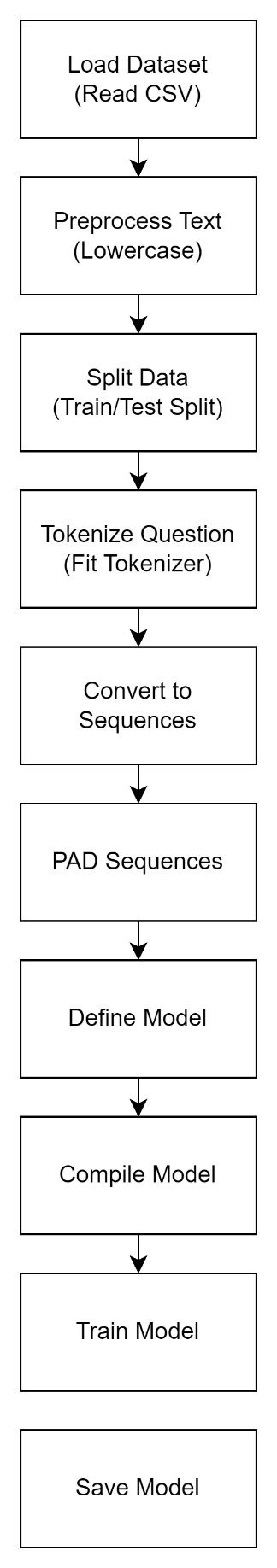
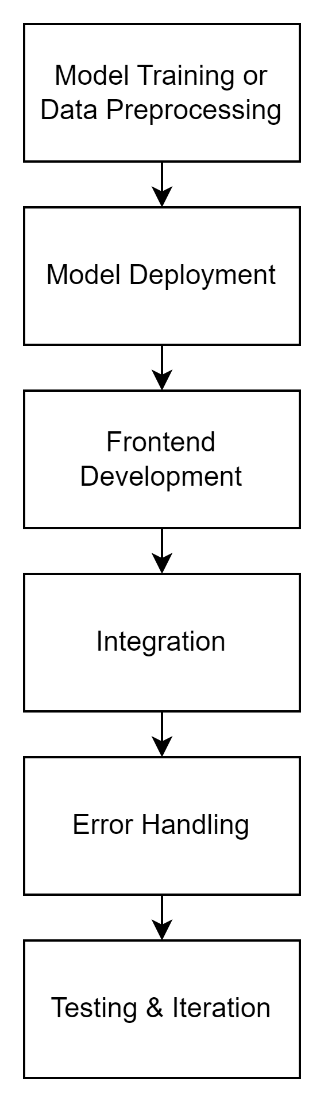
Data preprocessing description



Explanation of Each Step in the Diagram

1. **Load Dataset:** The CSV file is read into a DataFrame.
2. **Preprocess Text:** The text data is converted to lowercase to standardize it.
3. **Split Data:** The data is split into training and testing sets to evaluate the model's performance.
4. **Tokenize Questions:** A tokenizer is fitted on the training questions to convert them into sequences of integers.
5. **Convert to Sequences:** The questions are converted into sequences of integers based on the tokenizer.
6. **Pad Sequences:** The sequences are padded to ensure they all have the same length, making them suitable for the neural network input.
7. **Define Model:** A sequential model is defined with embedding, LSTM, and dense layers.
8. **Compile Model:** The model is compiled with a specified loss function, optimizer, and performance metrics.
9. **Train Model:** The model is trained using the training data and validated on the testing data.
10. **Save Model:** The trained model is saved.

Work flow description



Explanation of Each Step

1. **Model Training & Data Preprocessing:** Above steps
2. **Model Deployment:**
   1. Upload Model to Google Cloud Storage: Upload the saved model to Google Cloud.
   2. Deploy Model on Google Cloud AI Platform: Deploy the model to Google Cloud AI Platform for serving.
3. **Frontend Development:**
   1. Create Chatbot Interface: Develop a user interface for the chatbot using tkinter/google UI builder.
4. **Integration:**
   1. Integrate Frontend with Google Cloud AI Platform API: Connect the frontend to the AI platform for inference (using Flask).
5. **Error Handling:**
   1. Add Error Handling for Unrecognized Questions: Implement a fallback response for unrecognized queries. (using Flask only)
6. **Testing and Iteration:**
   1. Test Chatbot: Test the chatbot to ensure it works correctly.
   2. Collect Feedback: Gather user feedback to identify improvements. (covered under model training).
   3. Iterate and Improve: Continuously improve the chatbot based on feedback. (covered under model training)