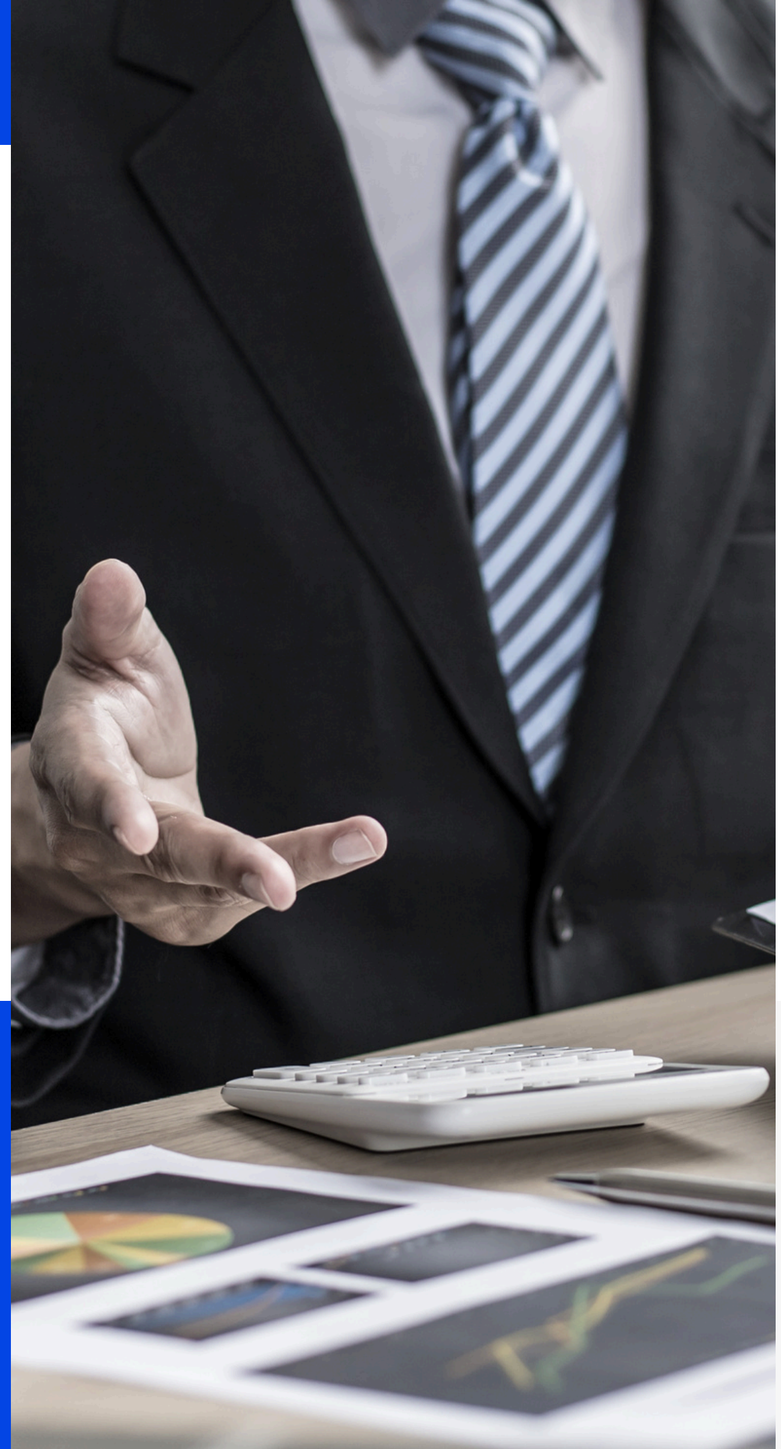
AI1808: Group 2

6TH WEEK REPORT

Tue, June 18 2024



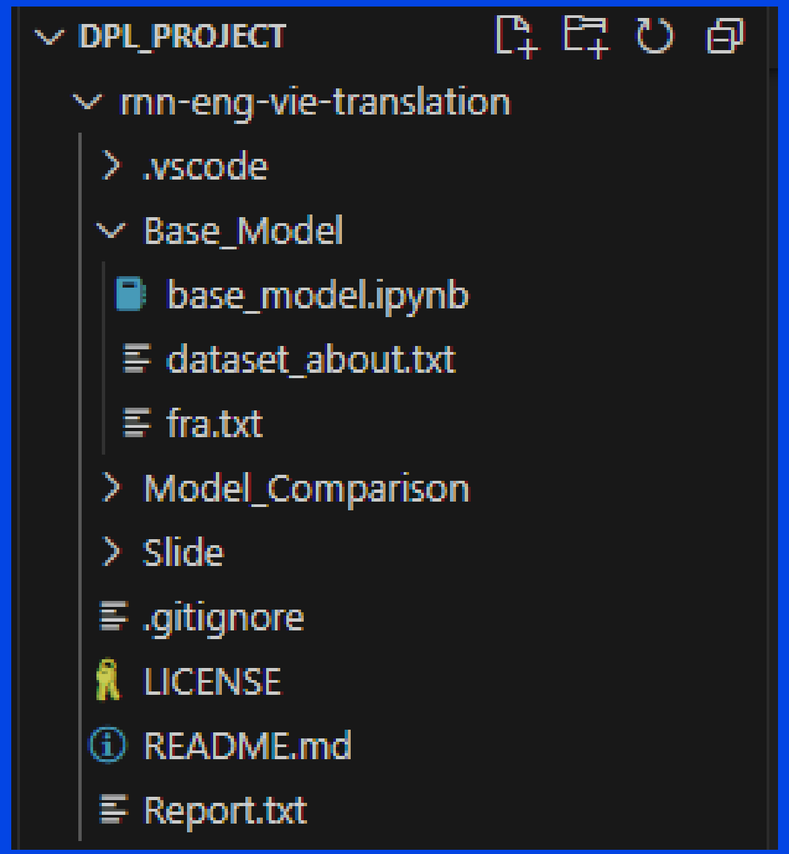
CONTENT

01 Project Structure Update

02 Model Demo

03 Upcoming Activities

P.S UPDATE



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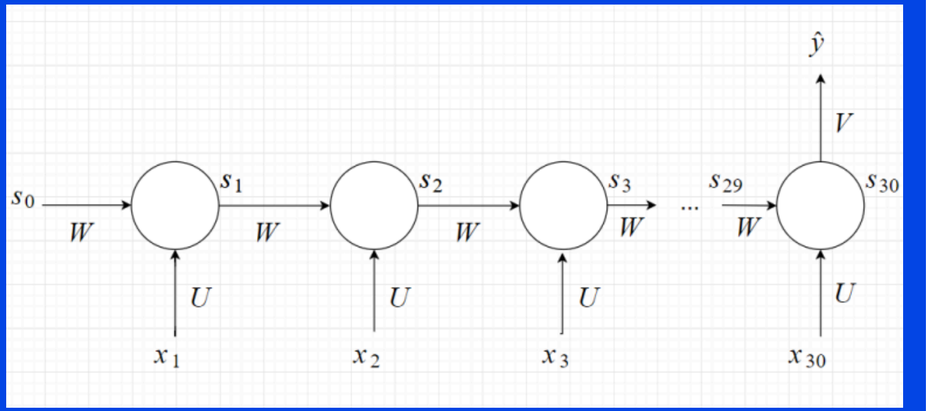
The repository has been configured for the following notable features:

- **Base_Model** is the root container of the notebook model, using *LSTM* for the **fra.txt** dataset (French to English)
- **Slide** and **Report** are places that contain information about work that has been completed and are being completed each week, as well as slides used as reference for reports every 2 weeks.
- **Model_Comparison** is where the notebooks of the various revision editing models and datasets are stored. Will be identified in the *Upcoming Activities* section

RNN



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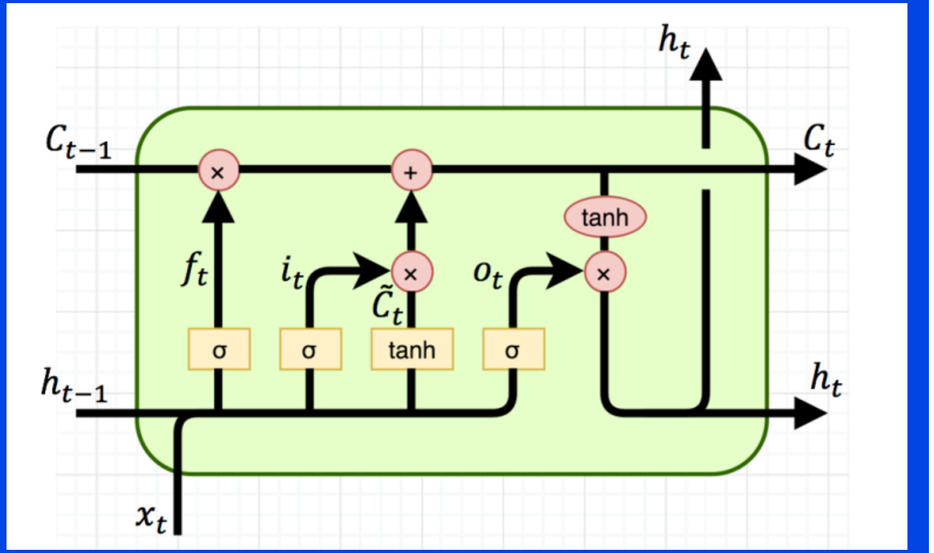
Definition:

- Recurrent Neural Networks (RNNs) are a type of artificial neural network designed for sequential data. Unlike traditional feedforward neural networks, RNNs have connections that form directed cycles, allowing information to persist.

Structure:

- Neurons: The basic building blocks, similar to traditional neural networks.
- Hidden States: Capture and store information over time.
- Loops: Allow the network to pass information from one step to the next.

LSTM



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Key Features:

- *Memory Cells:* LSTMs have a unique architecture that includes memory cells which can maintain information over long periods.
- *Gates Mechanism:* These networks utilize gates (input, forget, and output gates) to regulate the flow of information. The gates allow the network to decide what information to keep, what to throw away, and what to output, making LSTMs adept at learning and remembering over long sequences.

ENCODER-DECODER

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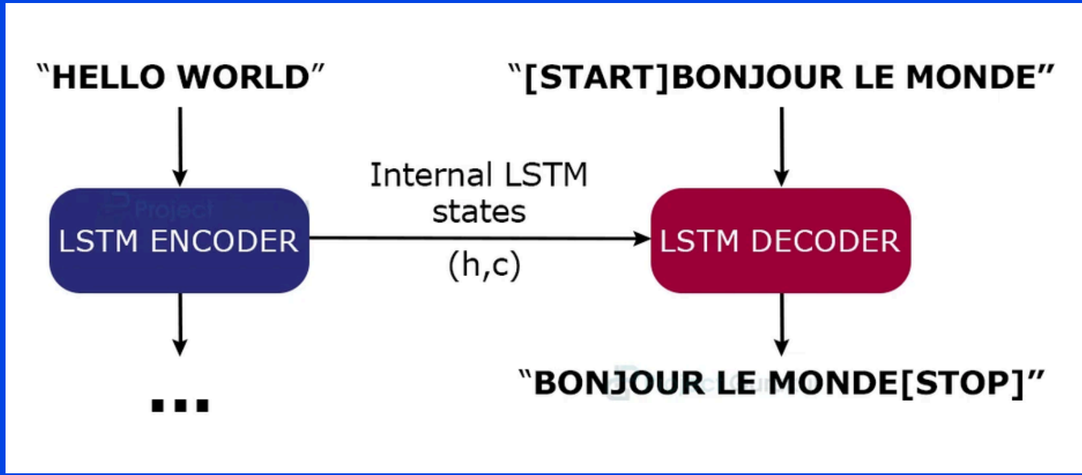


For implementing, we will create **two RNN layers**:

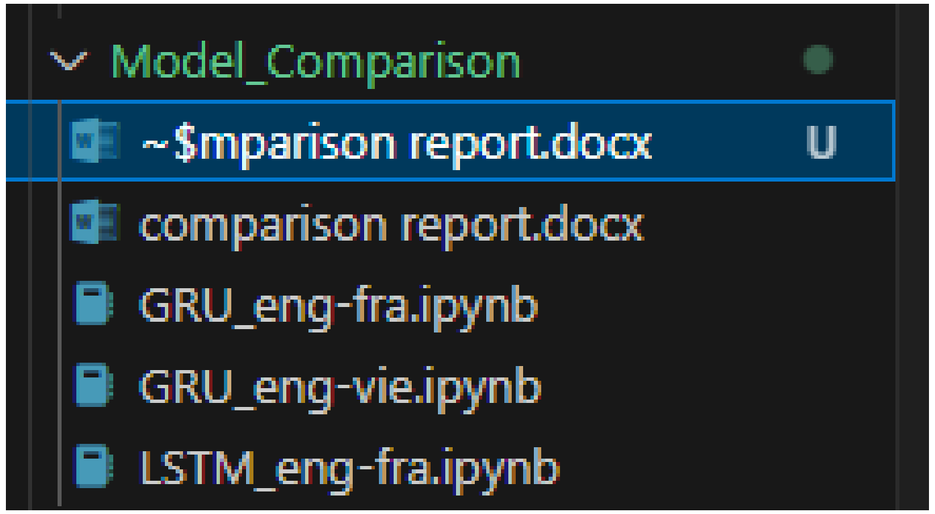
- One RNN layer will act as 'encoder': In this we give our English sentence as an input.
- And other RNN layer will act as 'decoder': which will give us the output (translated sentence in French)

DEMO RESULTS

Statistics of model using LSTM for France - English Translation *(fra-eng dataset)*

	LSTM
Loss	0.4851
Accuracy	0.8562
F1 score	0.8774
Training time	8m 22.5s
Validation loss	0.5743
Avalidation accuracy	0.8311
Validation F1 score	0.8551

UPCOMING ACTIVITIES



For the next 2 weeks, we will:

- Carry out comparison:
  - LSTM with 2 datasets fra-eng and vie-eng
  - LSTM and GRU for vie-eng dataset
- Search for more Vietnamese - English datasets to expand the number of test samples to increase model performance

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THANK YOU

FOR YOUR ATTENTION

Tue, June 18 2024