Potential Improvements

1. **Expanding the Dataset**:
    - Include a broader range of geographical documents and multilingual datasets to improve the model's ability to recognize mountain names in different languages and contexts.
2. **Use of Advanced Models**:
    - Explore using **BERT**, **RoBERTa**, or **DistilBERT** for better contextual understanding, particularly when mountain names are mentioned in less explicit contexts.
    - Fine-tune these models specifically for the task of entity recognition in geographical texts.
3. **Entity Linking**:
    - After recognizing mountain names, implement an **entity linking** process to associate recognized entities with corresponding geographical locations (latitude, longitude, etc.). This can be done by connecting to external databases like **Wikidata** or **GeoNames**.
4. **Data Augmentation**:
    - Increase the variety of texts used for training by incorporating synonyms, different regional names, and other variations of mountain names to help the model generalize better.
5. **Multilingual Support**:
    - Add multilingual support for recognizing mountain names in different languages, especially for regions with multiple languages, such as the Alps (French, Italian, etc.) or the Andes (Spanish, Portuguese).
6. **Model Optimization**:
    - Optimize the model for efficiency by using techniques like **pruning**, **quantization**, or **distillation** to deploy it in resource-constrained environments, such as mobile applications or real-time services.
7. **User Interface**:

- Build a **web-based interface** where users can input texts, and the model will highlight and display detected mountain names, potentially linking them to more detailed geographical information or interactive maps.

8. **Scalability**:
    - For large-scale deployments, consider deploying the model in the cloud, using services like **AWS**, **Google Cloud**, or **Azure**, allowing for scalability and handling larger datasets efficiently.
9. **Human-in-the-loop Approach**:
    - Implement a human-in-the-loop system where flagged low-confidence detections can be reviewed by users for validation, providing a feedback loop that improves the model over time.