```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
from sklearn import preprocessing
import keras
import tensorflow as tf

ipl = pd.read_csv('ipl_data.csv')
ipl.head()
```

	mid	date	venue	bat_team	bowl_team	batsman	bowler	runs	wickets	overs	runs_last_5	wickets_last_5	striker	non-striker	to
0	1	18-04-2008	M Chinnaswamy Stadium	Kolkata Knight Riders	Royal Challengers Bangalore	SC Ganguly	P Kumar	1	0	0.1	1	0	0	0	2
1	1	18-04-2008	M Chinnaswamy Stadium	Kolkata Knight Riders	Royal Challengers Bangalore	BB McCullum	P Kumar	1	0	0.2	1	0	0	0	2

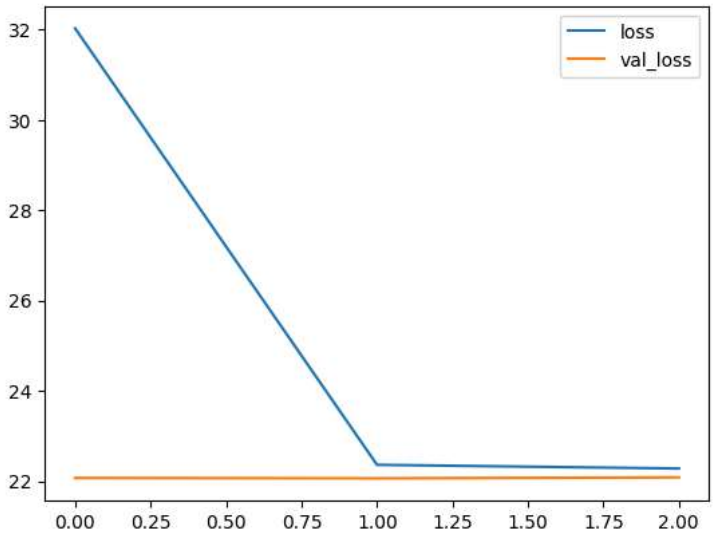
```
#Dropping certain features
df = ipl.drop(['date', 'runs', 'wickets', 'overs', 'runs_last_5', 'wickets_last_5','mid', 'striker', 'non-striker'], ax
X = df.drop(['total'], axis =1)
y = df['total']


#Label Encoding

from sklearn.preprocessing import LabelEncoder

# Create a LabelEncoder object for each categorical feature
venue_encoder = LabelEncoder()
batting_team_encoder = LabelEncoder()
bowling_team_encoder = LabelEncoder()
striker_encoder = LabelEncoder()
bowler_encoder = LabelEncoder()

# Fit and transform the categorical features with label encoding
X['venue'] = venue_encoder.fit_transform(X['venue'])
X['bat_team'] = batting_team_encoder.fit_transform(X['bat_team'])
X['bowl_team'] = bowling_team_encoder.fit_transform(X['bowl_team'])
X['batsman'] = striker_encoder.fit_transform(X['batsman'])
X['bowler'] = bowler_encoder.fit_transform(X['bowler'])


# Train test Split
from sklearn.model_selection import train_test_split
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.3, random_state=42)


from sklearn.preprocessing import MinMaxScaler

scaler = MinMaxScaler()

# Fit the scaler on the training data and transform both training and testing data
X_train_scaled = scaler.fit_transform(X_train)
X_test_scaled = scaler.transform(X_test)
```

```
# Define the neural network model
model = keras.Sequential([
    keras.layers.Input( shape=(X_train_scaled.shape[1],)),  # Input layer
    keras.layers.Dense(512, activation='relu'),  # Hidden layer with 512 units and ReLU activation
    keras.layers.Dense(216, activation='relu'),  # Hidden layer with 216 units and ReLU activation
    keras.layers.Dense(1, activation='linear')  # Output layer with linear activation for regression
])

# Compile the model with Huber loss
huber_loss = tf.keras.losses.Huber(delta=1.0)  # You can adjust the 'delta' parameter as needed
model.compile(optimizer='adam', loss=huber_loss)  # Use Huber loss for regression


# Train the model
model.fit(X_train_scaled, y_train, epochs=3, batch_size=64, validation_data=(X_test_scaled, y_test))
```

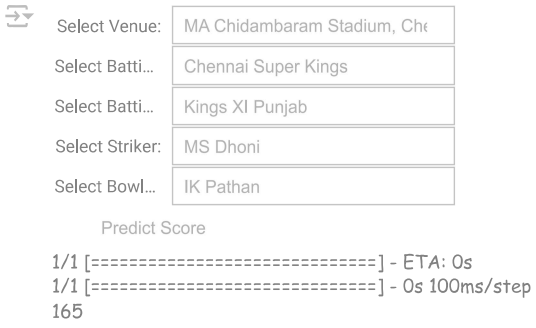
```
Epoch 1/3
832/832 [==============================] - 6s 5ms/step - loss: 32.0243 - val_loss: 22.0684
Epoch 2/3
832/832 [==============================] - 4s 4ms/step - loss: 22.3598 - val_loss: 22.0601
Epoch 3/3
832/832 [==============================] - 4s 5ms/step - loss: 22.2780 - val_loss: 22.0812
<keras.src.callbacks.History at 0x7ad9b8b7ed10>
```

```
model_losses = pd.DataFrame(model.history.history)
model_losses.plot()
```

```
<Axes: >
```



```
import ipywidgets as widgets
from IPython.display import display, clear_output

import warnings
warnings.filterwarnings("ignore")

venue = widgets.Dropdown(options=df['venue'].unique().tolist(),description='Select Venue:')
batting_team = widgets.Dropdown(options =df['bat_team'].unique().tolist(),  description='Select Batting Team:'
bowling_team = widgets.Dropdown(options=df['bowl_team'].unique().tolist(),  description='Select Batting Team:
striker = widgets.Dropdown(options=df['batsman'].unique().tolist(), description='Select Striker:')
bowler = widgets.Dropdown(options=df['bowler'].unique().tolist(), description='Select Bowler:')

predict_button = widgets.Button(description="Predict Score")

def predict_score(b):
    with output:
        clear_output()  # Clear the previous output


        # Decode the encoded values back to their original values
predict_button.on_click(predict_score)
output = widgets.Output()
display(venue, batting_team, bowling_team, striker, bowler, predict_button, output)
```




```
1/1 [==============================] - ETA: 0s
1/1 [==============================] - 0s 100ms/step
165
```