**🌟 Project Outline (Mental Map)**

**Part 1: Import Libraries**

* Bring in all the required Python libraries like TensorFlow, NumPy, etc.

**Part 2: Load the Dataset**

* Read a text file (like a book or sentences) into your code.
* Example: hamlet.txt (Shakespeare’s work maybe).

**Part 3: Data Preprocessing**

* **Clean the text** (remove unnecessary characters).
* **Tokenize** the words (split text into words and assign each word a number).
* **Create input sequences**:
  + Sentences like:  
    The cat ➔ Predict sat
  + You generate many such small input-output pairs.

**Part 4: Prepare Data for the Model**

* **Split** your data into inputs (x) and outputs (y).
* **One-hot encode** the output labels.
* **Split** into training and testing sets.

**Part 5: Build the LSTM Model**

* Create an LSTM neural network with layers like:
  + Embedding Layer
  + LSTM Layer
  + Dense (output) Layer

**Part 6: Train the Model**

* Feed the training data to the model.
* Use **EarlyStopping** to automatically stop training when the model stops improving.

**Part 7: Evaluate and Save the Model**

* Evaluate how well the model performs.
* Save the model if needed.

**Part 8: Make Predictions (Optional)**

* Test the model by giving it a few words and letting it predict the next word!

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