

# Natural Language Inference

Joe, a machine learning enthusiast, often finds it challenging to explain the intricate details of his neural network models to his peers and stakeholders. He wants an automated way to generate concise and coherent descriptions of these models. To address this need, we propose developing a sequence-to-sequence (seq2seq) model that can take a PyTorch neural network as input and produce a clear textual summary. This summary will explain the input shape and its output shape, making it easier for Joe and others to communicate complex neural network architectures effectively.

## Data:

To train the seq2seq model, we will use synthetically generated data. This data will consist of various neural network architectures, including layers, configurations, and parameters. Each network's structure will be paired with a corresponding textual description that explains its input shape and output shape. The synthetic data will ensure a diverse and comprehensive set of examples, allowing the seq2seq model to learn from a wide range of neural network designs.

## Input:

The input to the seq2seq model will be the architecture of a neural network created in PyTorch. This includes detailed information about its layers, configurations, and parameters.

## Output:

The output from the seq2seq model will be a concise textual description that includes:

- The input shape (e.g., [b,200,10]).
- The output shape (e.g., [b,10]).

Assumption: No input and output will have more than three dimensions.

## Testing:

The model should be evaluated by you on its ability to generate accurate and coherent summaries for five different PyTorch neural networks provided by the company after the time limit.

**Expected Time:**

- Data generation: 2 hours
- Model training: 2 hours

**Submission Format:**

- A jupyter notebook having the code of the model and training and evaluation
- Accuracy and F1 score on the given Neural network