

MutipleLinRegression.ipynb · SLR.ipynb - Colab

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MutipleLinRegression.ipynb

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[2]: import warnings  
warnings.filterwarnings('ignore')

(x)  
import pandas as pd  
import numpy as np  
ipl\_auction\_df = pd.read\_csv( 'IPL IMB381IPL2013.csv' )

ipl\_auction\_df.info()

<class 'pandas.core.frame.DataFrame'>  
RangeIndex: 130 entries, 0 to 129  
Data columns (total 26 columns):  
 # Column Non-Null Count Dtype  
---  
 0 S1.NO. 130 non-null int64  
 1 PLAYER NAME 130 non-null object  
 2 AGE 130 non-null int64  
 3 COUNTRY 130 non-null object  
 4 TEAM 130 non-null object  
 5 PLAYING ROLE 130 non-null object  
 6 T\_BONUS 130 non-null int64

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```
25 SOLD PRICE    130 non-null    int64
dtypes: float64(7), int64(15), object(4)
memory usage: 26.5+ KB
```

```
#5R,10C
ipl_auction_df.iloc[0:5, 0:10]
```

	sl.NO.	PLAYER NAME	AGE	COUNTRY	TEAM	PLAYING ROLE	T-RUNS	T-WKTS	ODI-RUNS-S	ODI-SR-B
0	1	Abdulla, YA	2	SA	KXIP	Allrounder	0	0	0	0.00
1	2	Abdur Razzak	2	BAN	RCB	Bowler	214	18	657	71.41
2	3	Agarkar, AB	2	IND	KKR	Bowler	571	58	1269	80.62
3	4	Ashwin, R	1	IND	CSK	Bowler	284	31	241	84.56
4	5	Badrinath, S	2	IND	CSK	Batsman	63	0	79	45.93

```
[3] X_features = ['AGE', 'COUNTRY', 'PLAYING ROLE',
                  'T-RUNS', 'T-WKTS', 'ODI-RUNS-S', 'ODI-SR-B',
                  'TOT_WKTS', 'TOT_SR_B', 'CARTATNICK_EXPL', 'DURNG_C']
```

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S1.NO.	PLAYER NAME	AGE	COUNTRY	TEAM	PLAYING ROLE	T-RUNS	T-WKTS	ODI-RUNS-S	ODI-SR-B
0	Abdulla, YA	2	SA	KXIP	Allrounder	0	0	0	0.00
1	Abdur Razzak	2	BAN	RCB	Bowler	214	18	657	71.41
2	Agarkar, AB	2	IND	KKR	Bowler	571	58	1269	80.62
3	Ashwin, R	1	IND	CSK	Bowler	284	31	241	84.56
4	Badrinath, S	2	IND	CSK	Batsman	63	0	79	45.93

```
X_features = ['AGE', 'COUNTRY', 'PLAYING ROLE',
 'T-RUNS', 'T-WKTS', 'ODI-RUNS-S', 'ODI-SR-B',
 'ODI-WKTS', 'ODI-SR-BL', 'CAPTAINCY EXP', 'RUNS-S',
 'HS', 'AVE', 'SR-B', 'SIXERS', 'RUNS-C', 'WKTS',
 'AVE-BL', 'ECON', 'SR-BL']
```

```
[4] ipl_auction_df['PLAYING ROLE'].unique()
```

```
array(['Allrounder', 'Bowler', 'Batsman', 'W. Keeper'], dtype=object)
```

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Badrinarayanan S 2 IND CSK Batsman 63 0 79 45.93

[3] X\_features = ['AGE', 'COUNTRY', 'PLAYING ROLE',  
'T-RUNS', 'T-WKTS', 'ODI-RUNS-S', 'ODI-SR-B',  
'ODI-WKTS', 'ODI-SR-BL', 'CAPTAINCY EXP', 'RUNS-S',  
'HS', 'AVE', 'SR-B', 'SIXERS', 'RUNS-C', 'WKTS',  
'AVE-BL', 'ECON', 'SR-BL']

[4] ipl\_auction\_df['PLAYING ROLE'].unique()

array(['Allrounder', 'Bowler', 'Batsman', 'W. Keeper'], dtype=object)

[5] pd.get\_dummies(ipl\_auction\_df['PLAYING ROLE'])[0:5]

	Allrounder	Batsman	Bowler	W. Keeper
0	True	False	False	False
1	False	False	True	False
2	False	False	True	False

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0s [7] ipl\_auction\_encoded\_df = pd.get\_dummies( ipl\_auction\_df[X\_features],  
columns = categorical\_features,  
drop\_first = True )

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	Allrounder	Batsman	Bowler	W. Keeper
0	True	False	False	False
1	False	False	True	False
2	False	False	True	False
3	False	False	True	False
4	False	True	False	False

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✓ 0s	2	False	False	True	False
	3	False	False	True	False
	4	False	True	False	False

```
✓ 0s [6] categorical_features = ['AGE', 'COUNTRY', 'PLAYING ROLE', 'CAPTAINCY EXP']

✓ 0s [7] ipl_auction_encoded_df = pd.get_dummies( ipl_auction_df[X_features],
                                                 columns = categorical_features,
                                                 drop_first = True )

✓ 0s [8] X_features = ipl_auction_encoded_df.columns

✓ 1s ➡ import statsmodels.api as sm
      X = sm.add_constant( ipl_auction_encoded_df )
      Y = ipl_auction_df['SOLD PRICE']
```

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### MutipleLinRegression.ipynb

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```
[8] x_features = ipl_auction_encoded_df.columns
[9] import statsmodels.api as sm
     X = sm.add_constant( ipl_auction_encoded_df )
     Y = ipl_auction_df['SOLD PRICE']
[10] from sklearn.model_selection import train_test_split
      train_X, test_X, train_y, test_y = train_test_split( X ,
                  Y,
                  train_size = 0.8,
                  random_state = 42 )

# Train the model
from sklearn.linear_model import LinearRegression

# Fit a linear regression model on the training set
model = LinearRegression().fit(train_X, train_y)
print (model)
```

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```
✓ [10] from sklearn.model_selection import train_test_split
  train_X, test_X, train_y, test_y = train_test_split( X ,
                                                    Y,
                                                    train_size = 0.8,
                                                    random_state = 42 )
```

✓ [11] # Train the model
 from sklearn.linear\_model import LinearRegression

```
# Fit a linear regression model on the training set
model = LinearRegression().fit(train_X, train_y)
print (model)
```

LinearRegression()

```
✓ [12] pred_y = model.predict( test_X )
```

```
✓ [13] from sklearn.metrics import r2_score, mean_squared_error
  np.abs(r2_score(test_y, pred_y))
```

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