Deep Learning-based Recipe Generation

Department of Computer Science

Problem Statement

Generating coherent and contextually accurate cooking instructions from ingredient lists is a challenging task in NLP. This research explores the use of sequence-to-sequence models with LSTMs to improve the quality of generated recipes.

Objectives

- Develop a model to generate coherent cooking instructions from ingredient lists.
- Evaluate model performance using accuracy and value loss.
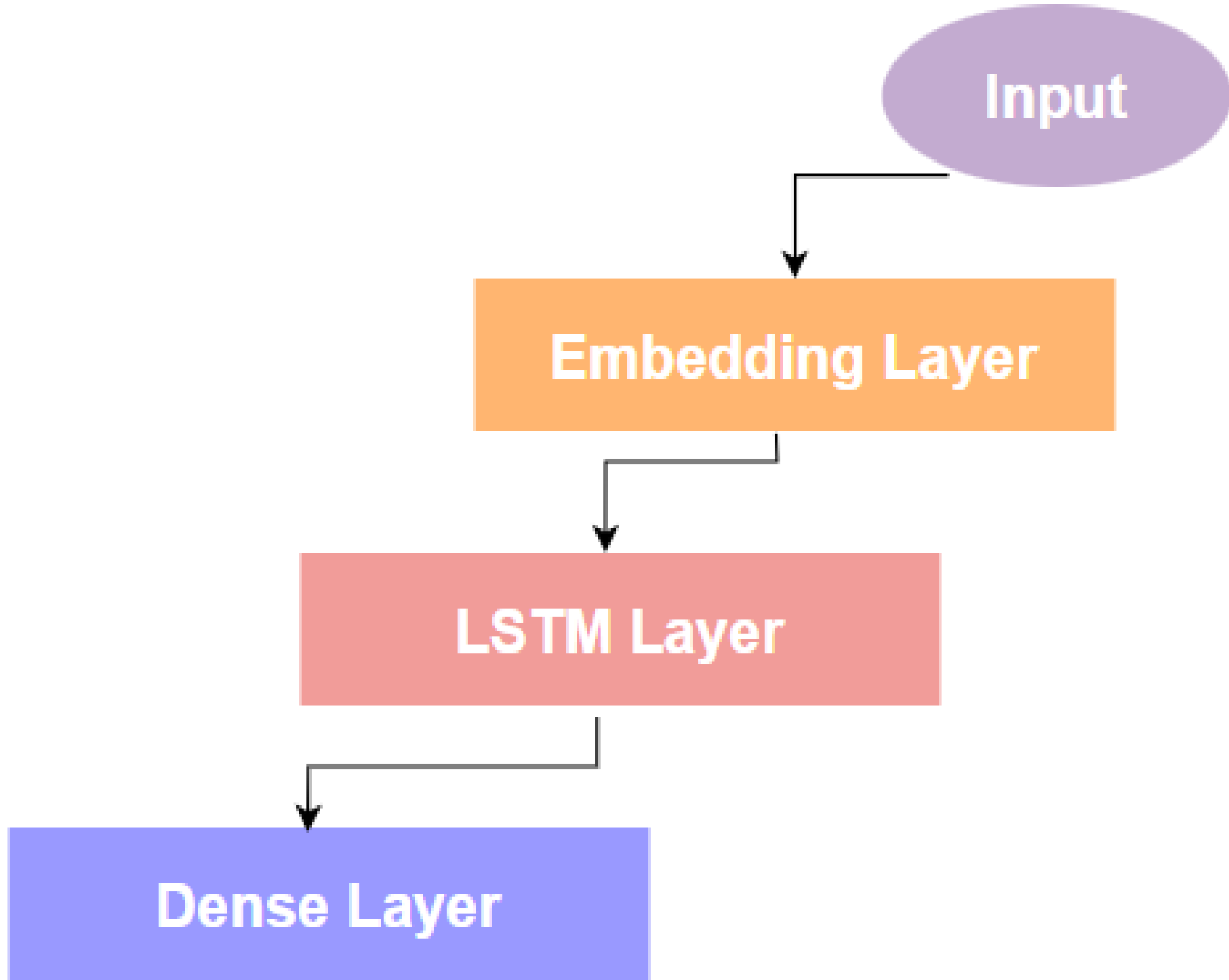- Improve over existing methods in terms of contextual relevance.

Methodology

- **Data**: Recipe Box Dataset with 10k recipes.
- **Model**: Sequence-to-sequence architecture with LSTM encoder-decoder.
- **Evaluation**: Metrics used are Accurcay

Results

Metrices	Results
Accuracy	0.70
Value loss	2.89

Model Architecture

Future Work

- Incorporate diverse datasets for better generalization.
- Experiment with transformer-based models like GPT or BERT.
- Explore transfer learning for domain-specific recipe generation.

References

I. Sutskever, O. Vinyals, and Q. V. Le, Sequence to Sequence Learning with NeuralNetworks, Advances in NIPS, 2014.

II. M. Iyyer, et al., A Neural Network for Recipe Generation, Conference on EMNLP, 2017.

III. X. Zhang, et al., Context-Aware Recipe Generation with Ingredient Interactions,Proceedings of the 2018 Conference on EMNLP, 2018.

Submitted By: Fatima Muskan   2021-CS-78

Submitted To: Dr. Usman Ghani

Department of Computer Science - University of Engineering & Technology Lahore