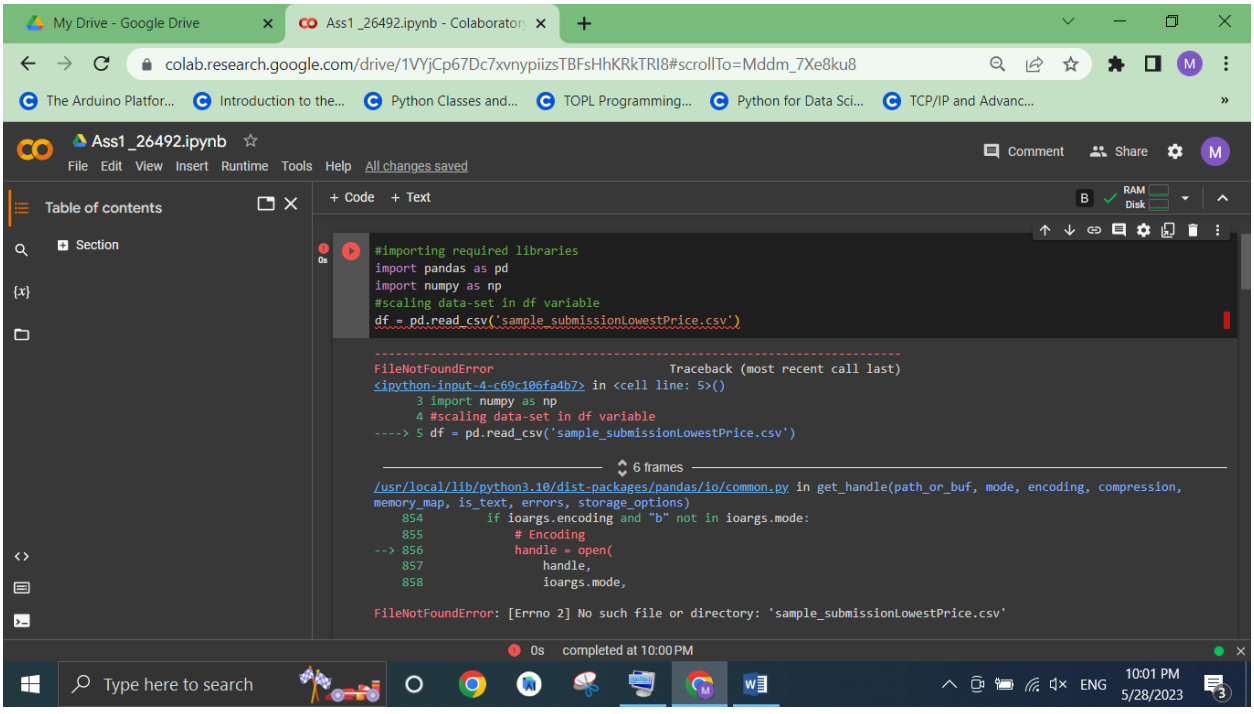
1st Error:

```
[15] df = pd.get_dummies()

---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
<ipython-input-15-dc6b803d3b3e> in <cell line: 1>()
----> 1 df = pd.get_dummies()

TypeError: get_dummies() missing 1 required positional argument: 'data'

SEARCH STACK OVERFLOW
```

Solution:

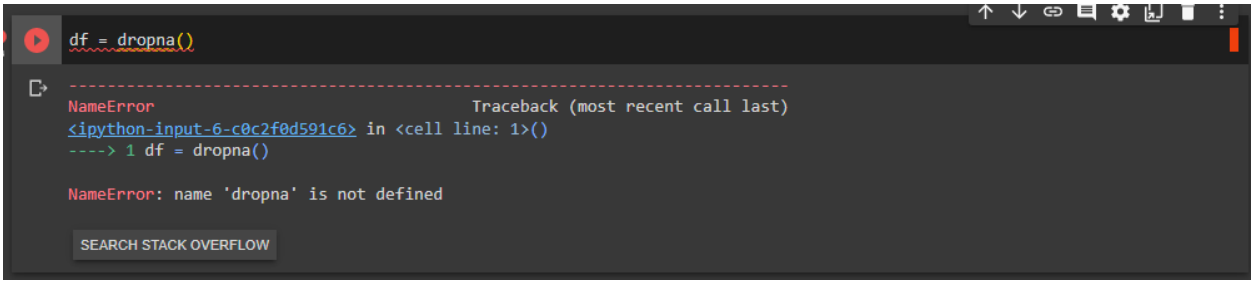
It misses a parameter (Pd). So I put a parameter in this and then this code ran correctly.

2nd Error:



I missed the dataset file , then I inserted it and it ran correctly.

3rd Error:



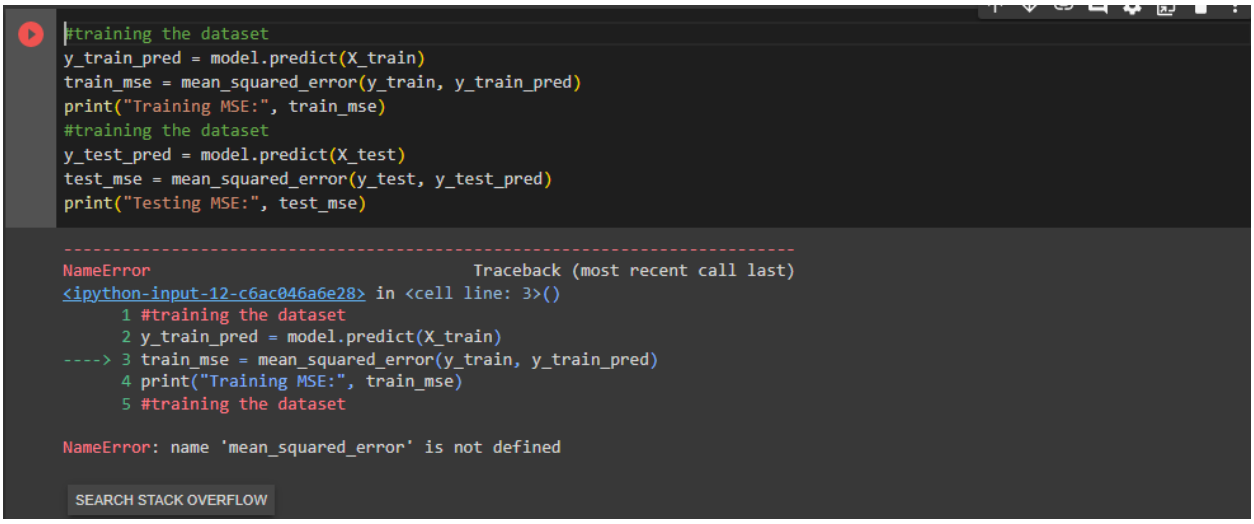
```
df = dropna()

---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
<ipython-input-6-c0c2f0d591c6> in <cell line: 1>()
----> 1 df = dropna()

NameError: name 'dropna' is not defined

SEARCH STACK OVERFLOW
```

Solution:

I missed the object of df. After this, it ran correctly

```
df = df.dropna()
```

4th Error:



```
#training the dataset
y_train_pred = model.predict(X_train)
train_mse = mean_squared_error(y_train, y_train_pred)
print("Training MSE:", train_mse)
#training the dataset
y_test_pred = model.predict(X_test)
test_mse = mean_squared_error(y_test, y_test_pred)
print("Testing MSE:", test_mse)

---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
<ipython-input-12-c6ac046a6e28> in <cell line: 3>()
      1 #training the dataset
      2 y_train_pred = model.predict(X_train)
----> 3 train_mse = mean_squared_error(y_train, y_train_pred)
      4 print("Training MSE:", train_mse)
      5 #training the dataset

NameError: name 'mean_squared_error' is not defined

SEARCH STACK OVERFLOW
```

Solution:

I forgot to importing the library .

```python
from sklearn.metrics import mean_squared_error
#training the dataset
y_train_pred = model.predict(X_train)
train_mse = mean_squared_error(y_train, y_train_pred)
print("Training MSE:", train_mse)
#training the dataset
y_test_pred = model.predict(X_test)
test_mse = mean_squared_error(y_test, y_test_pred)
print("Testing MSE:", test_mse)
```

```
Training MSE: 1.346912007668938e-22
Testing MSE: 13022226.401101142
```