

“

# TEAM B

## 화재 발생 여부 분석 모델”

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팀장 : 이상호

팀원 : 박건영, 채세현, 박우현

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# 데이터 전처리



데이터 셋 정보 : Kaggle - FIRE DATASET  
<https://www.kaggle.com/datasets/phylake1337/fire-dataset>

CLASS  
Fire images  
Non-fire images

데이터셋 로드



Numpy 변환

데이터 셋 을 불러와 numpy  
형식으로 변환

데이터셋 분할



데이터 정규화

이미지 픽셀 값을 255로 나누어  
0~1의 값으로 정규화  
데이터 셋을 훈련,검증,테스트  
데이터로 분할

# 모델링

-Model-  
Sequential

## 기본모델

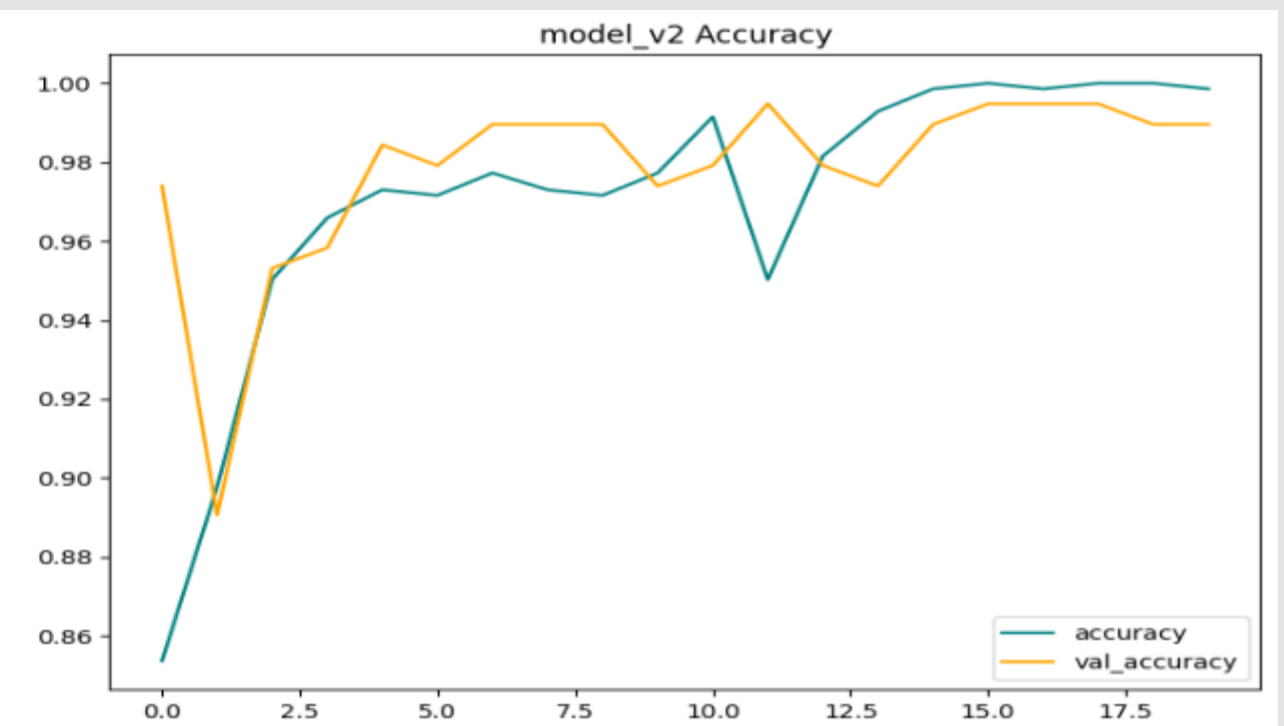
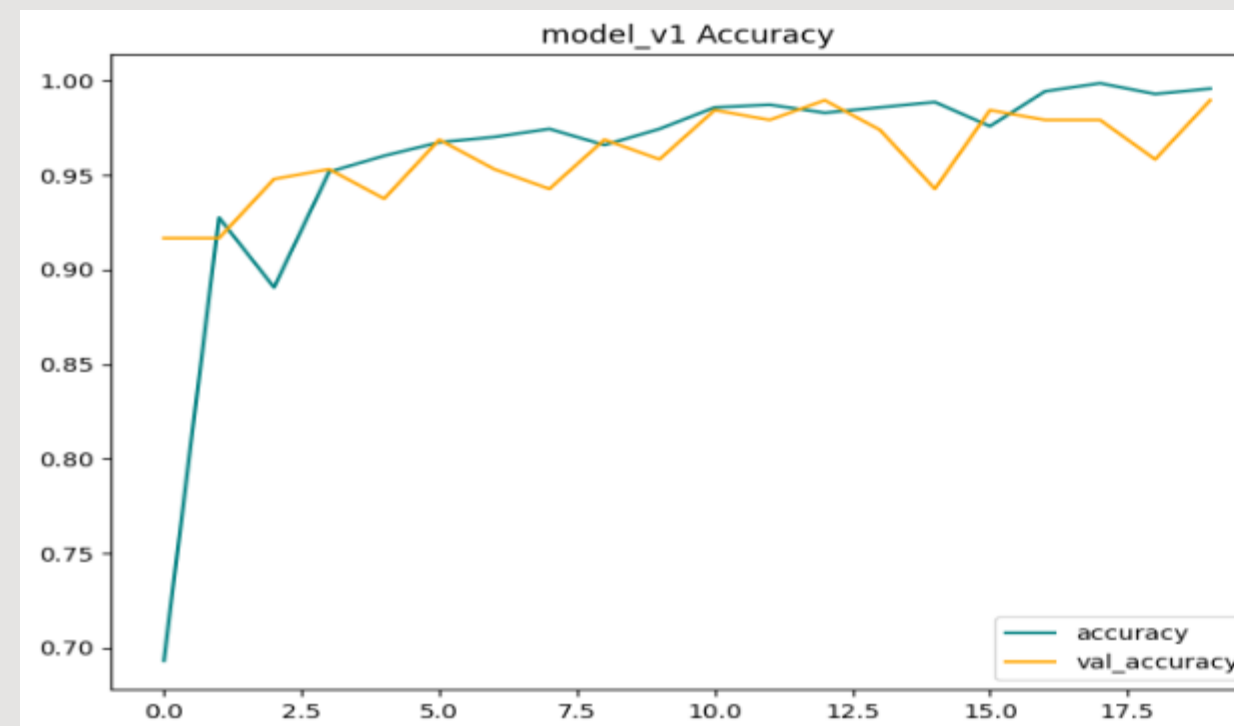
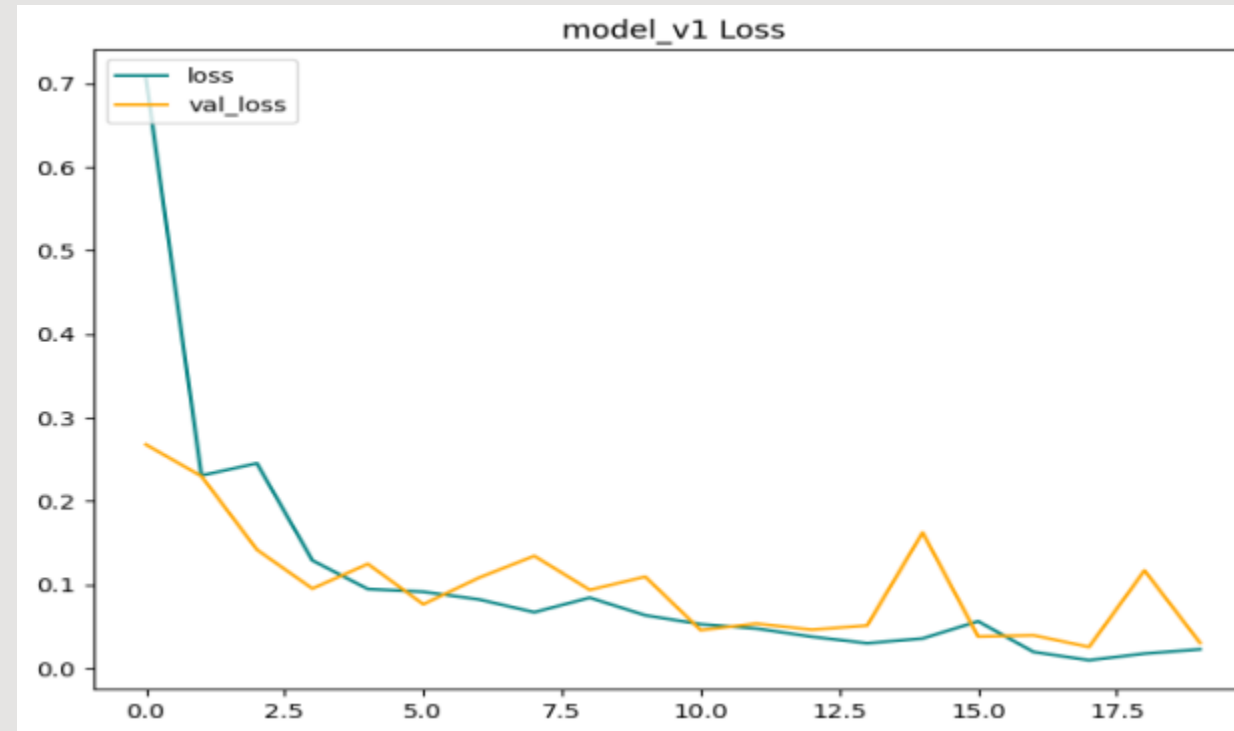
Layer (type)	Output Shape	Param #
conv2d (Conv2D)	(None, 254, 254, 16)	448
max_pooling2d (MaxPooling2D)	(None, 127, 127, 16)	0
conv2d_1 (Conv2D)	(None, 125, 125, 32)	4,640
max_pooling2d_1 (MaxPooling2D)	(None, 62, 62, 32)	0
conv2d_2 (Conv2D)	(None, 60, 60, 16)	4,624
max_pooling2d_2 (MaxPooling2D)	(None, 30, 30, 16)	0
flatten (Flatten)	(None, 14400)	0
dense (Dense)	(None, 256)	3,686,656
dense_1 (Dense)	(None, 1)	257

# 모델링

-Model-  
Sequential

## 기본

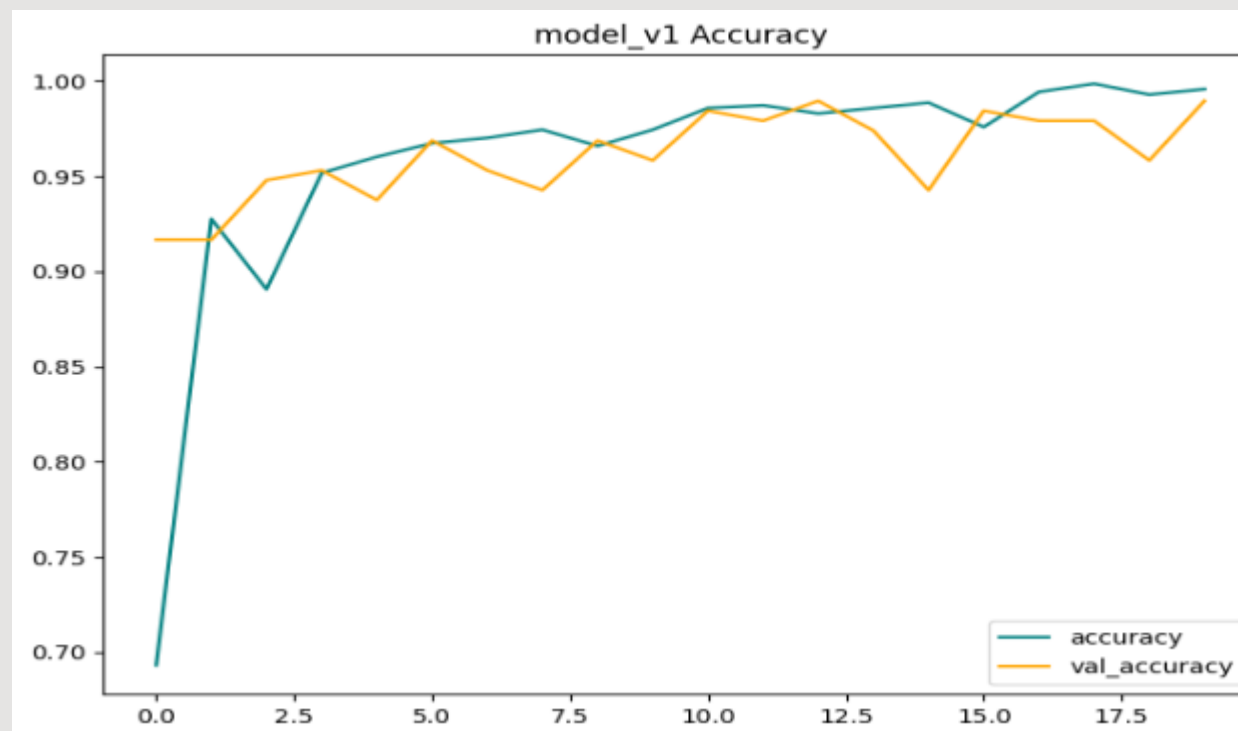
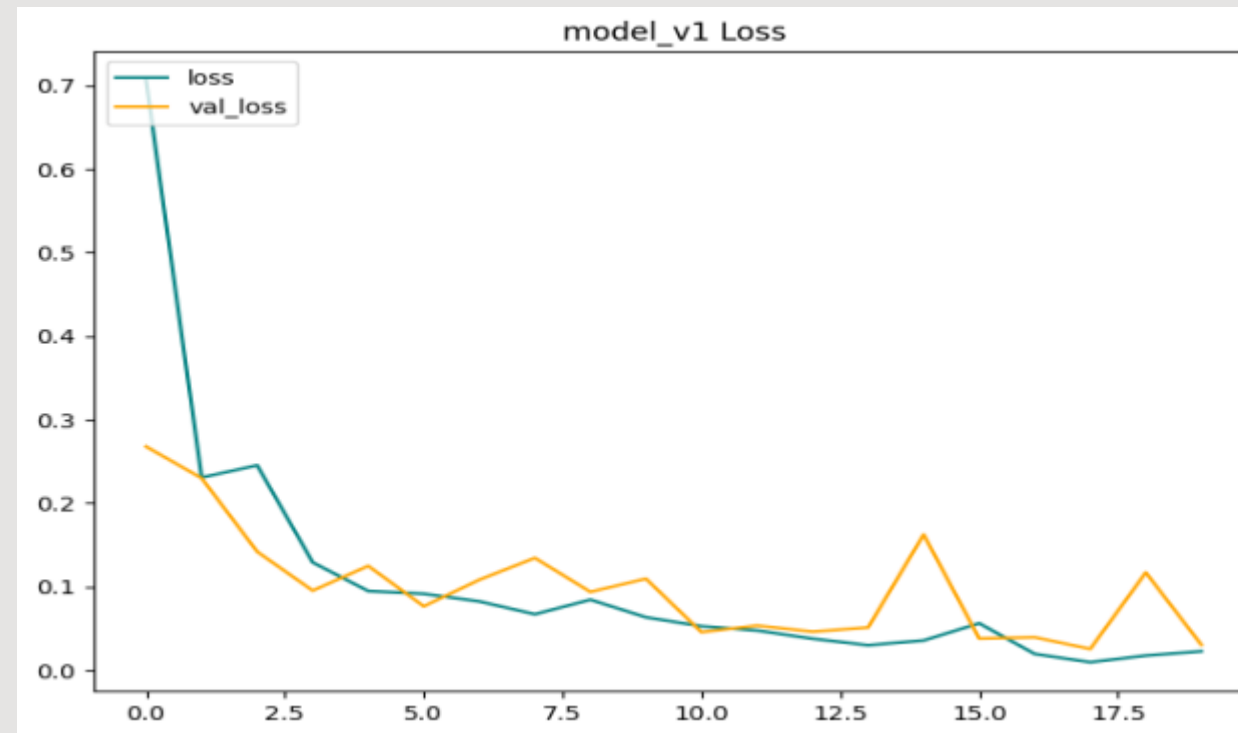
## 하이퍼 파라미터값 변경



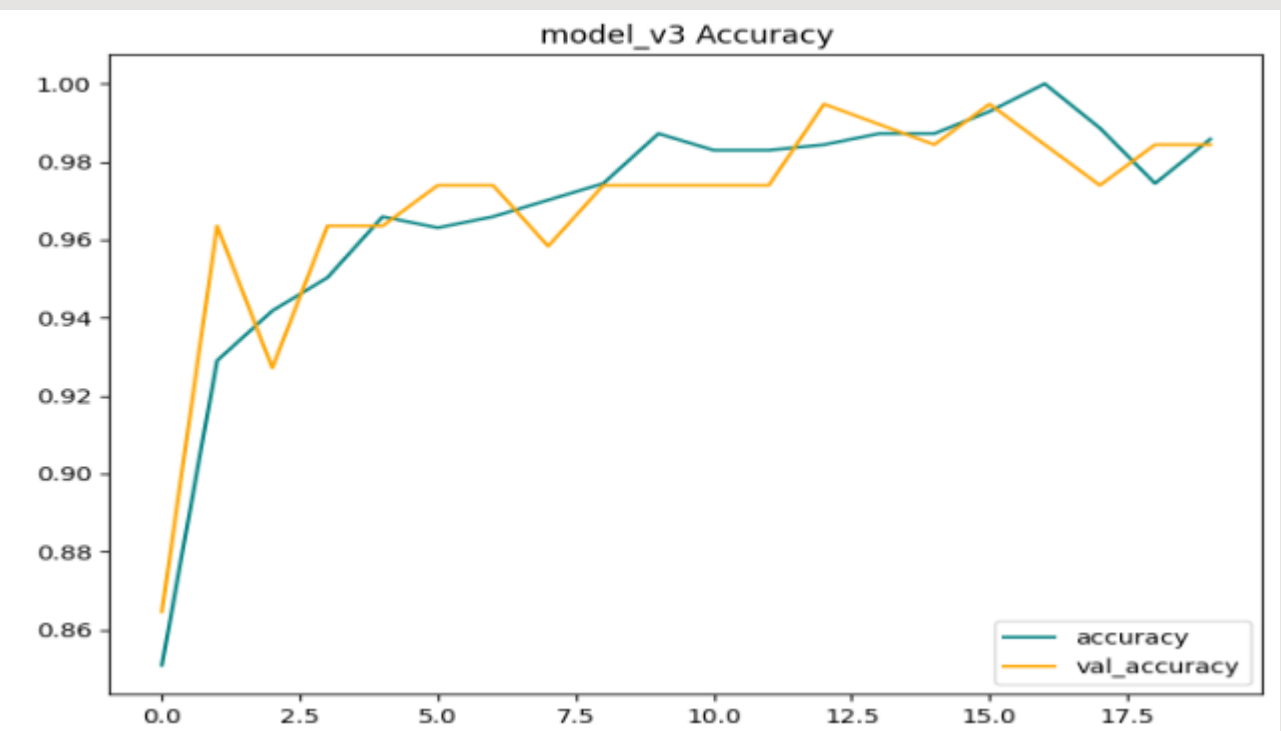
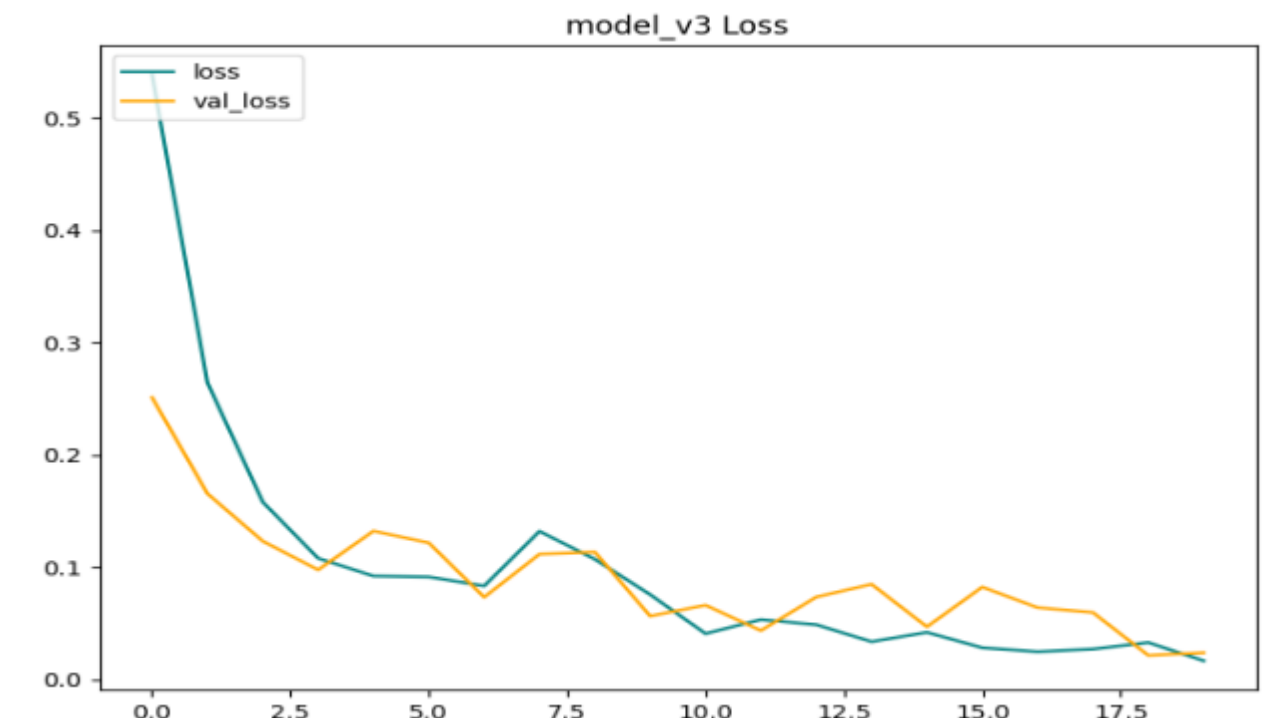
# 모델링

-Model-  
Sequential

## 기본



## Dropout 추가



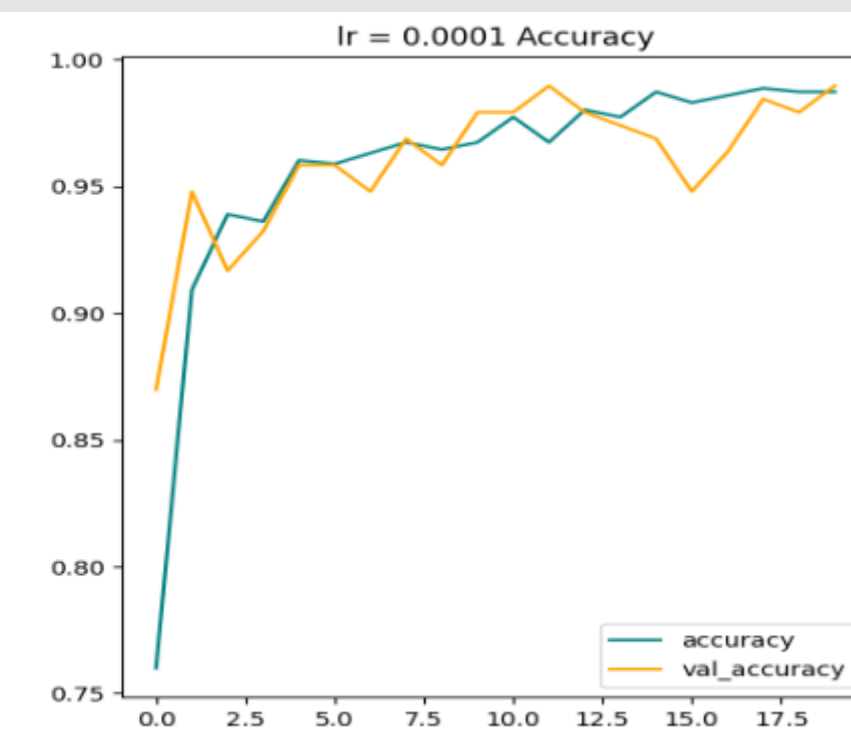
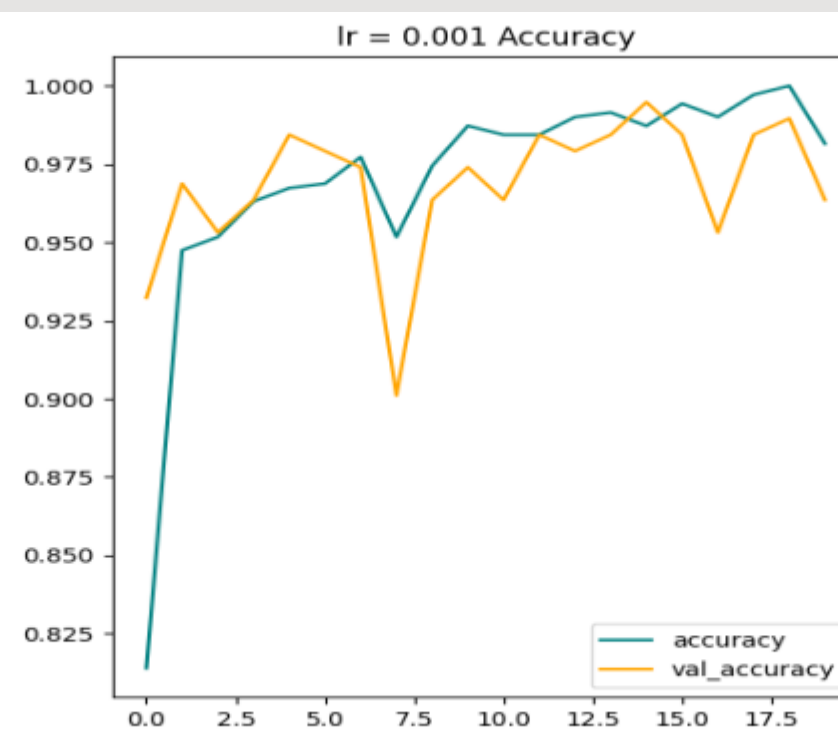
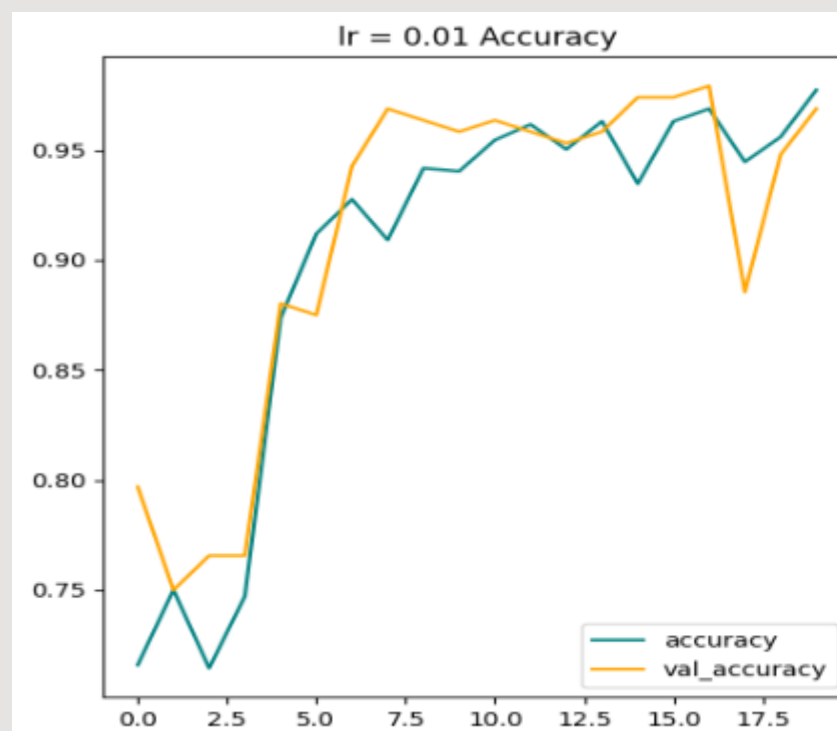
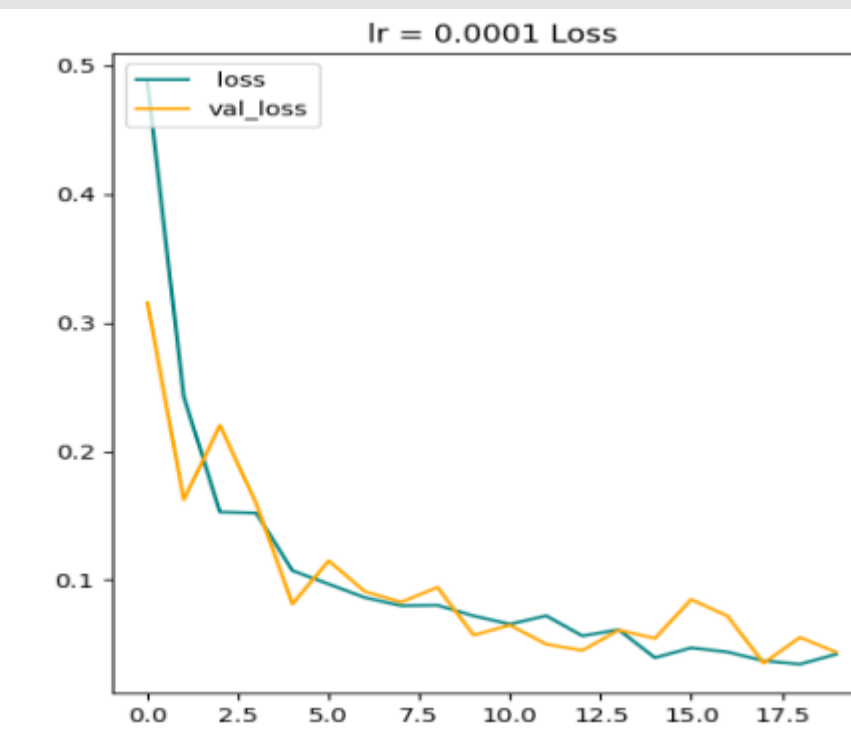
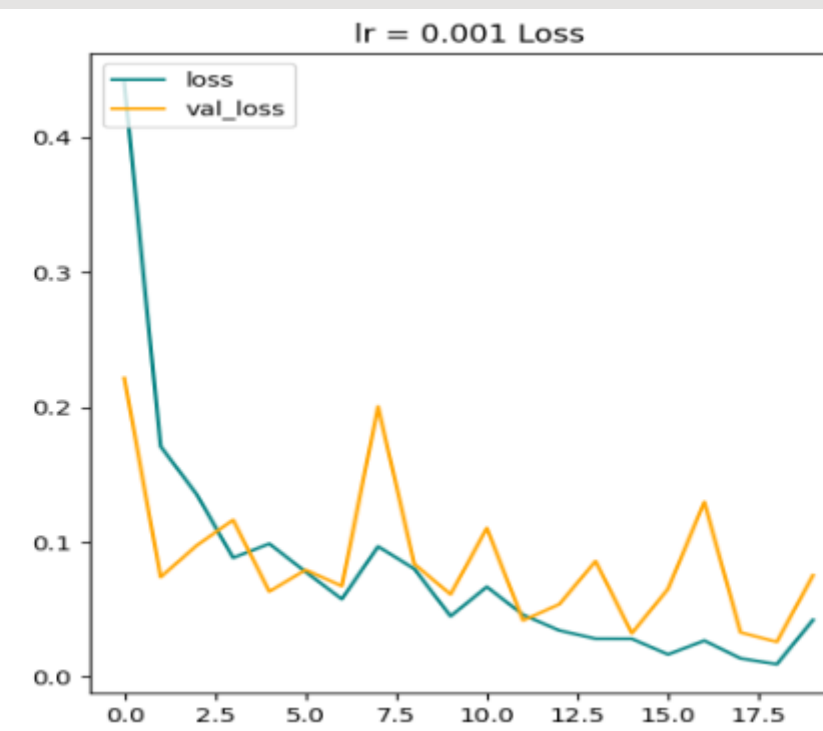
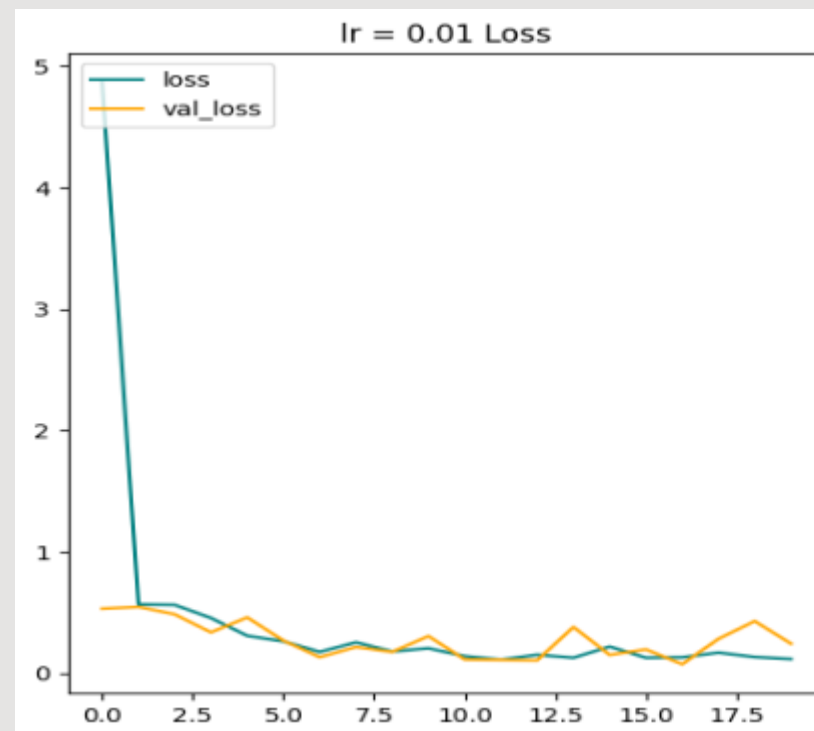
# 모델링

-Model-  
Sequential

학습률 0.01

학습률 0.001

학습률 0.0001





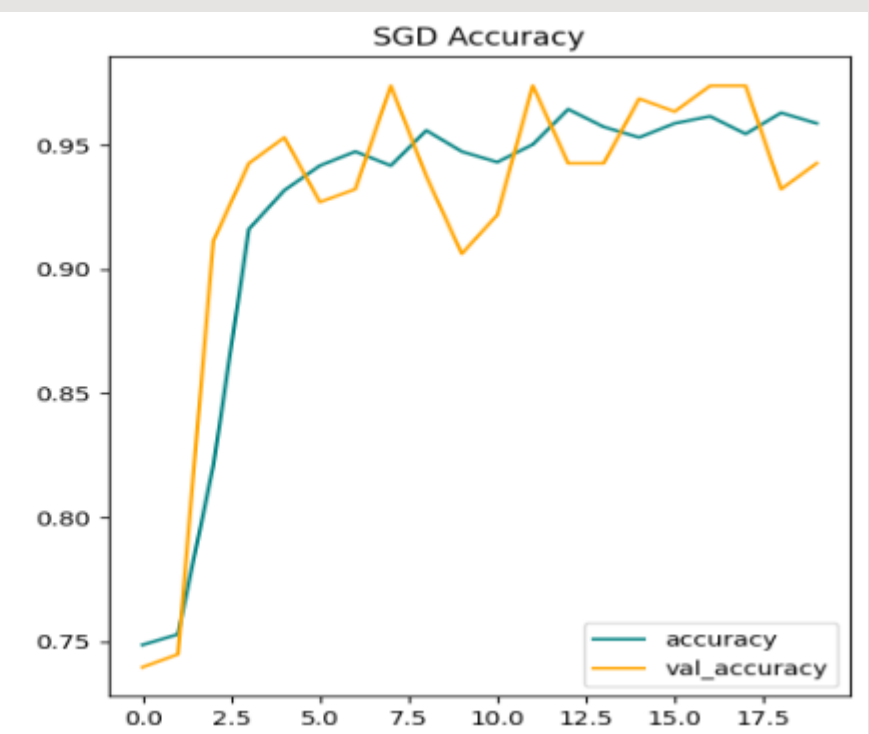
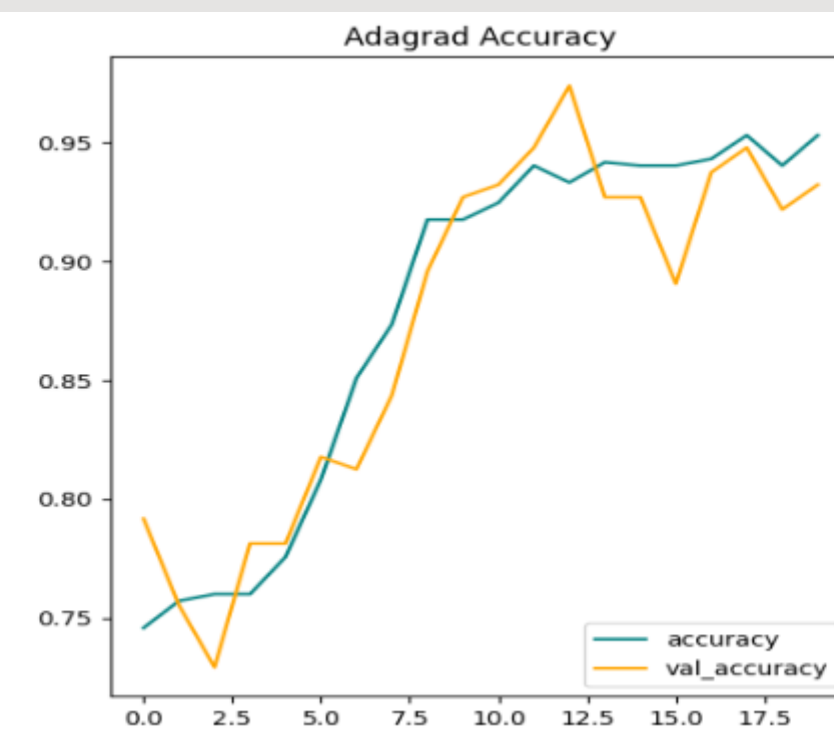
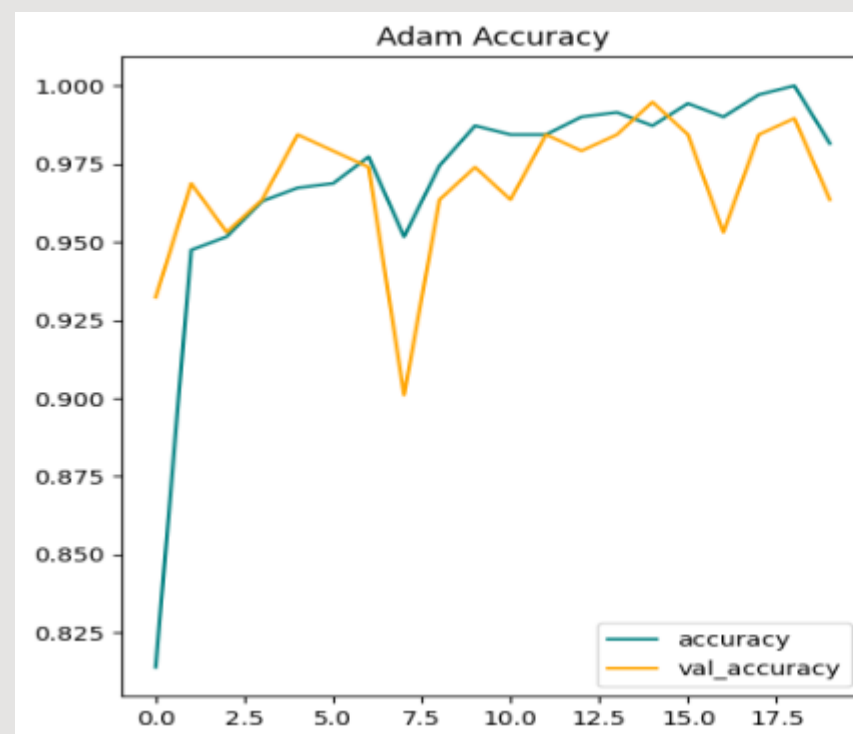
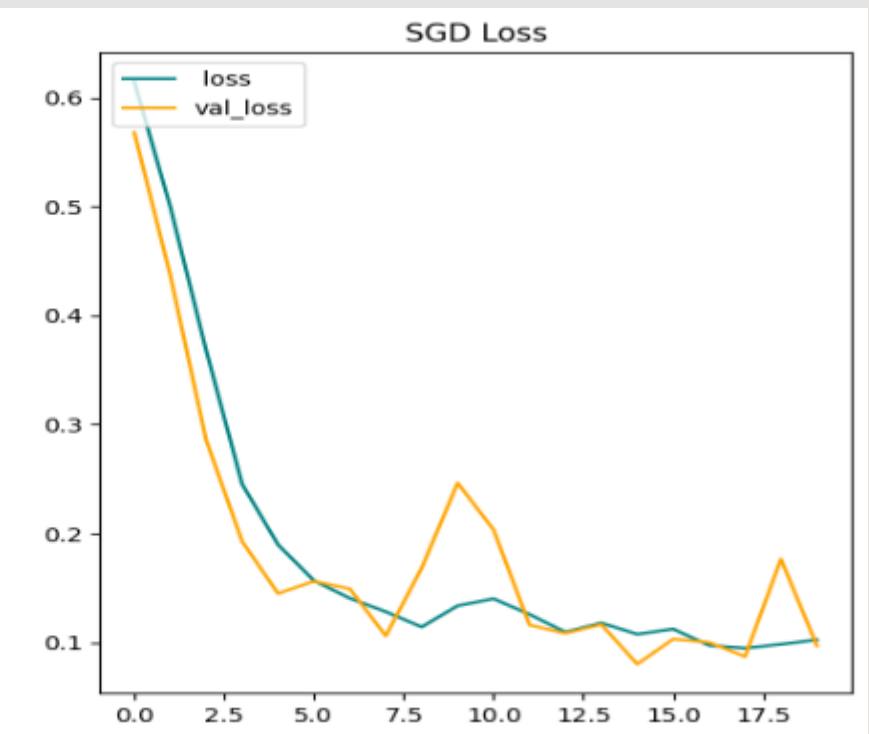
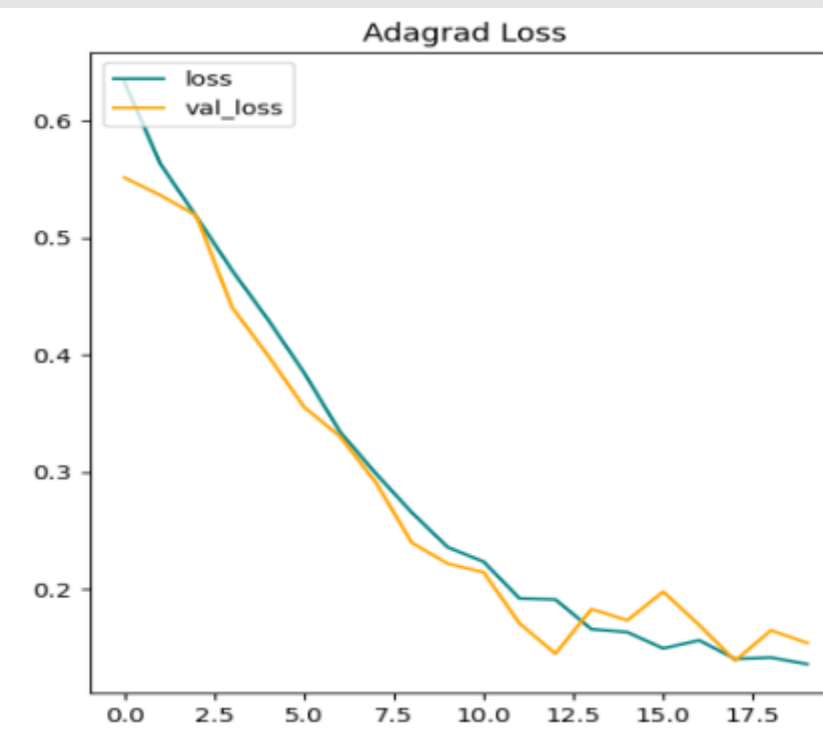
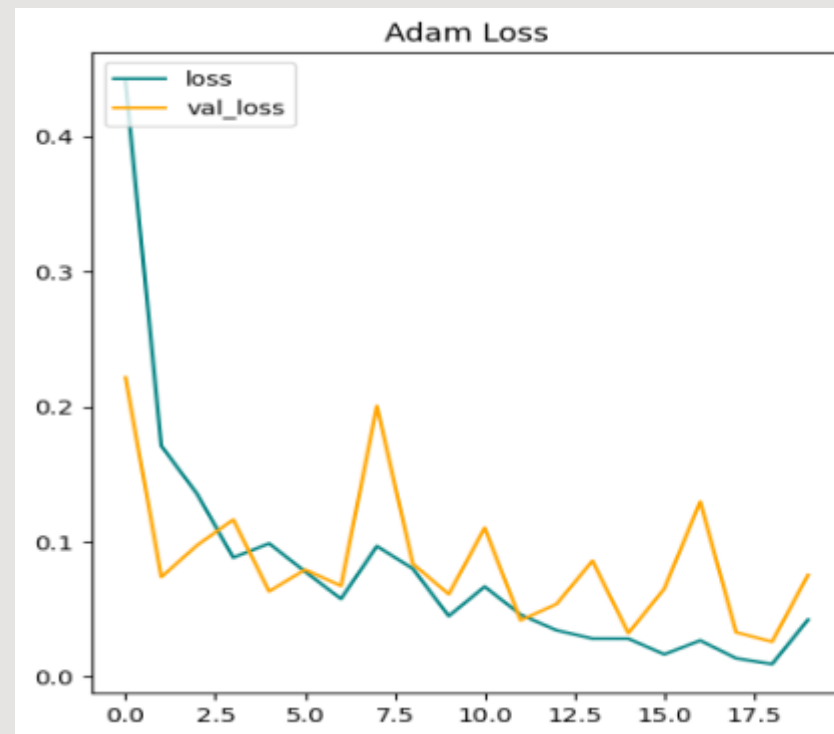
# 모델링

-Model-  
Sequential

## ADAM

## ADAGRAD

## SGD



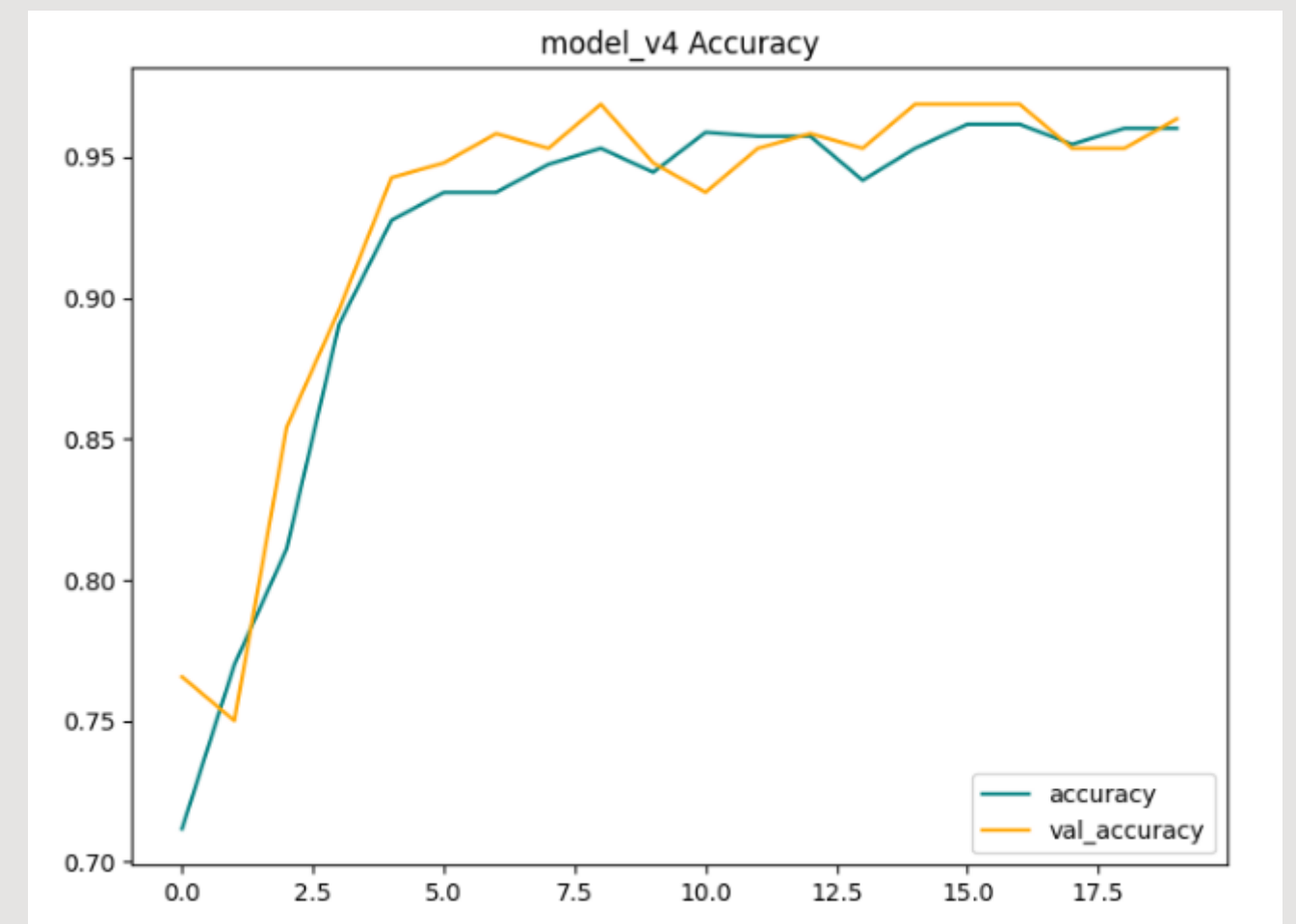
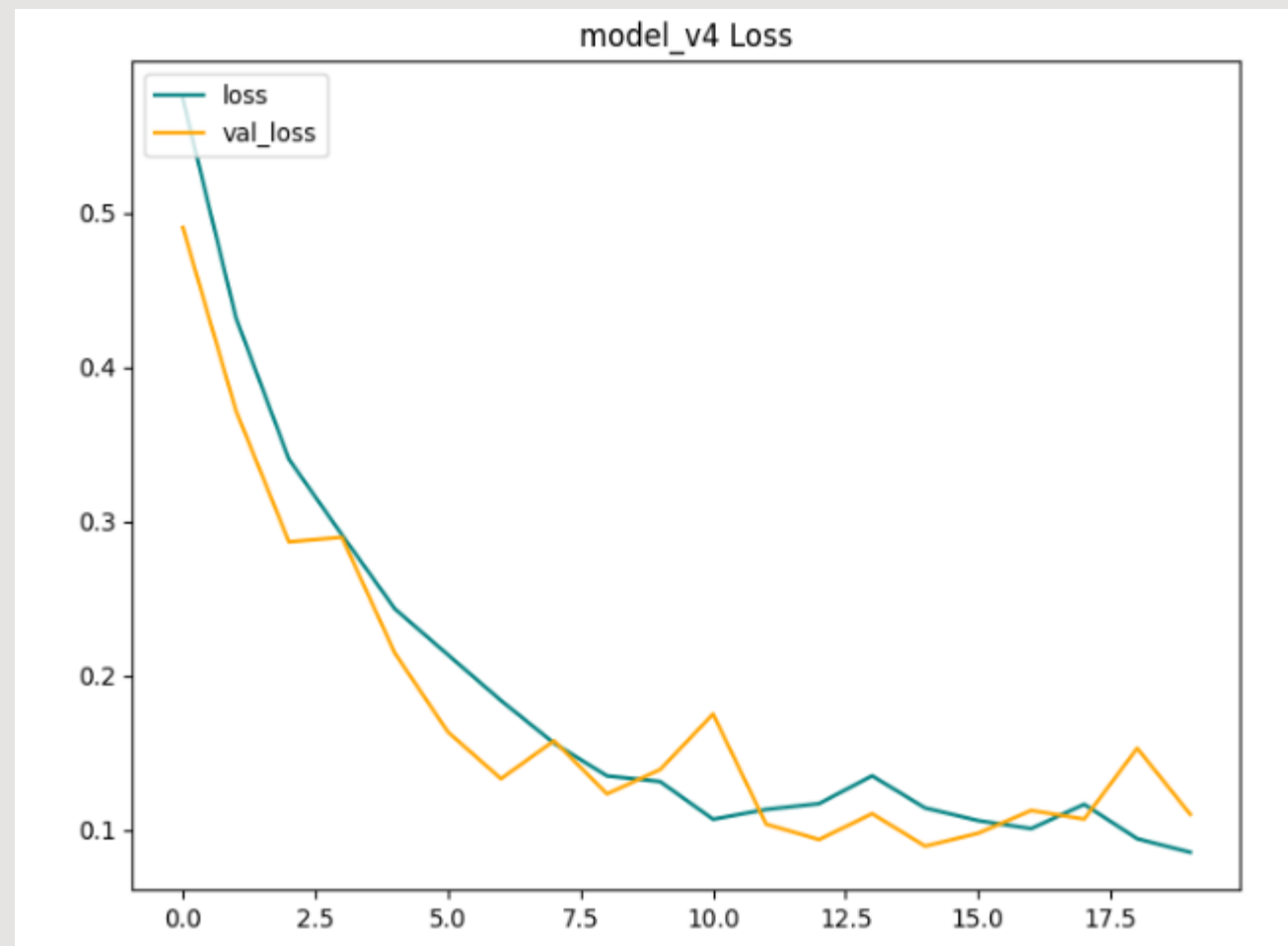


# 모델링

-Model-  
Sequential

## 최종

기본 모델 + DROPOUT 추가  
학습률 : 0.001  
OPTIMIZER : SGD



# 모델 평가

-Model-  
Sequential

Predicted: fire



shutterstock.com - 575310580

Predicted: non\_fire



Predicted: non\_fire



Predicted: fire



Predicted: non\_fire



Predicted: fire



Predicted: non\_fire



Predicted: fire



Predicted: fire



Predicted: fire

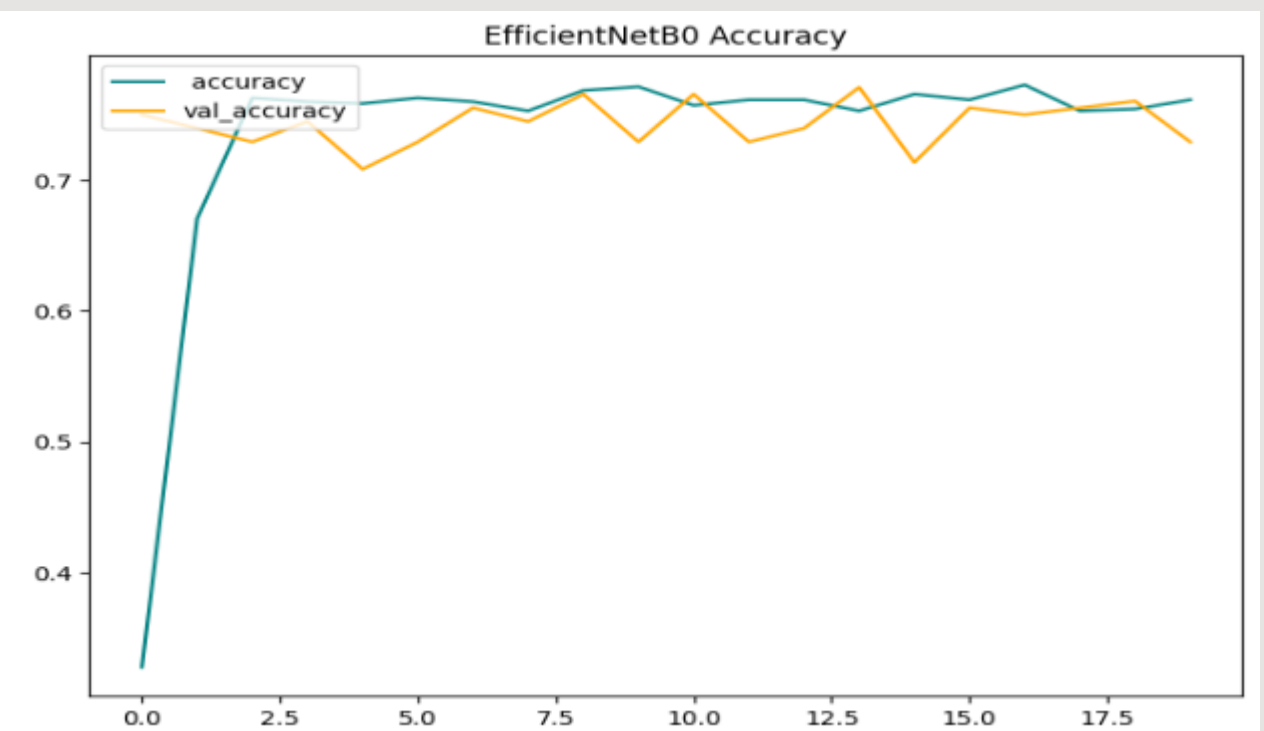
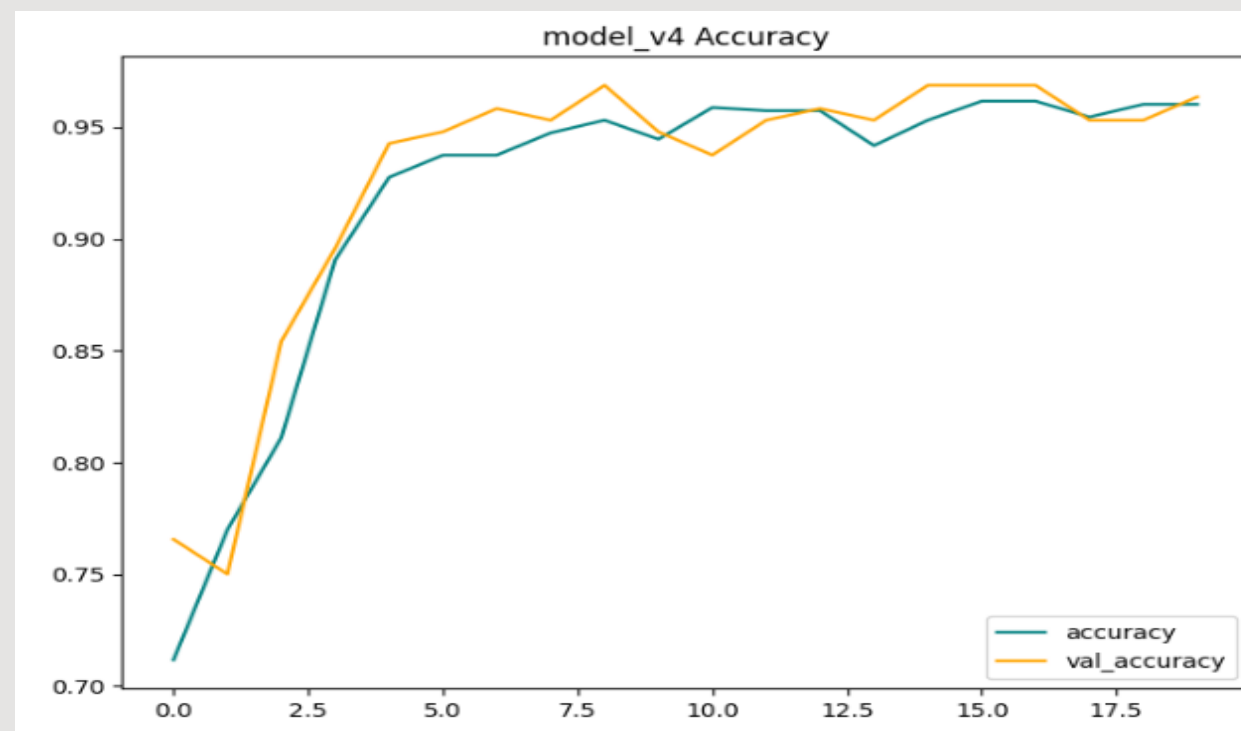
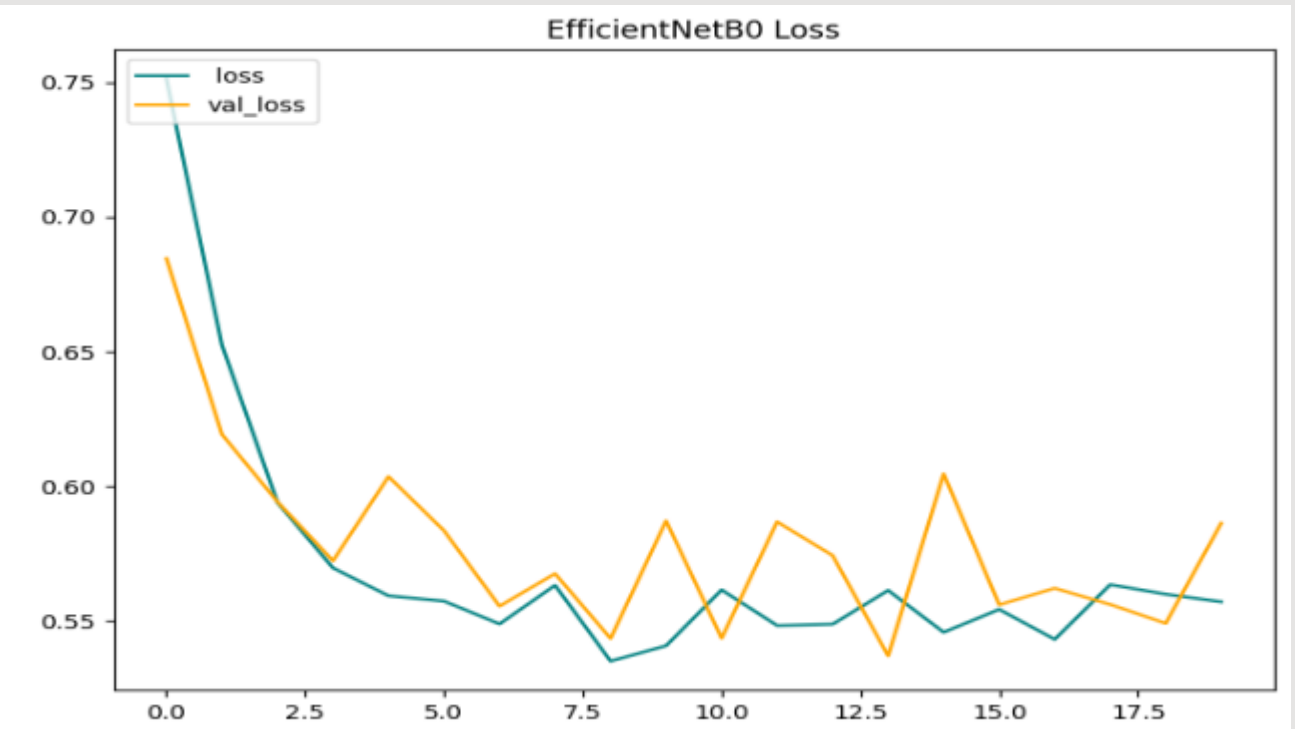
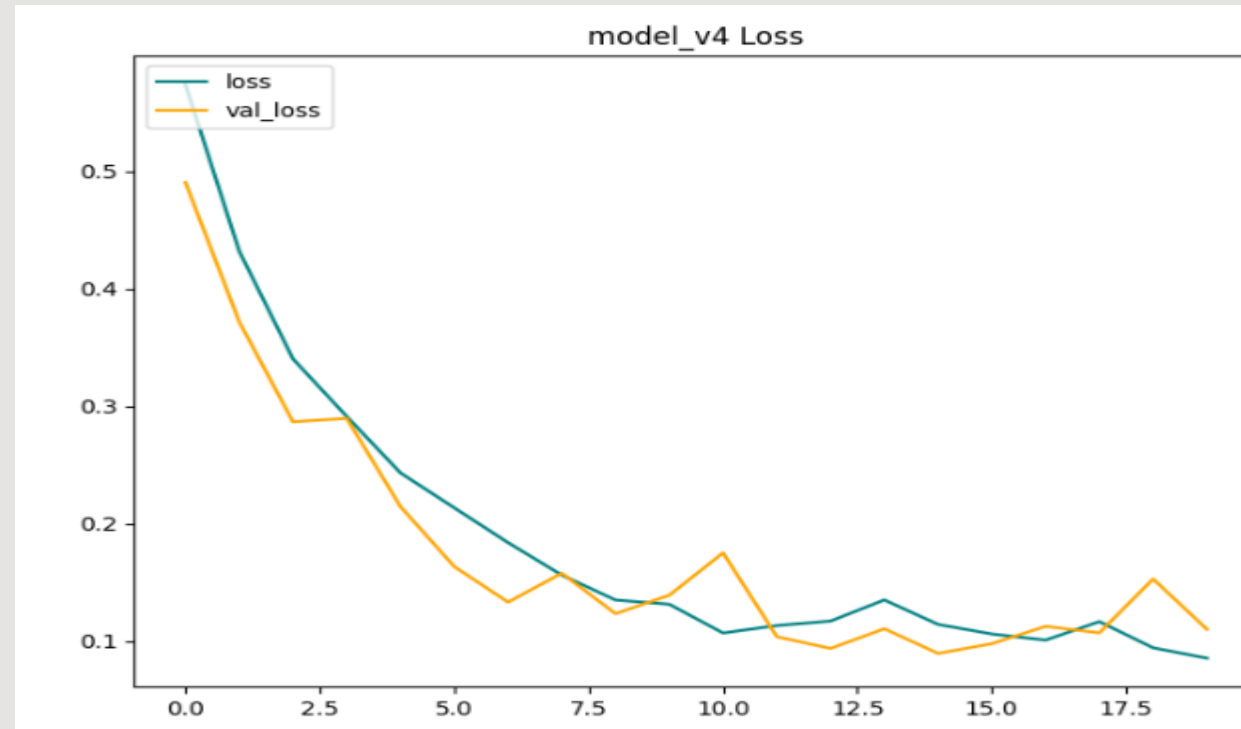


# 모델 평가

-Model-  
EfficientNetB0

최종

EfficientNetB0



## 개선사항

더 많은 학습 횟수 및 과적합 방지를 위한 조기 종료 추가

데이터 증강을 통한 데이터셋 양 보완

데이터셋을 변경하여 학습

다양한 종류의 모델 추가



**궁금한 점이 있다면 질문해주세요!**

**감사합니다!**