House Price Predictions Using DL

Objective:

Build a simple neural network that predicts house price based on size.

Feature:

- House size (in square feet)

Target:

- House price (in thousands)

Install Required Library

```
pip install tensorflow
```

Import Libraries

```
import numpy as np

import tensorflow as tf

from tensorflow import keras

from tensorflow.keras import layers
```

Create Dataset

```
# House sizes (sq ft)

X = np.array([500, 800, 1000, 1200, 1500, 1800, 2000])


# House prices (in thousands)

y = np.array([100, 150, 200, 250, 300, 350, 400])
```

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Build the Neural Network

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model = keras.Sequential([

    layers.Dense(8, activation='relu', input_shape=(1,)),  # hidden layer

    layers.Dense(1)  # output layer

])


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Compile the Model

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model.compile(

    optimizer='adam',

    loss='mean_squared_error'

)
```

```
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Train the Model

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model.fit(X, y, epochs=200, verbose=0)


print("Model training complete.")



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 Make a Prediction

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# Predict price for a 1400 sq ft house

new_house = np.array([1400])


predicted_price = model.predict(new_house)


print("Predicted price:", predicted_price[0][0], "thousand")
```

Explanation

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1. The model receives house size as input.

2. A hidden layer learns the relationship between size and price.

3. The output layer predicts the final price.

4. During training, the model adjusts its weights.

5. After training, it can predict prices for new houses.

Concepts

- Regression: Predicting a numeric value.

- Neural Network: Model made of layers of neurons.

- Hidden Layer: Learns patterns from the data.

- Training: Process where the model learns from examples.