

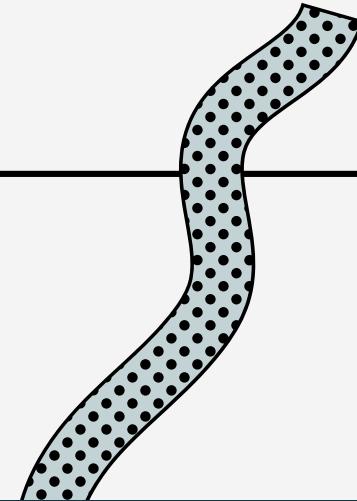
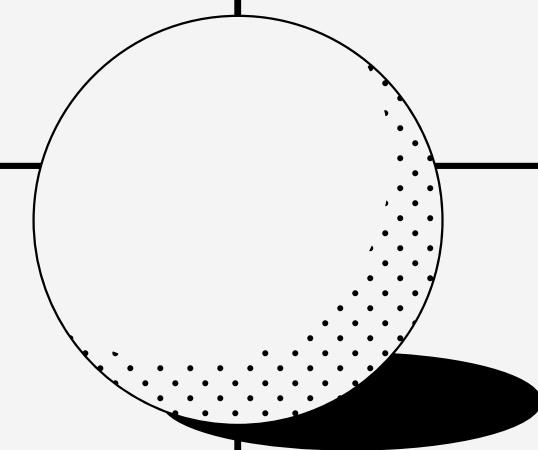
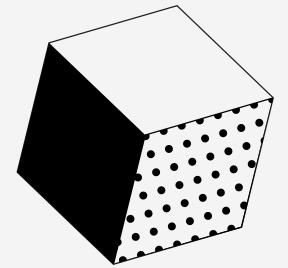
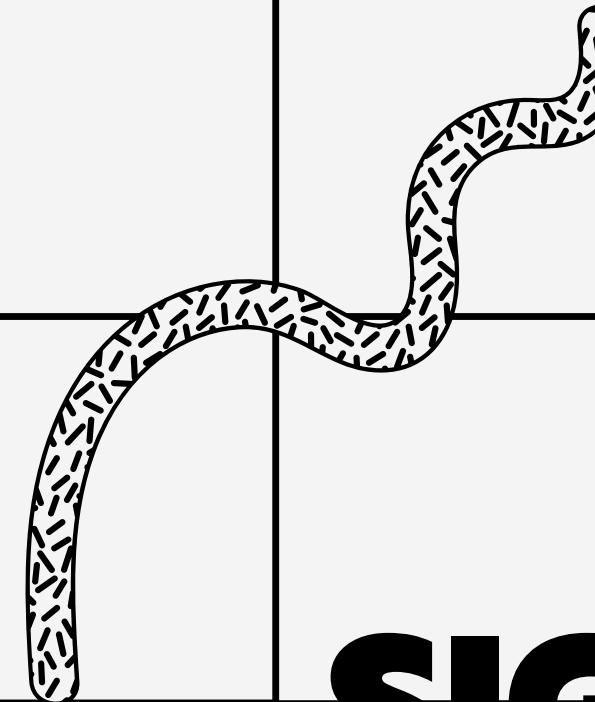
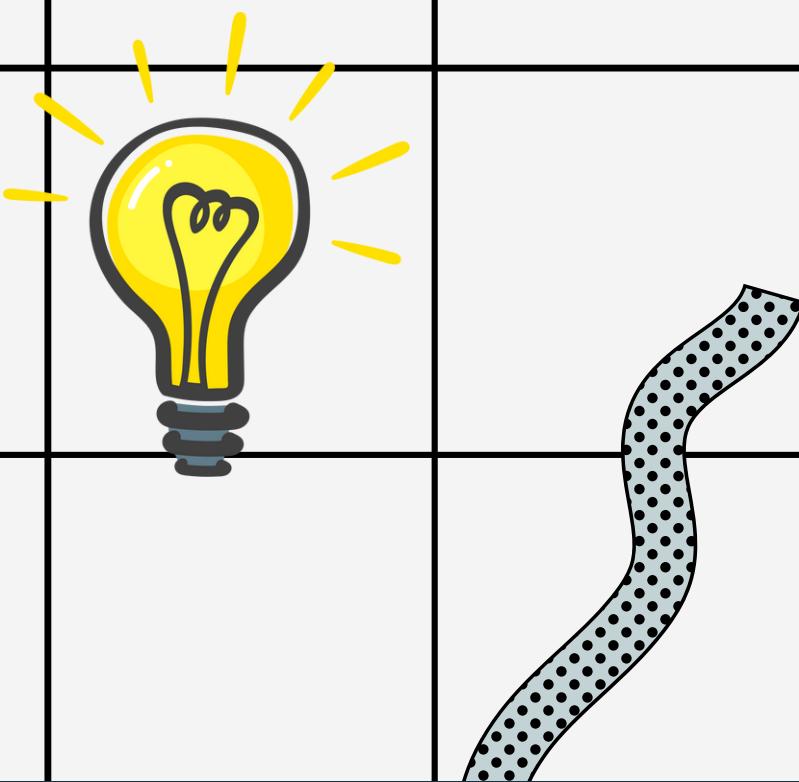
การสื่อสารเป็นสิ่งสำคัญในการดำเนินชีวิต

SIGN LANGUAGE RECOGNITION

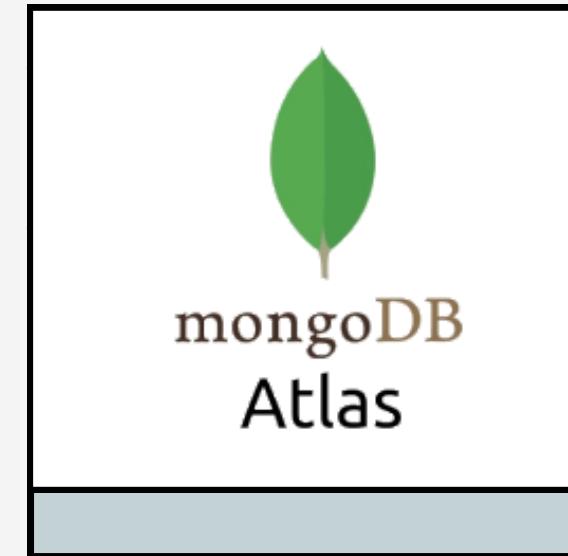
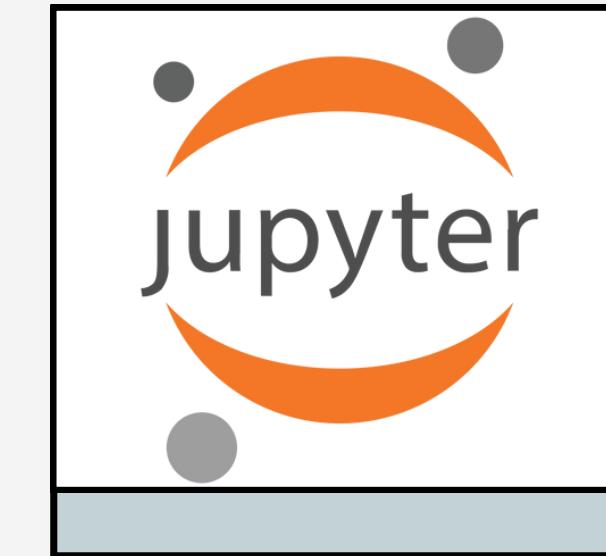
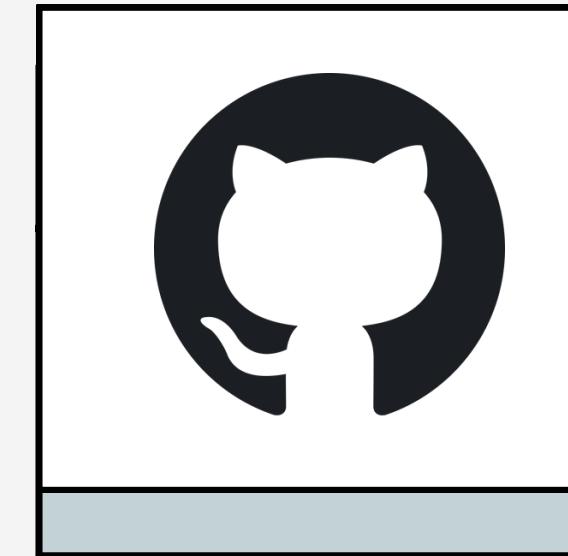
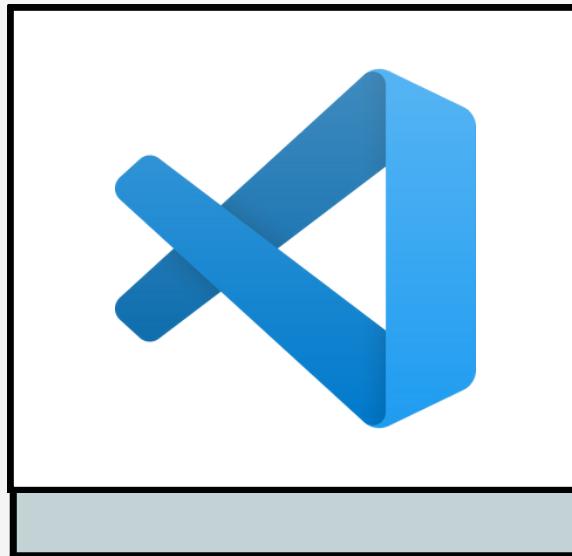


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SIGN LANGUAGE RECOGNITION



ໂປສັກສນແລະຄຣ້ອງນິ້ວ

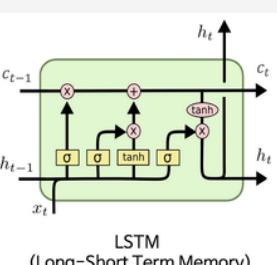


ໂປຣແກຣມແລະເຄຣ້ອງນິ້ວທີ່ໃຊ້ໃນການເຂົ້າໃຈນິ້ວ ສ້ອສາດຕ່າງໆ ເພື່ອໃຊ້ໃນການກຳຈານຮ່ວມກັນ ແລະເກີບສູາບຂໍອມຸລ

การอ่านแบบและ การพัฒนา



MODEL



Numpy

CV2

Tensorflow

LSTM

Mediapipe

WEBS



Mango DB
Atlas

Django
MVT

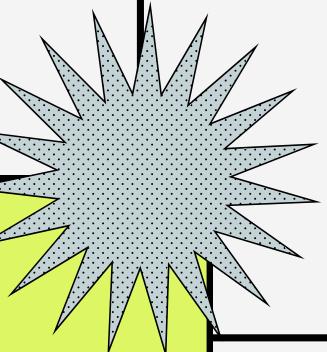
HTML ,
CSS ,
Javascrip

PREPARING DATASET



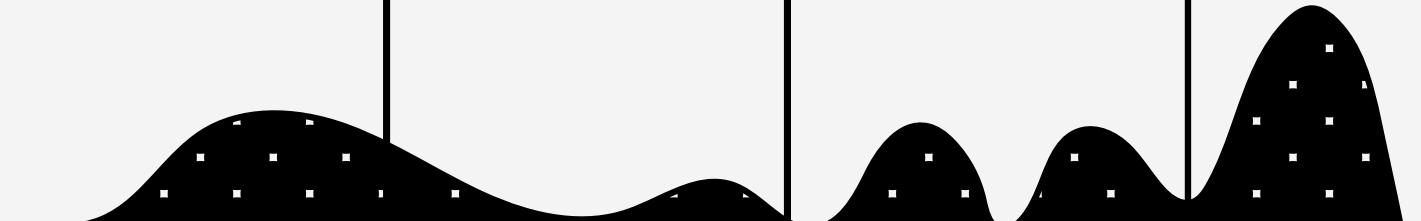
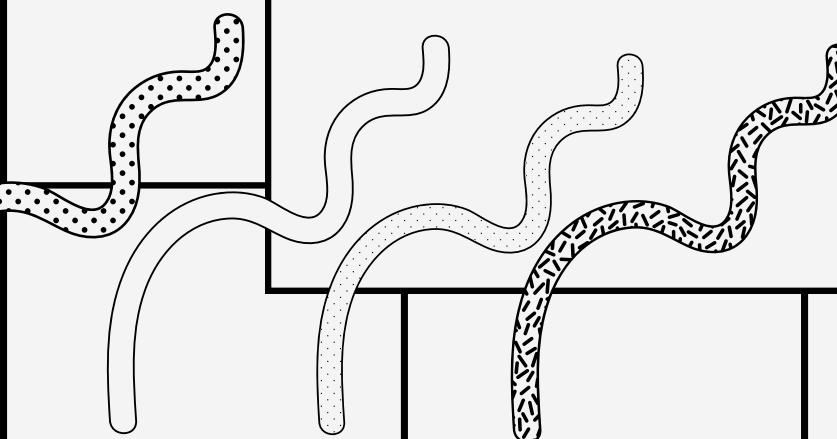
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DATASET



17 ὴ ໄດ້ແກ່ ຮັກ ວັນ ເຮວ ສວັສດີ ສບາຍດີ ຜອບ ດີໃຈ ເສີ່ໃຈ ໂກຣຣ ຮ້ອງໃຫ້ ກລັວ ອື່ມ ຍາກ ພ່າຍ ລິ້ນ ຄິດຄື້ນ ຍືນ
ໂດຍກີ່ ແຕ່ລະກ່າວ ມີ 100 VIDEO

1 VIDEO ມີ 30 FRAMES





NMP Channel

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ความรู้สึก / อาการปฏิยาทั่วไป

▶ ▶ 🔍 0:00 / 1:34

ภาษาเมืองไทยชั้นพื้นฐาน (THsl Basic#04)

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1.3K Share Save ...

▶ ▶ 🔍 0:01 / 3:01

ภาษาเมืองไทยชั้นพื้นฐาน (THsl Basic01)

NMP Channel 3.08K subscribers Subscribe

3.2K Share Clip Save ...

640X480 FPS 25

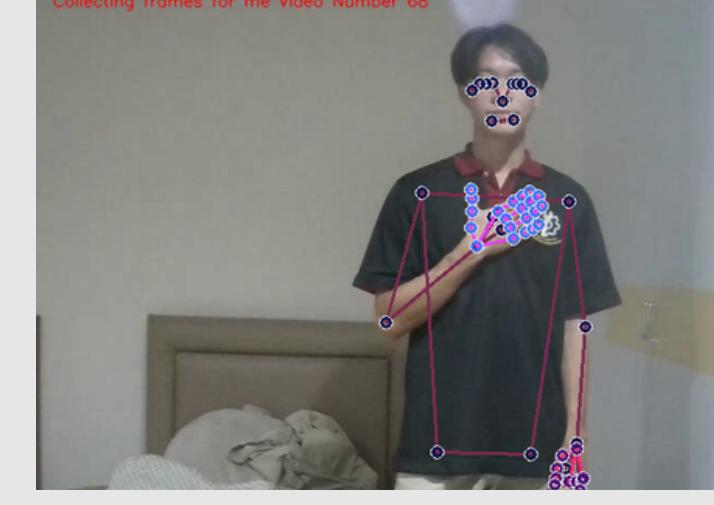


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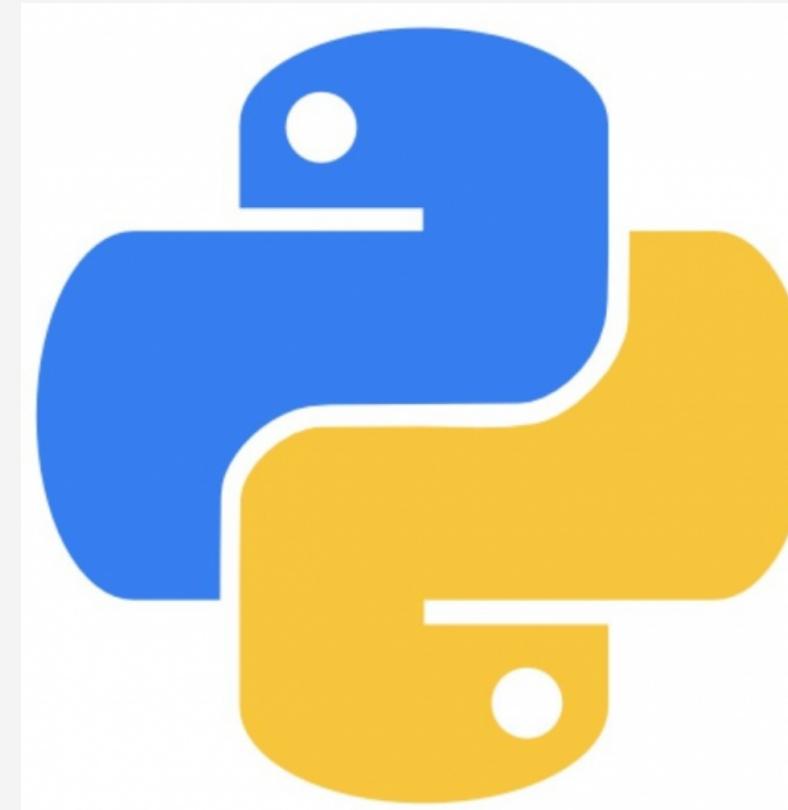
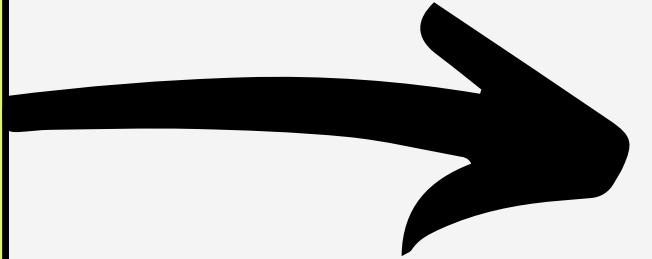
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20

29



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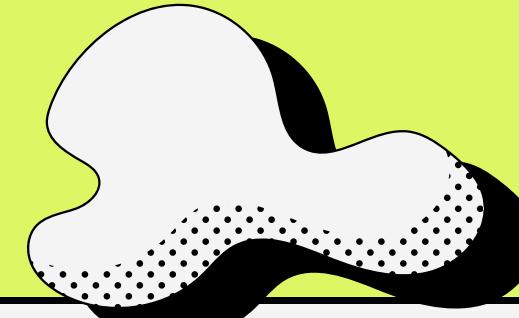
.NPY

SPLIT



- Train : 60%
- Val : 20%
- Test : 20%

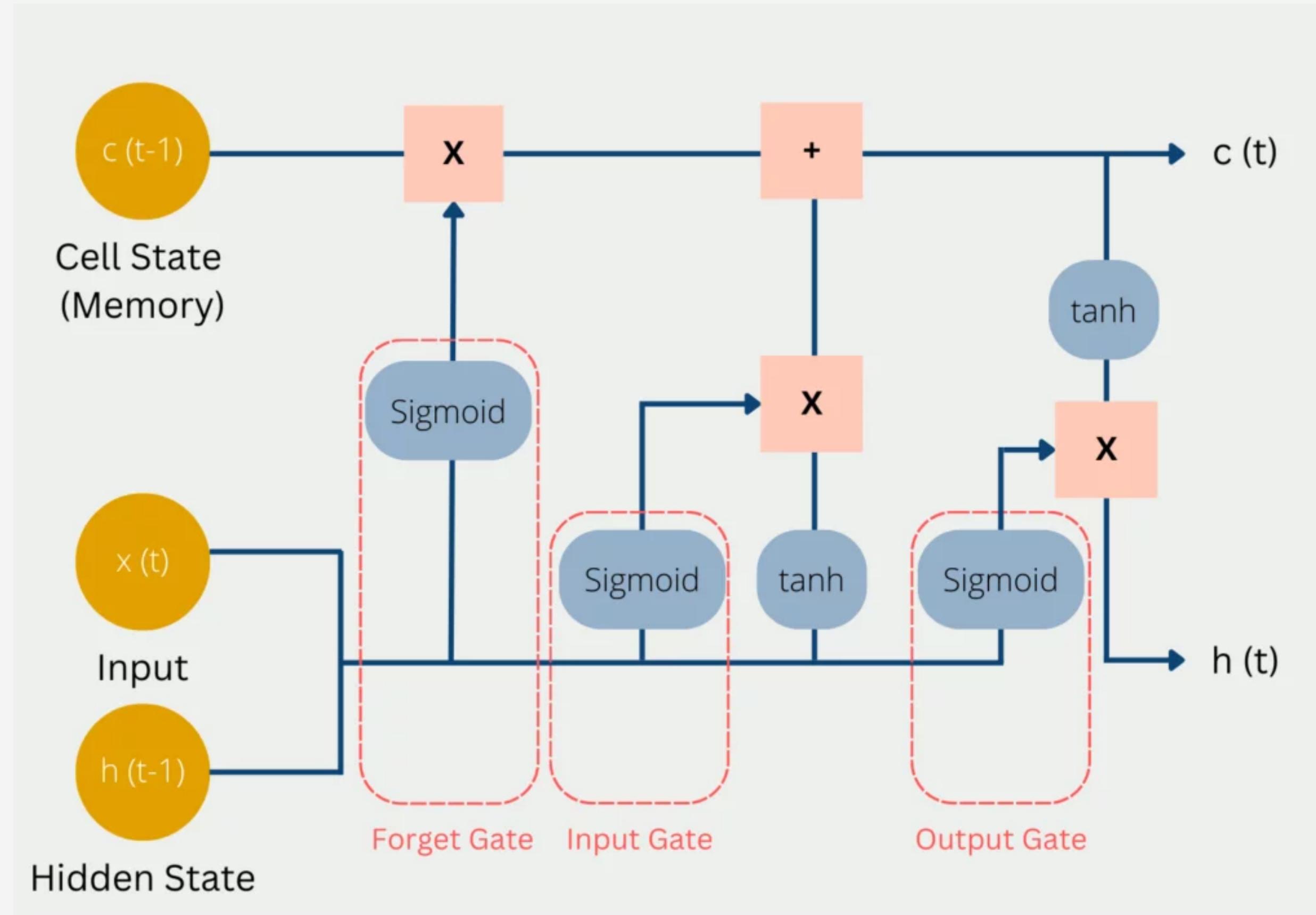
AUGMENTATION

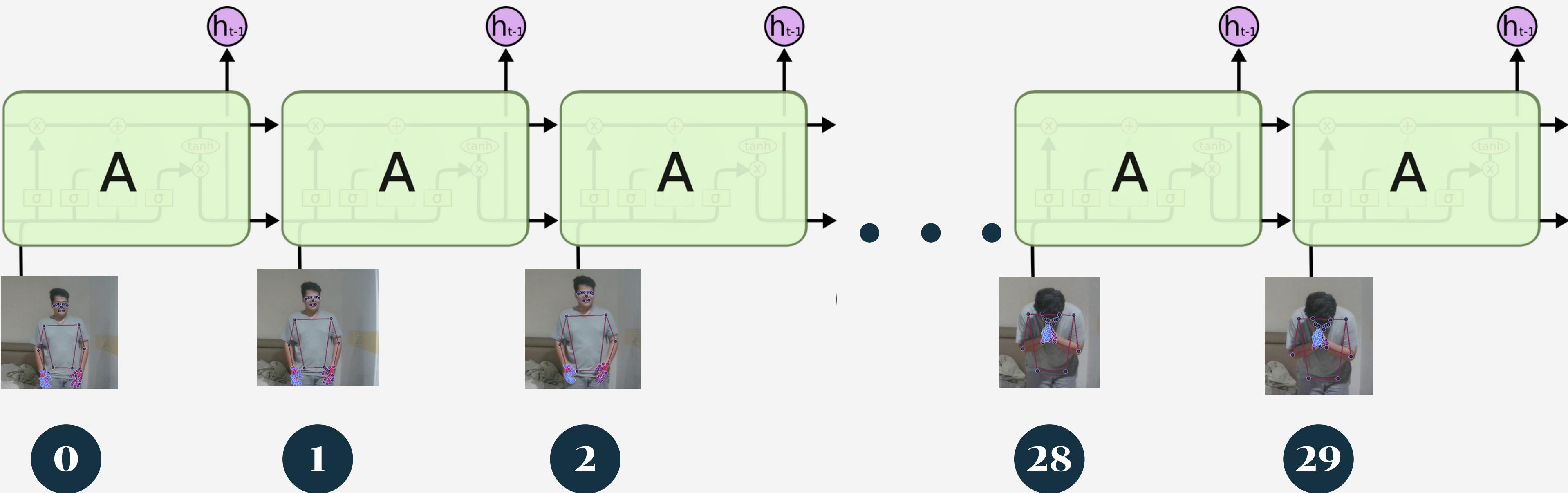


- ZOOM (1,1.5)
- ROTATION (-20,20)

MODEL?

LSTM MODEL

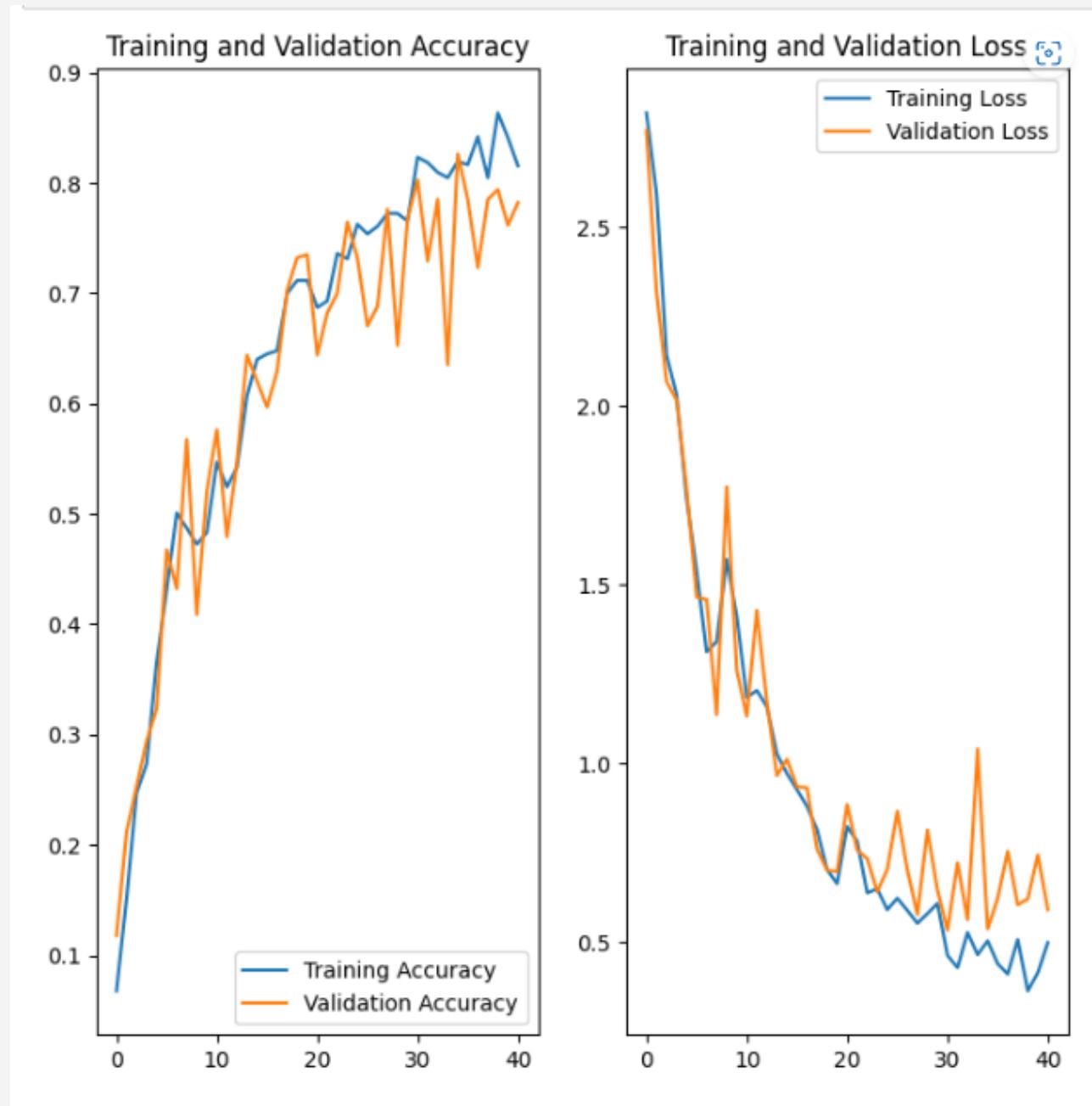




```
model = Sequential()
model.add(LSTM(64, return_sequences=True, activation='relu', input_shape=(30,258)))
model.add(LSTM(128, return_sequences=True, activation='relu'))
model.add(LSTM(64, return_sequences=False, activation='relu'))
model.add(Dense(64, activation='relu'))
model.add(Dense(32, activation='relu'))
model.add(Dense(actions.shape[0], activation='softmax'))
```

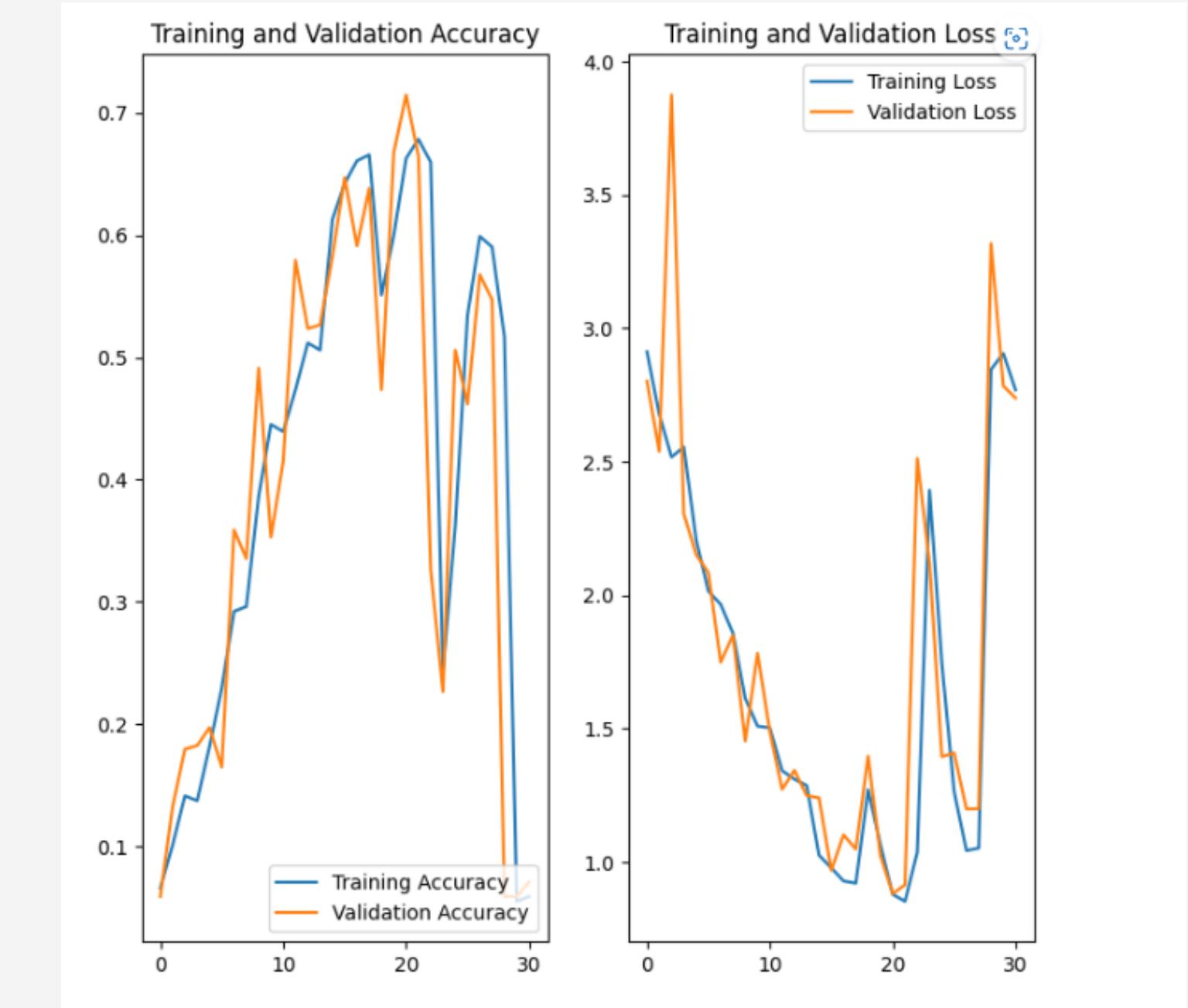
batch_size=32, learning_rate=0.001
CALLBACKS=[EARLY_STOP,CHECK_POINT]

NO AUGMENTATION ທ່າລະ 100, ທັງໝາດ 1700



ACCURACY: 0.7618 , LOSS: 0.5604

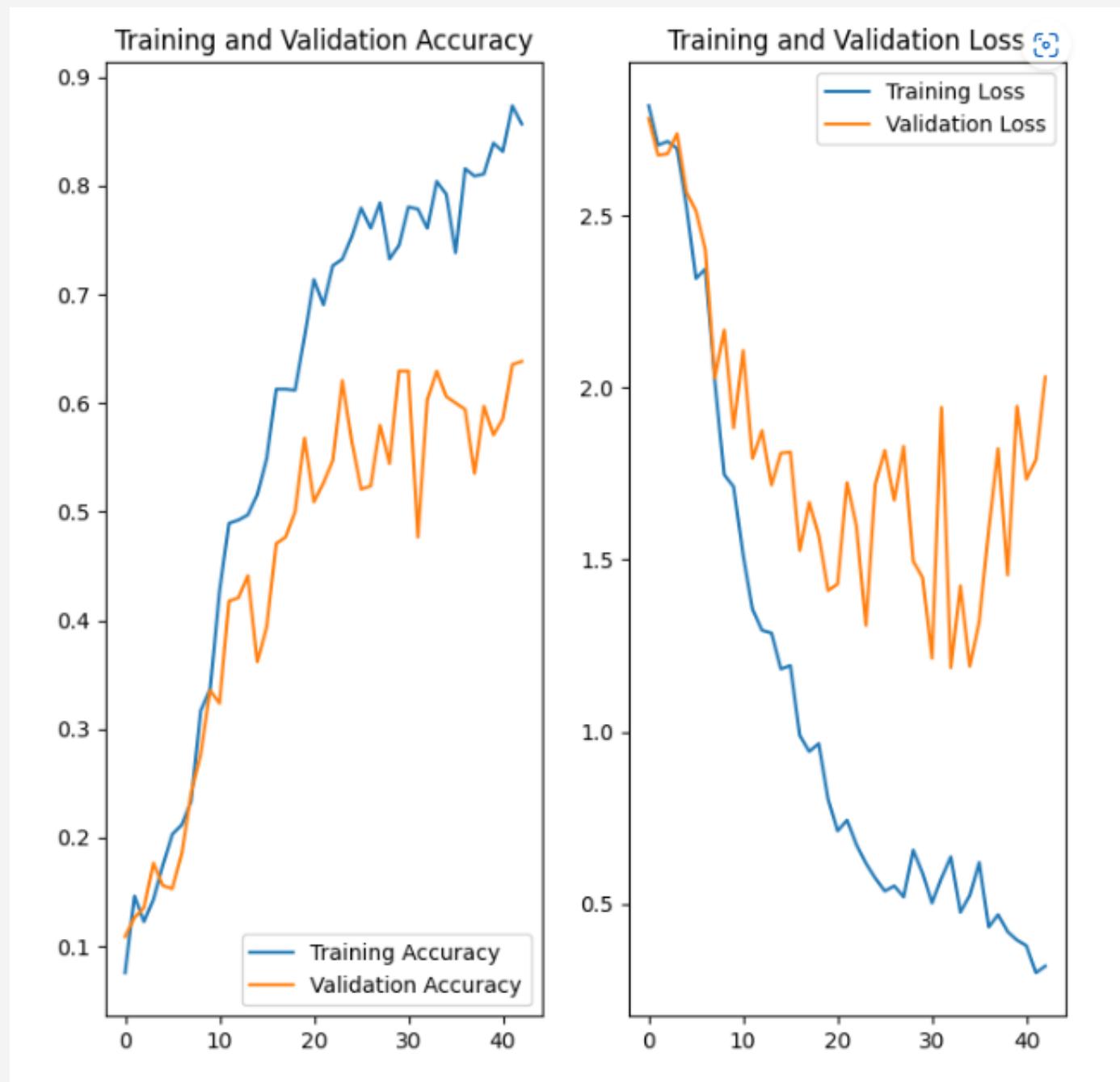
3 AUGMENTATION(ZOOM) ທ່າລະ 400 , ທັງໝາດ 6800



ACCURACY: 0.6824 , LOSS: 0.9195

5 AUGMENTATION (ZOOM+AUGMENTATION)

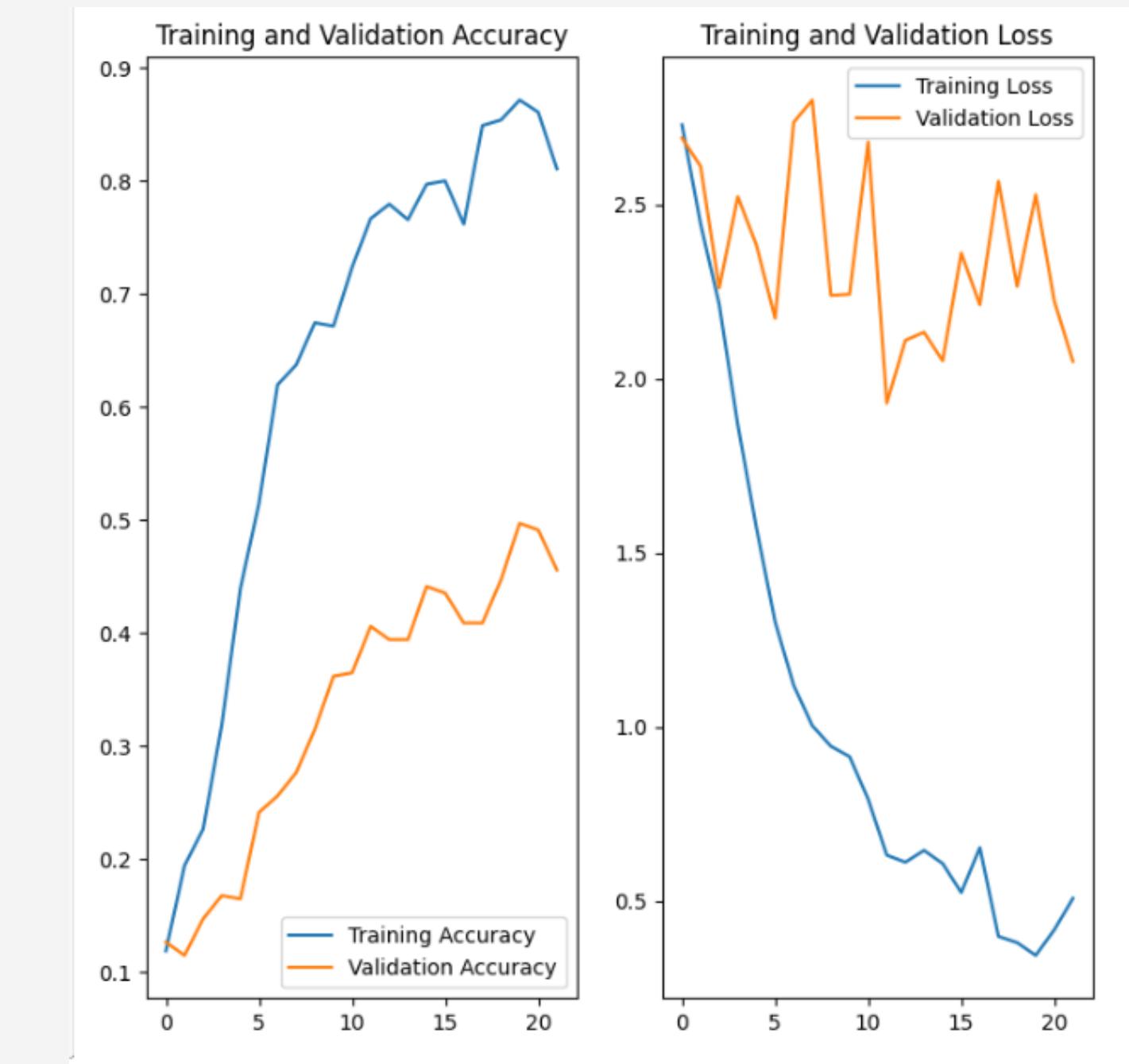
ท่าละ 600 , ทั้งหมด 10200



ACCURACY: 0.600 , LOSS: 1.4353

10 AUGMENTATION (ZOOM+AUGMENTATION)

ท่าละ 1000 , ทั้งหมด 17000



ACCURACY: 0.4206 , LOSS: 1.9696

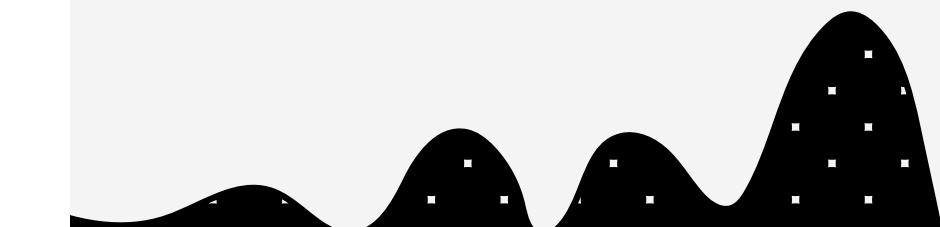
GROUND RULES • GROUND RULES

All fold confusion matrix of the multi-class classification

Model LSTM

Mean Accuracy is 0.76

	angry	cry	easy	fine	forgot	full	happy	hard	hello	like	love	me	miss	sad	scare	stand	you
angry	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
cry	0.00	0.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00
easy	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
fine	0.00	0.00	0.00	0.70	0.00	0.00	0.25	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
forgot	0.00	0.10	0.00	0.00	0.50	0.10	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.00
full	0.00	0.35	0.00	0.00	0.00	0.55	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.05	0.00
hard	0.00	0.00	0.05	0.35	0.00	0.00	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
happy	0.00	0.00	0.15	0.00	0.00	0.00	0.75	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
hello	0.00	0.00	0.05	0.00	0.00	0.00	0.05	0.75	0.00	0.05	0.00	0.00	0.00	0.00	0.10	0.00	0.00
like	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.35	0.00	0.50	0.00	0.15	0.00	0.00	0.00	0.00
love	0.00	0.00	0.05	0.00	0.00	0.00	0.05	0.00	0.05	0.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00
me	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.75	0.00	0.15	0.00	0.00	0.00	0.00
miss	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.95	0.00	0.00	0.00	0.00	0.00
sad	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.25	0.00	0.50	0.00	0.00	0.00	0.00
scare	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00
stand	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
you	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.95	0.00



	precision	recall	f1-score	support
angry	1.00	0.80	0.89	20
cry	0.68	0.95	0.79	20
easy	0.77	1.00	0.87	20
fine	0.67	0.70	0.68	20
forgot	0.91	0.50	0.65	20
full	0.85	0.55	0.67	20
happy	0.71	0.60	0.65	20
hard	0.88	0.75	0.81	20
hello	0.83	0.75	0.79	20
like	0.44	0.35	0.39	20
love	0.94	0.85	0.89	20
me	0.47	0.75	0.58	20
miss	0.66	0.95	0.78	20
sad	0.62	0.50	0.56	20
scare	1.00	1.00	1.00	20
stand	0.91	1.00	0.95	20
you	0.95	0.95	0.95	20
accuracy			0.76	340
macro avg	0.78	0.76	0.76	340
weighted avg	0.78	0.76	0.76	340

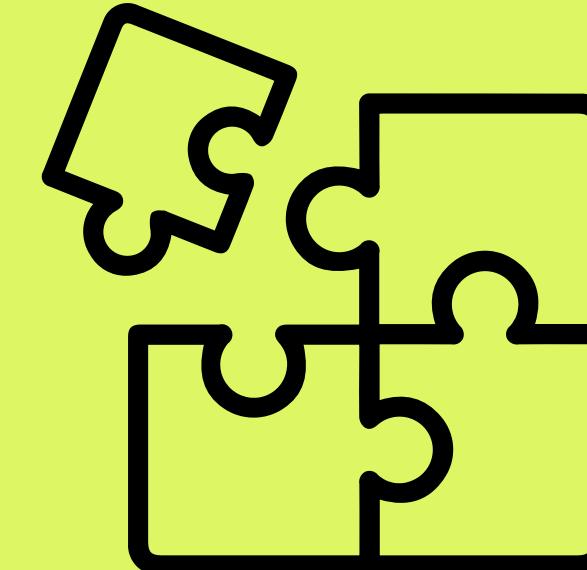
ปัญหาที่พบ&วิธีแก้ไข

DataSet ค่อนข้างใหญ่



จำนวน frame ของ video
ไม่เท่ากัน

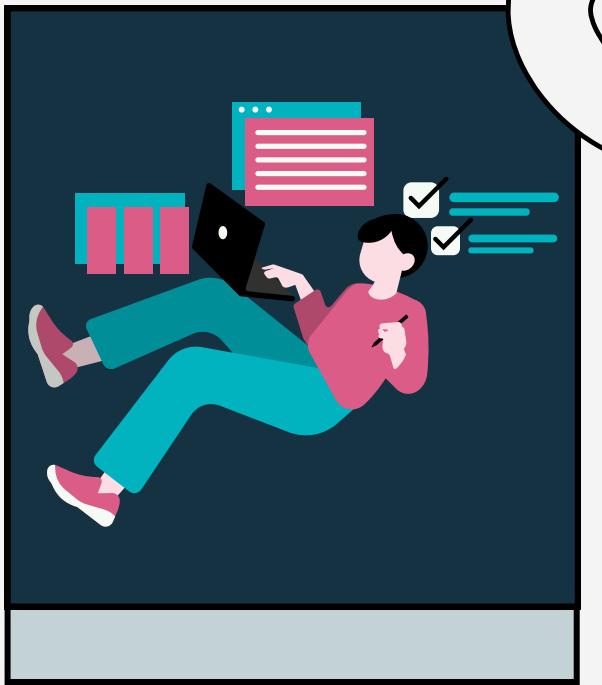
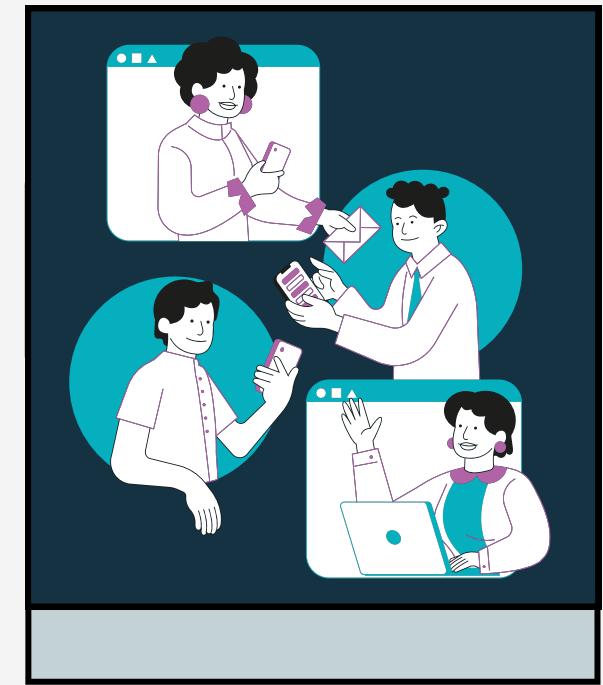
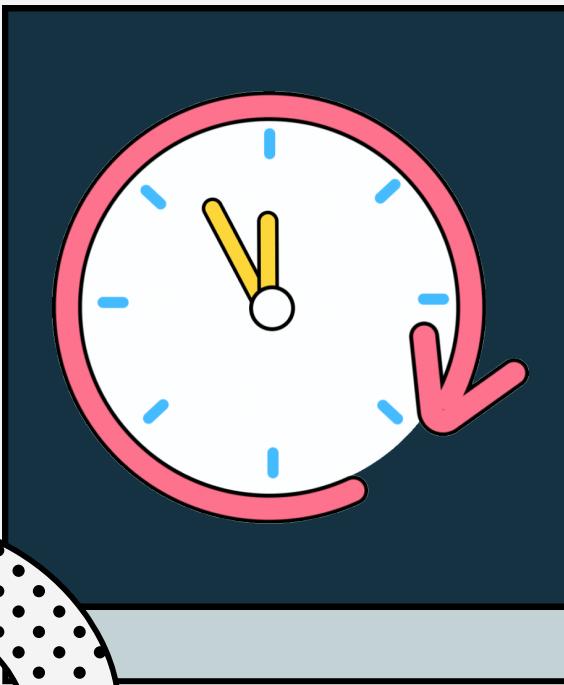
ทำ DataSet ขึ้นมาเอง



เขียนโค้ดล็อกเฟรมให้เท่ากัน



PROJECT TEAM LESSON LEARN



Ideas from the project: Respect for each other is an inherent quality in teamwork.