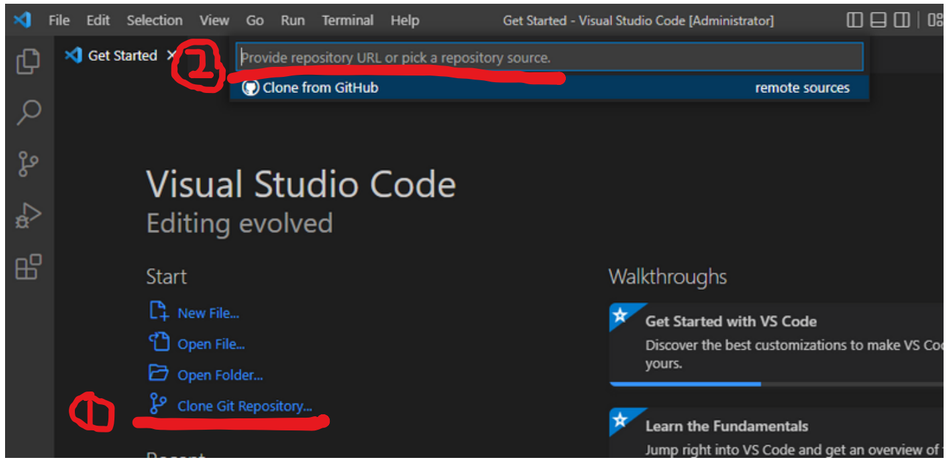
캡스톤 모델 설명

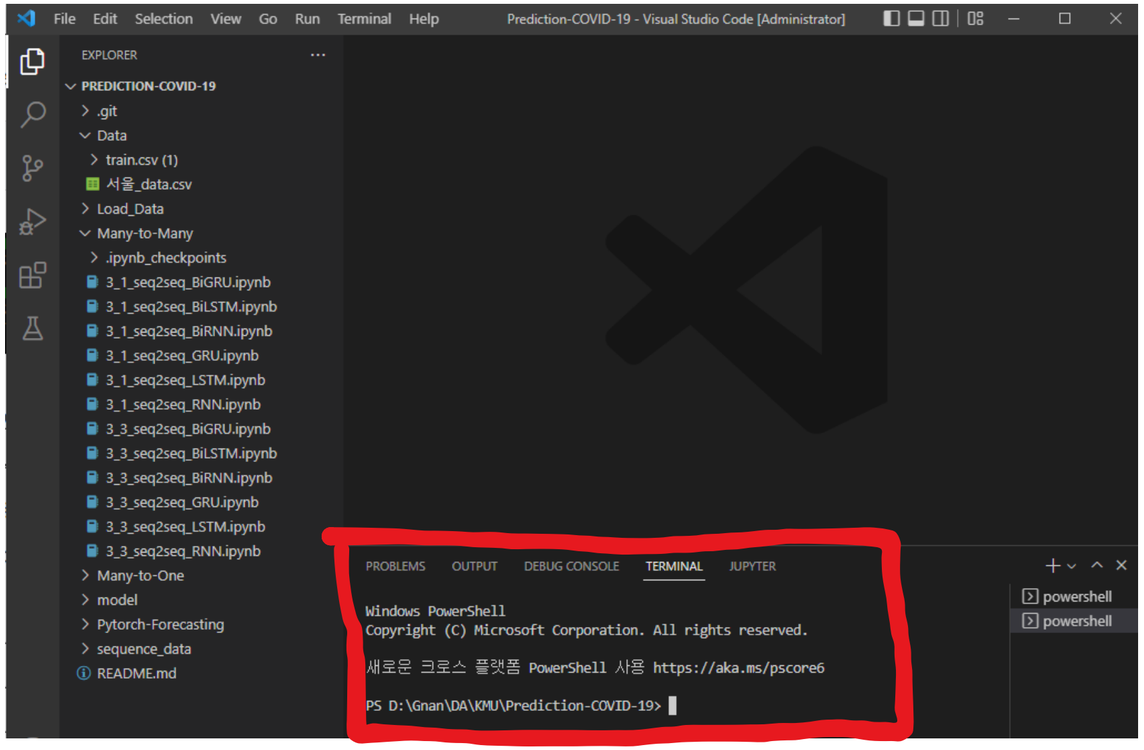
목차

Git



초기 설정

1. Clone Git Repository를 누르고
2. https://github.com/G-Nan/Prediction-COVID-19.git 를 붙여넣기
3. 본인 작업 파일 위치 선택
4. Ctrl + Shift + ` 를 입력해 터미널 창 생성
5. git branch [브랜치명] ex) git branch Gnan
6. git switch [브랜치명] ex) git switch Gnan



터미널 창

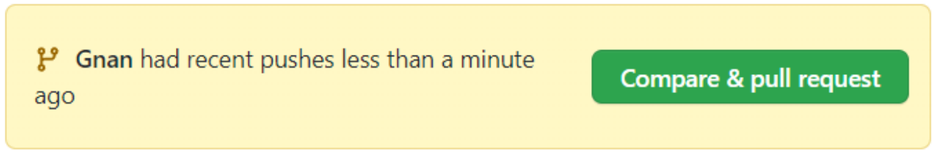
Git

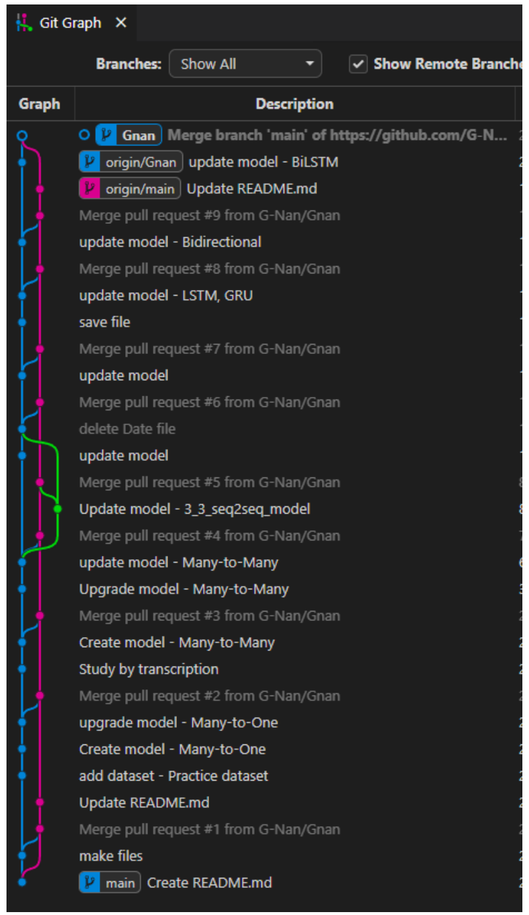
작업 후 업로드 할 때

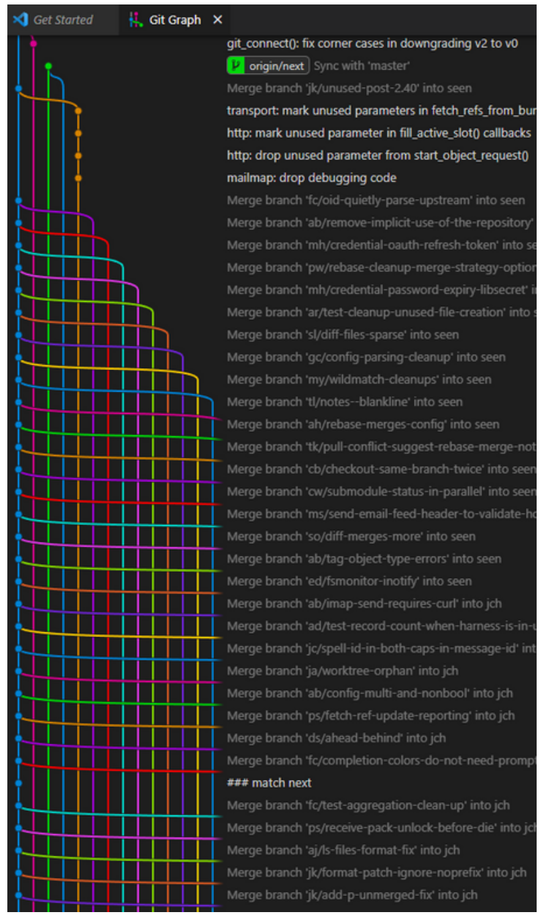
1. git add .
2. git comit -m "message"
   ex) git commit -m "update model - LSTM"
   ex) git commit
3. git push

수정 된 파일 불러올 때

1. git pull origin main







데이터 설명

Date	DAC	DDAC	DDDAC
1	DAC1	DDAC1	DDDAC1
2	DAC2	DDAC2	DDDAC2
3	DAC3	DDAC3	DDDAC3
...	...	...	...
60	DAC60	DDAC60	DDDAC60
61	?	?	?
...	...	...	...
67	?	?	?

60

7

Date : 날짜

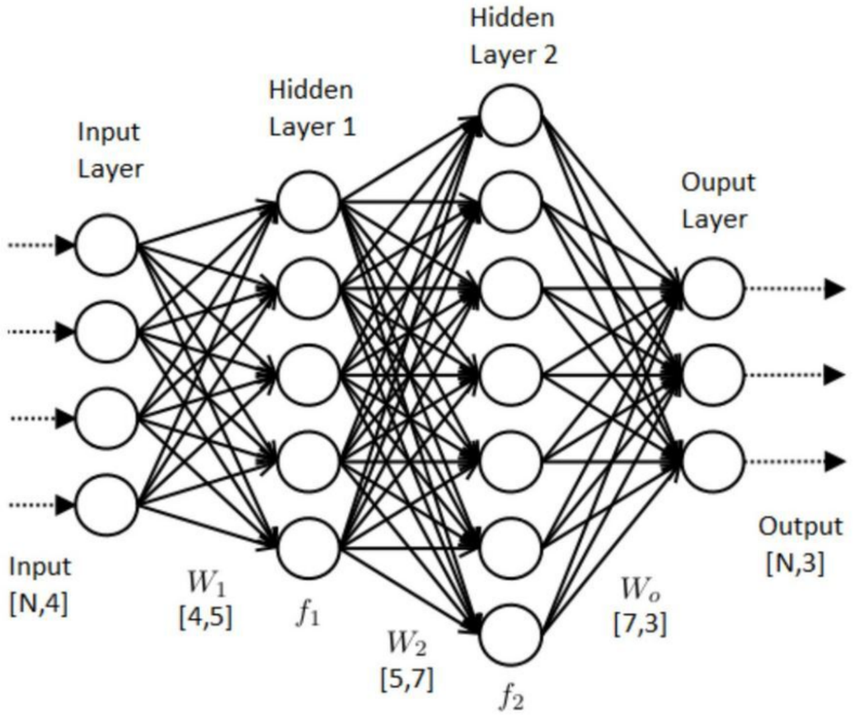
AC : Accumulation Cases

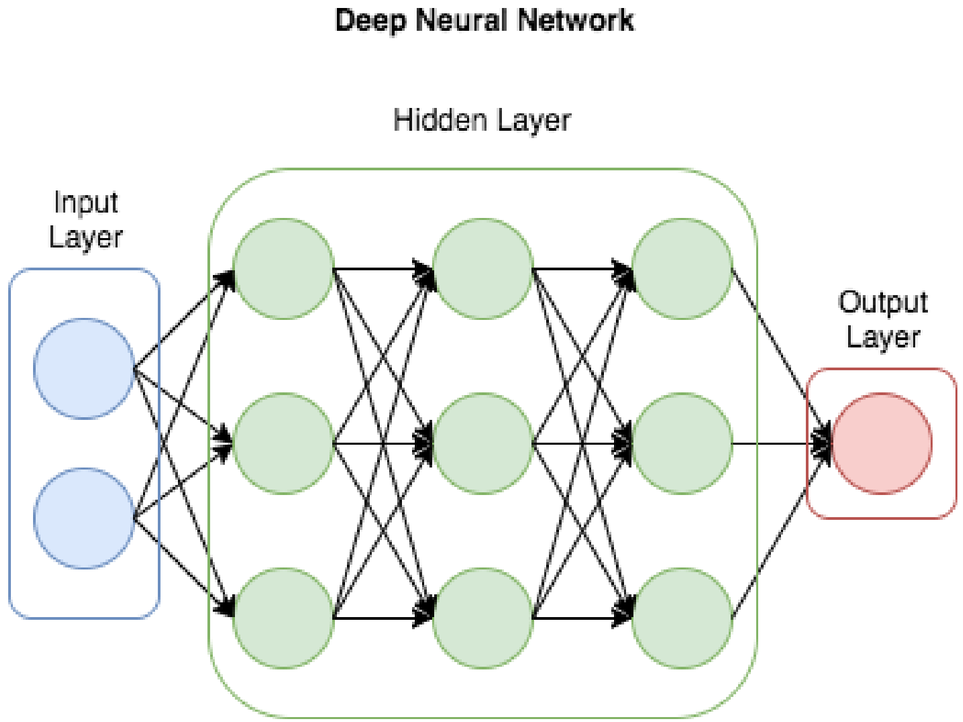
DAC : Difference of AC (daily)

DDAC : Difference of DAC (1차 차분)

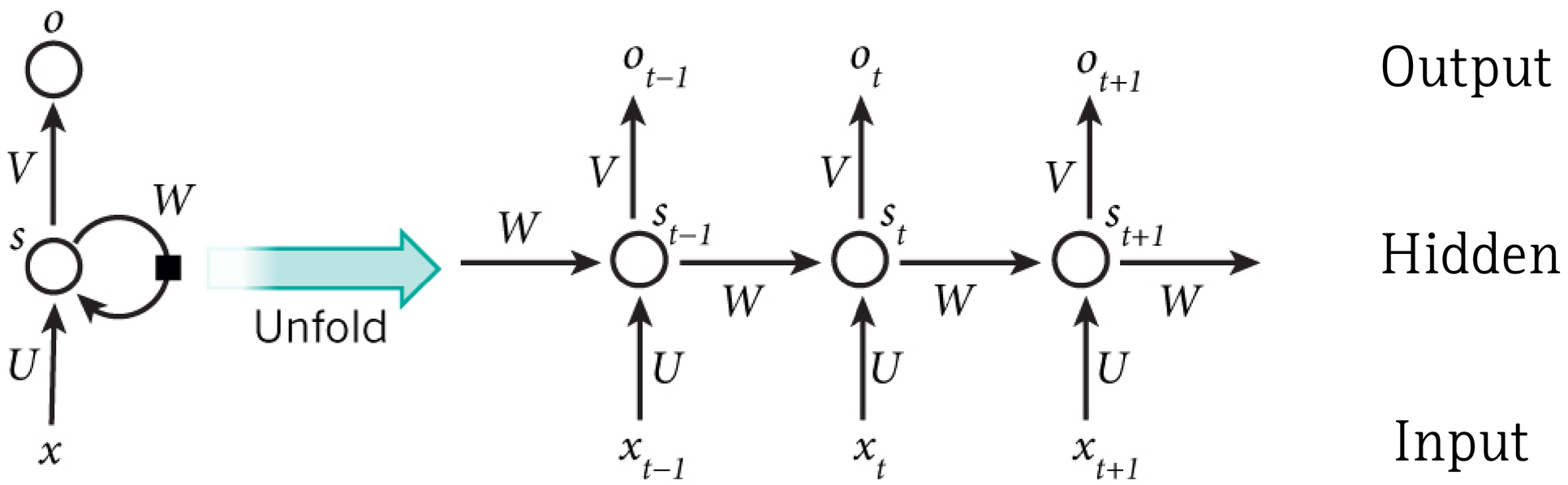
DDDAC : Difference of DDAC (2차 차분)

ANN, DNN


Hidden
Layer 2
Hidden
Layer 1
Input
Layer
Ouput
Layer
Output
[N,3]
Input
[N,4]
W_1
[4,5]
f_1
W_2
[5,7]
f_2
W_o
[7,3]


Deep Neural Network
Hidden Layer
Input
Layer
Output
Layer

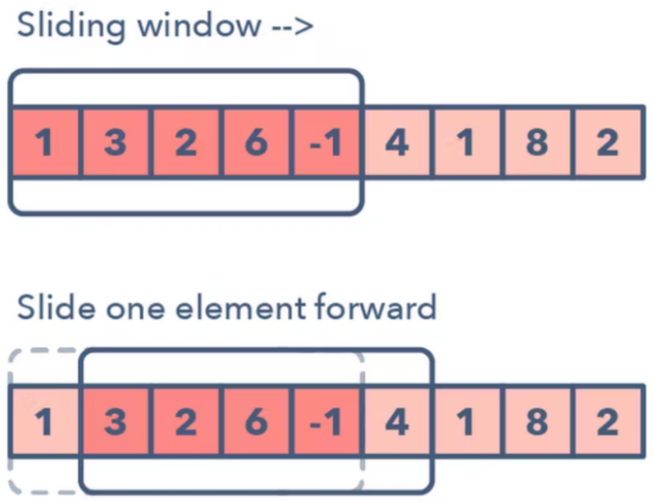
RNN



Hidden Size = Hidden States의 차원 수

Num Layers = Recurrent Layer의 개수

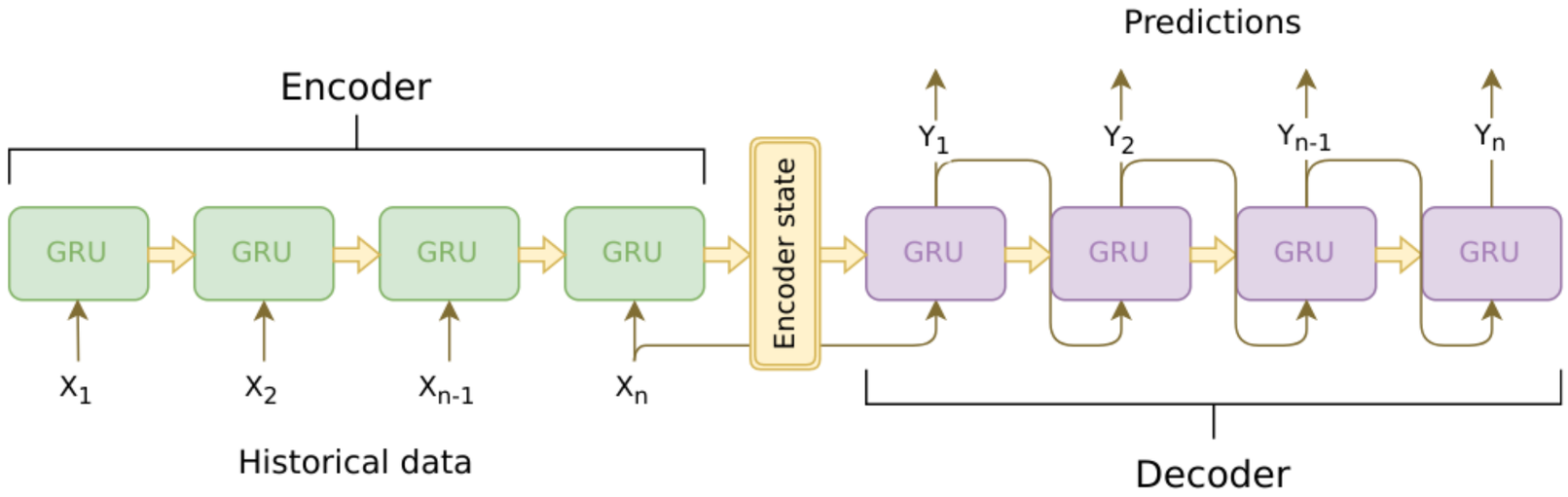
Many to One



7번 반복

Date	DAC	DDAC	DDDAC
1	DAC1	DDAC1	DDDAC1
2	DAC2	DDAC2	DDDAC2
3	DAC3	DDAC3	DDDAC3
...	...	...	...
60	DAC60	DDAC60	DDDAC60
61			
62			
63			

Many to Many (seq2seq)



Encoder

Input

Data (batch_size, time_steps, features) + Hidden (Num_layers, batch_size, hidden_size)

(64, 60, 3) (1, 64, 16)

RNN

Output

Output (batch_size, num_layers, hidden_size) + Hidden (Num_layers, batch_size, hidden_size)

(64, 1, 16) (1, 64, 16)

Decoder

Input

Data (batch_size, time_steps, features) + Hidden (Num_layers, batch_size, hidden_size)

(64, 1, 3) (1, 64, 16)

Relu

RNN

Output

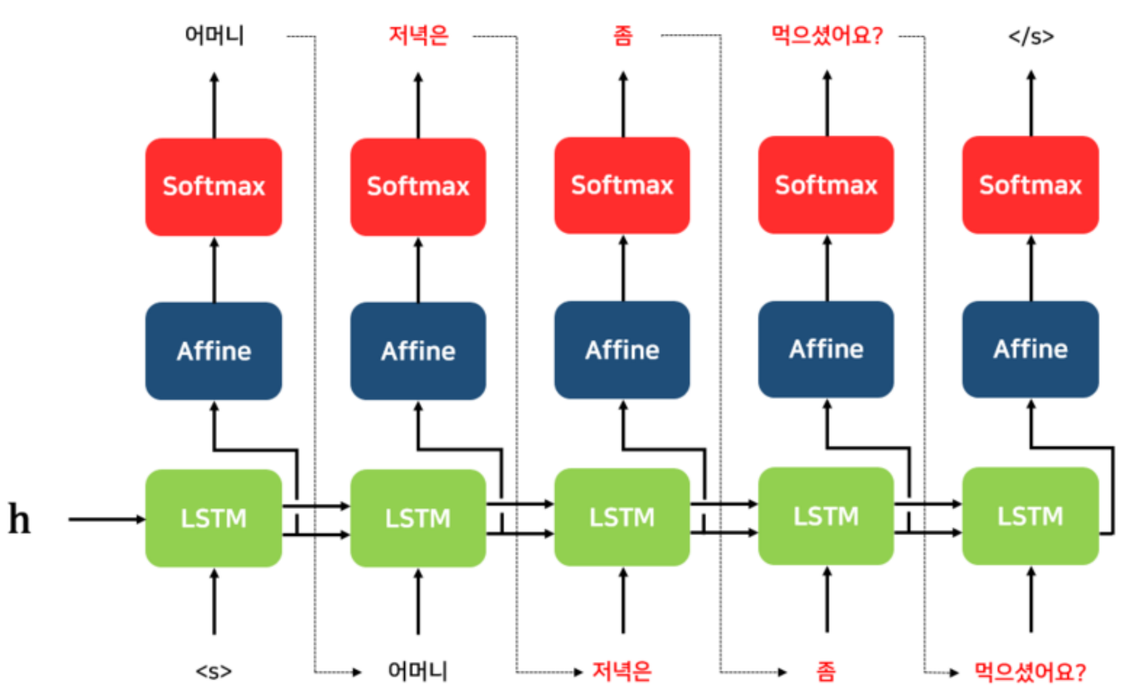
Output (batch_size, num_layers, features) + Hidden (Num_layers, batch_size, hidden_size)

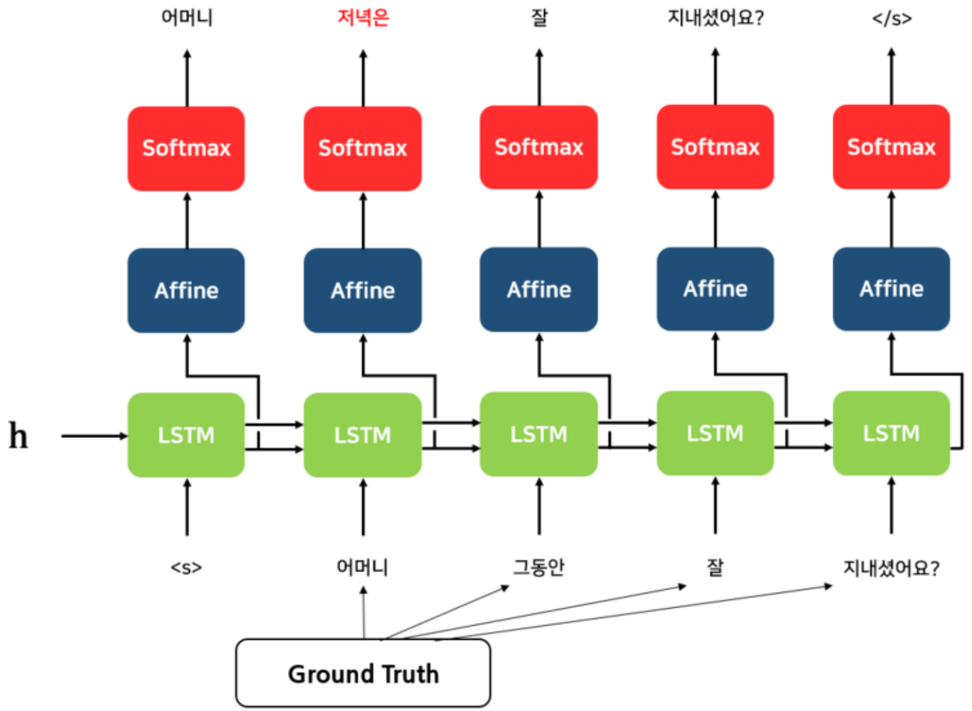
(64, 1, 16) (1, 64, 16)

SoftMax

Linear

Teacher Forcing





Teacher Forcing

4개의 문제를 푼다고 가정

1번 : 1 + 1 = ?	정답 : 2	정답 : 3
2번 : 1번 정답 + 3 = ?	정답 : 5	정답 : 6
3번 : 2번 정답 * 2 = ?	정답 : 10	정답 : 12
4번 : 3번 정답 - 4 = ?	정답 : 6	정답 : 8

To do

Date : 17개 도시 데이터 -> 코드 & 파일 정리

Model

1. Hyper parameter 수정

   Time_steps, Learning Rate, Batch_size, Num_layers, Hidden_size, Dropout, Patience

2. New model

   Pytorch Forecasting, Attention & Transformer, LSTM + CNN, SarimaX

3. Anomaly detection

   DSBA, EDA(Insights)