

## Assignment 2

**Report Submission Due:** 18 Apr, 2023 (before 11:59 pm)

**Submission:** Submit to NTULearn (Assignments → Assignment 2 → Report ) with subject "AI6127-Ass2-YourStudentID".

### Topic: Seq2Seq model for machine translation

In this assignment, we will implement a machine translation model using seq2seq architecture.

Example code base

<https://colab.research.google.com/drive/1rfBv2y-Zz016KhVeOo15IHjx9B5JR4RK?usp=sharing>

In the code base, you are given a sample seq2seq model where Encoder and Decoder are simple GRUs.

#### Tasks:

1. Warm up: Read, understand, and reimplement the examples in the code base
2. Run the example code base and record the Rouge scores (Rouge 1 and Rouge 2)
3. Change the GRU in Encoder and Decoder in the code base with LSTM, run the code, and record the Rouge scores
4. Change the GRU in Encoder (not Decoder) in the code base with bi-LSTM, run the code, and record the Rouge scores
5. Add the attention mechanism between Encoder and Decoder as in Lecture 8, run the code, and record the Rouge scores
6. Change the GRU in Encoder (not Decoder) in the original code base with Transformer Encoder, run the code, and record the Rouge scores. You can refer to this tutorial for using Transformer and how to use it as Encoder  
[https://docs.google.com/document/d/1ya\\_gxno\\_anGcq\\_AclcPHZ6w4bqtQGnJVGajY\\_YwJFGeU/edit?fbclid=IwAR1ukzli0DA7zvNgAv4KUMpiHOHzAy-PR8SueSwLG\\_3kVBg\\_-mc1\\_nAm0Ms](https://docs.google.com/document/d/1ya_gxno_anGcq_AclcPHZ6w4bqtQGnJVGajY_YwJFGeU/edit?fbclid=IwAR1ukzli0DA7zvNgAv4KUMpiHOHzAy-PR8SueSwLG_3kVBg_-mc1_nAm0Ms)

#### Report:

- Summarize the results of experiments (better in tables)
- Analysis, comparison, and explanation about the results
- The format is free style. Try to be concise and must not more than 4 pages
- The deadline is firm at 11:59pm, 18 Apr 2023