

# SHIKHBE SHOBAI- AN ARTIFICIALLY INTELLIGENT EDUCATIONAL TOOL TO GENERATE QUESTIONS AND ANSWERS FROM A GIVEN BANGLA PASSAGE

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## ABSTRACT

Education Sector is an integral part of the ongoing ICT revolution in Bangladesh. To be a part of the movement we proposed a Deep Learning based educational tool that comes along a web interface. With this tool:

- Teachers can evaluate students' understanding based on a topic.
- Developing such a tool is a challenging task and requires both NLP & Deep Learning.
- The main task of the project was to generate a Knowledge Graph.
- We worked with Relation Extraction and made a Question Generation Framework as a proof of concept.

## PROBLEM STATEMENT

- Training Contextual Embeddings (ELMo) for Bangla.
- Training a Relation Extraction Model with Contextual Embeddings.
- Designing a Question Generation Framework as a proof of concept.

## DATASET

The dataset is prepared on our own. A previous group made an annotation tool, and we manually annotated sentences to make the dataset.

- Total annotation: 11157
- Validation: 563
- Train: 10046
- Test: 548

## EXPERIMENT

- We tried CNN to extract feature from the text, but it did not perform well.
- We also tried word2vec embeddings and concatenation of word2vec & ELMo embeddings. Concatenation of both of them performs slightly better.

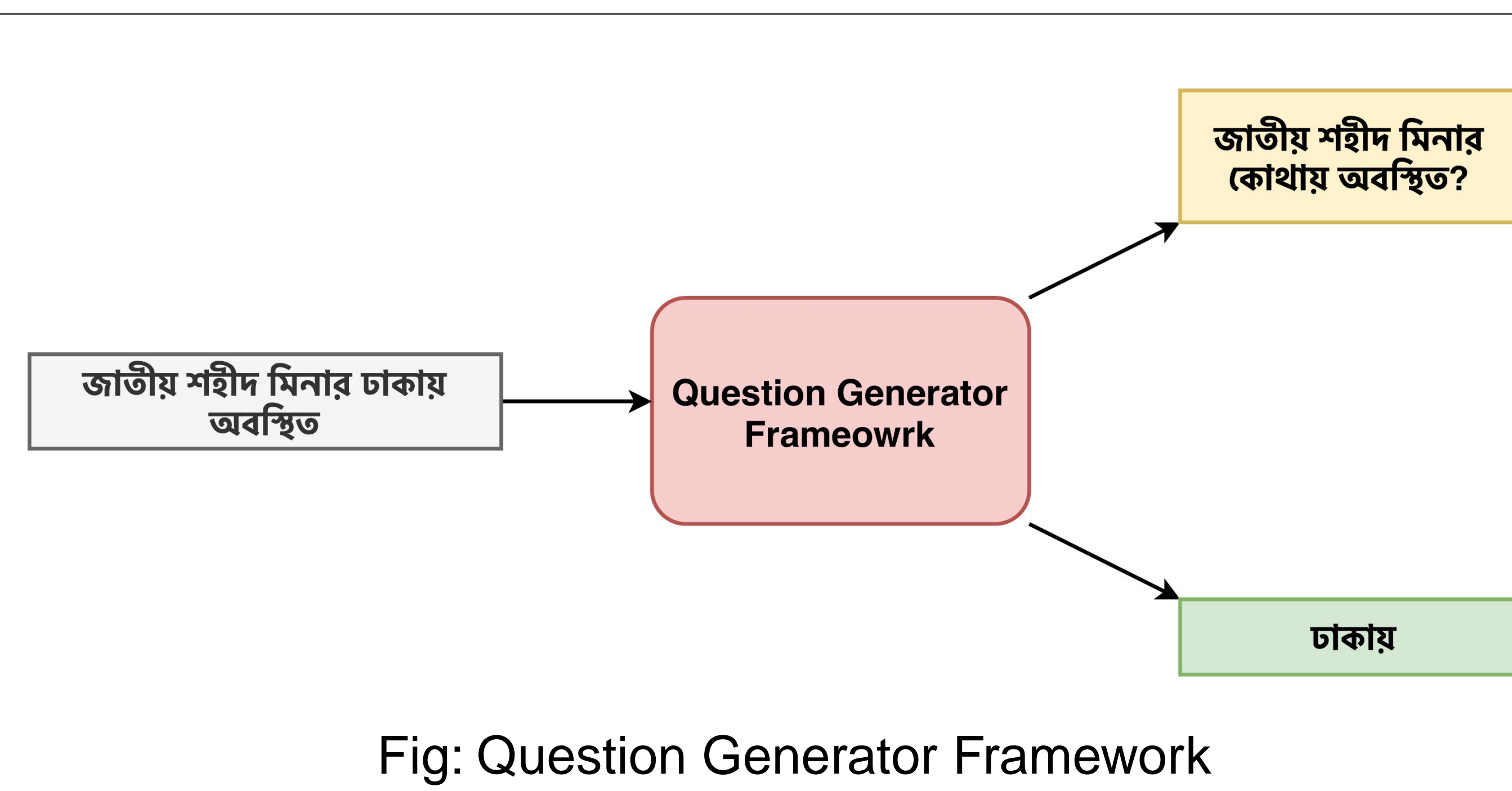


Fig: Question Generator Framework

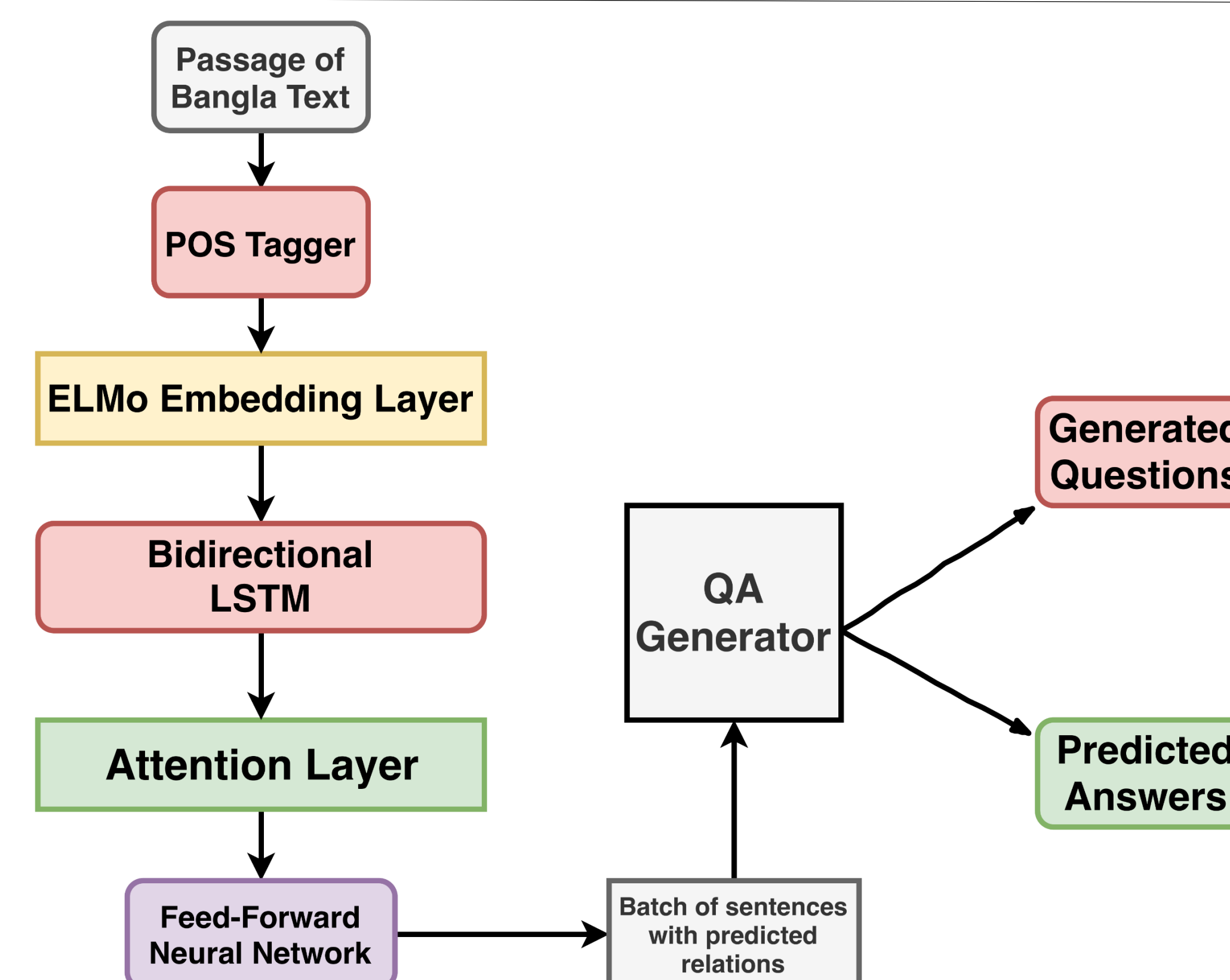


Fig: Flowchart of the framework

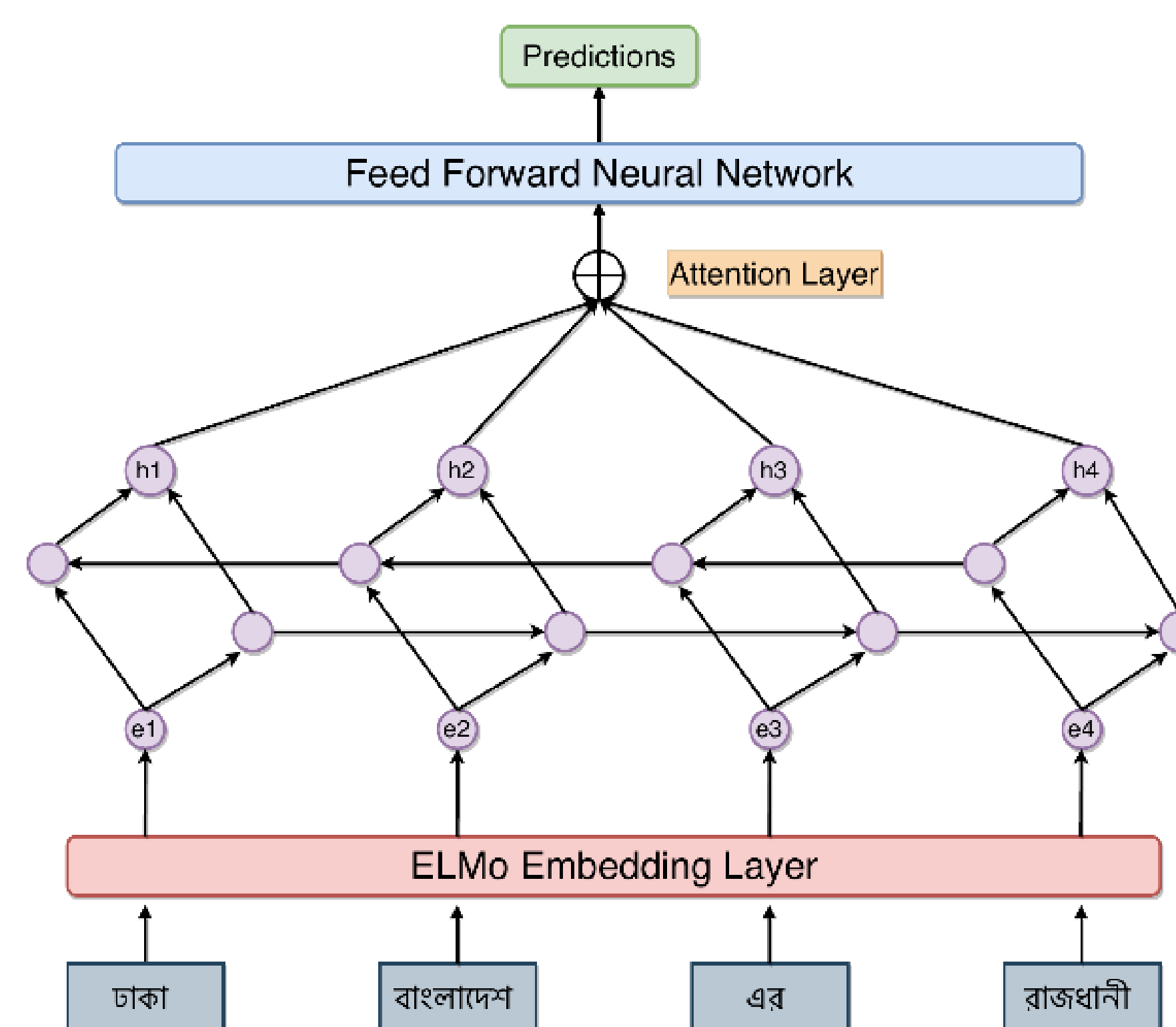


Fig: Relation Classification Model

## WEB INTERFACE

Takes Multiple Sentences as Input

Automatically Generated Questions and Answers

## BUSINESS MODEL

- This is an educational tool that brings teachers and students together and is incorporated into a social network
- Teachers can create more enriching learning experience by creating community groups online, manage and provide educational material and evaluate students' performance

## CONCLUSION AND FUTURE WORK

Since our annotated corpus is relatively small, we are yet to build a knowledge graph. We need to curate the current corpus, annotate more data, try Distant Supervision and other unsupervised approaches.