



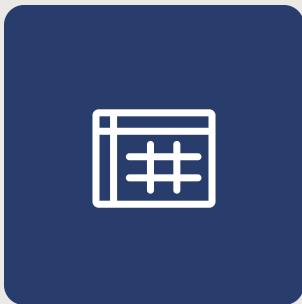
DISTRACTED DRIVER DETECTION

Jordana Tepper

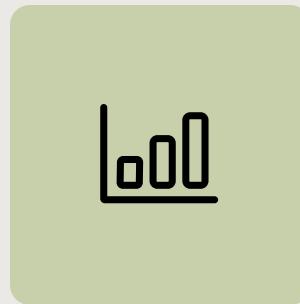
AGENDA



Business Problem



Data Understanding



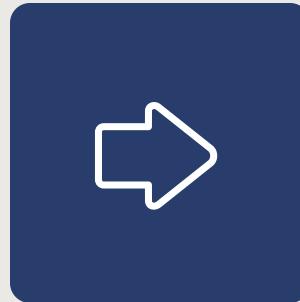
Data Analysis



Modeling



Limitations

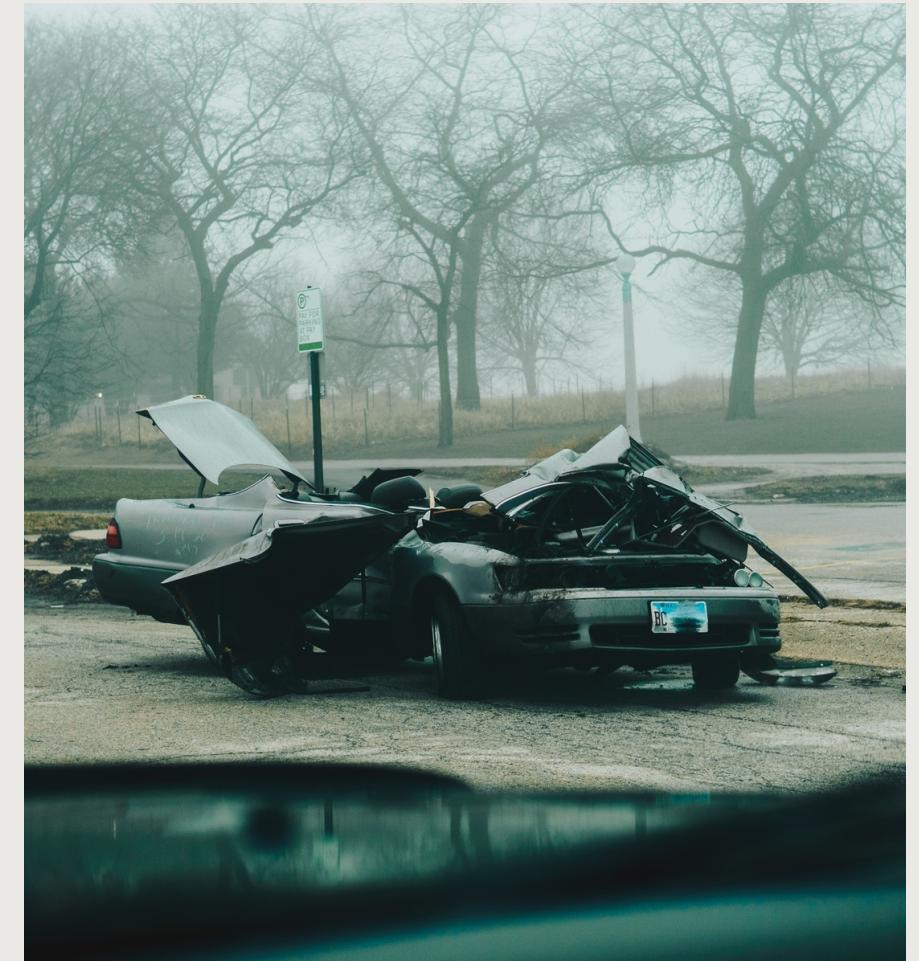


Next steps

BUSINESS PROBLEM

THERE ARE THREE MAIN TYPES OF DISTRACTED DRIVING

- 1 Visual: taking your eyes off the road
- 2 Manual: taking your hands off the wheel
- 3 Cognitive: taking your mind off driving



BUSINESS PROBLEM

Accidents caused by distracted driving

1 IN 5

Number of people injured from distracted driving

424,000 PEOPLE

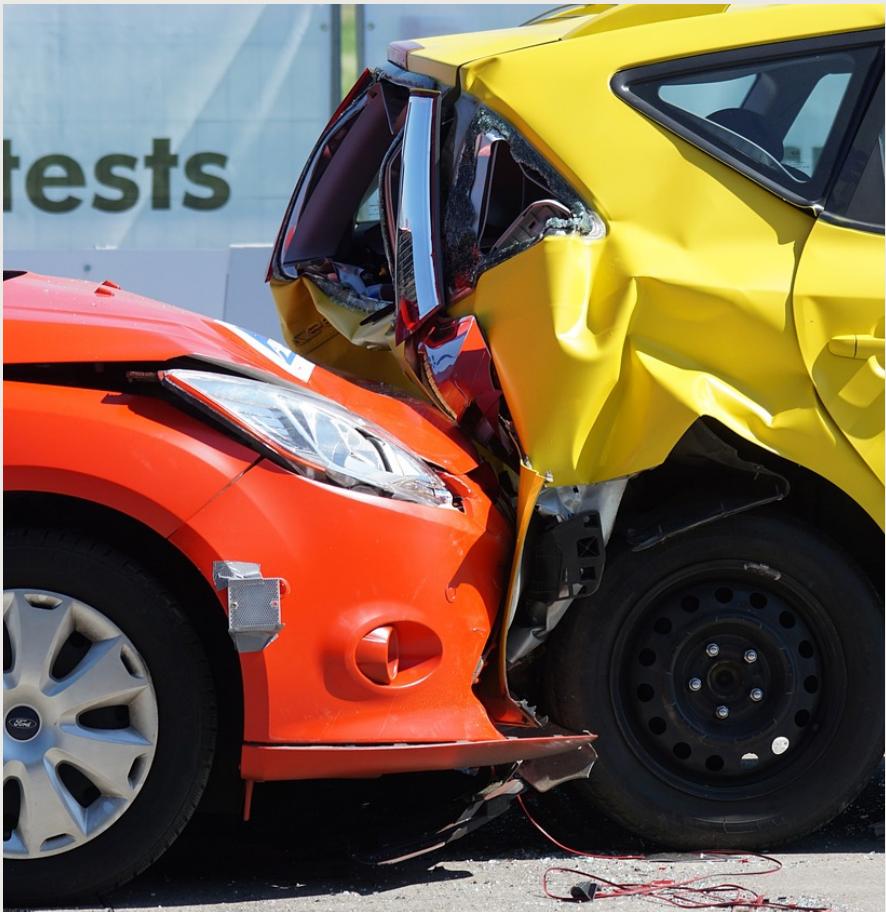
Distracted driving kills

9 PEOPLE PER DAY

Victims of a distracted driver accident while outside their vehicle

1 IN 5

BUSINESS PROBLEM



STAKEHOLDER:

State Farm

PROPOSAL:

Dashboard camera to detect distracted driving

INCENTIVE:

Safe driving practices = Better car insurance

DATA UNDERSTANDING

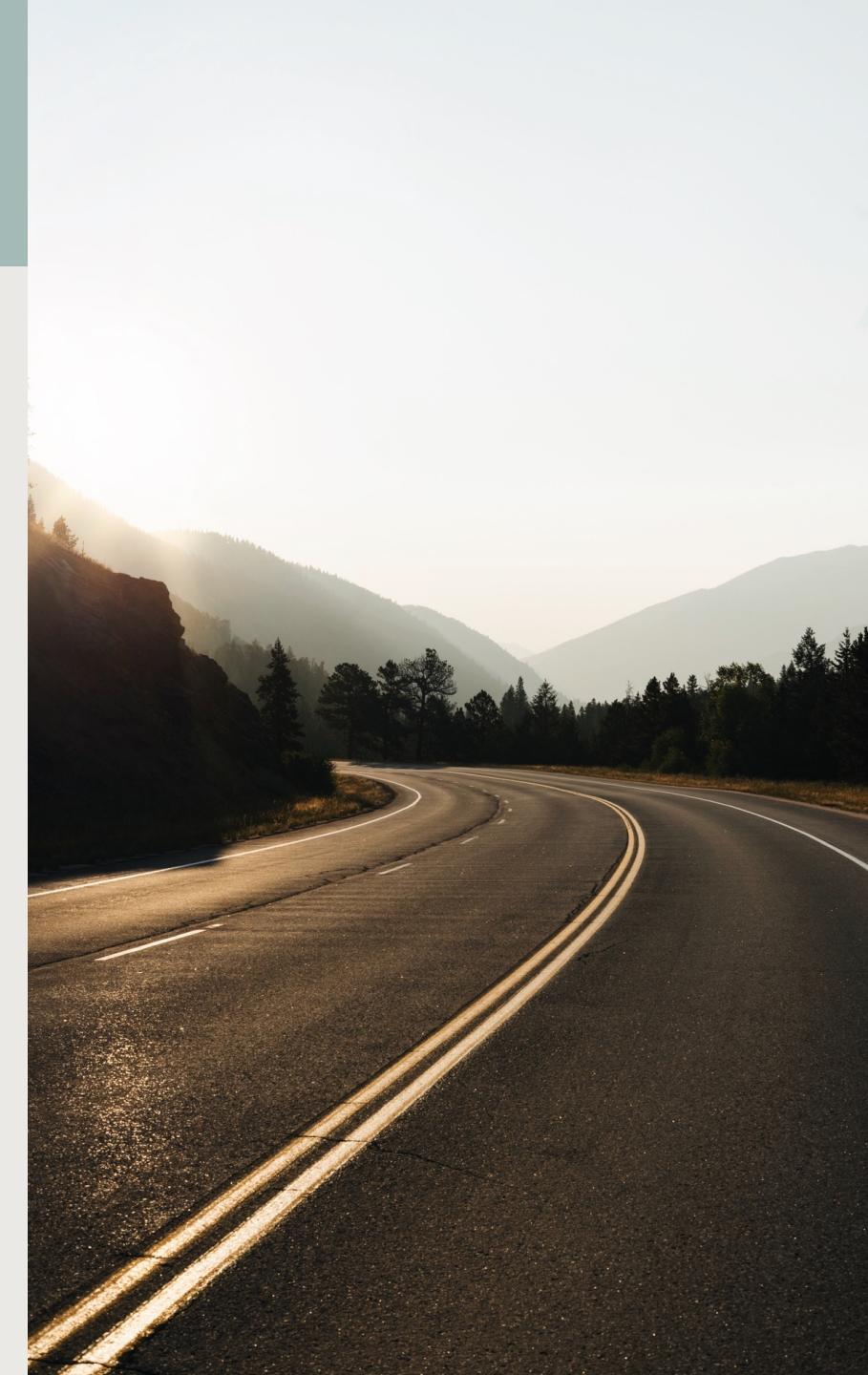
Data Source: Kaggle

Train Size: 17943 images

Validation Size: 4481 images

Test Size: 338 images

Number of Classes: 10



DATA UNDERSTANDING



CLASSIFICATIONS

c0: Safe Driving

c5: Operating the radio

c1: Texting with right hand

c6: Drinking a beverage

c2: Talking on the phone
with right hand

c7: Reaching behind

c3: Texting with left hand

c8: Hair and makeup

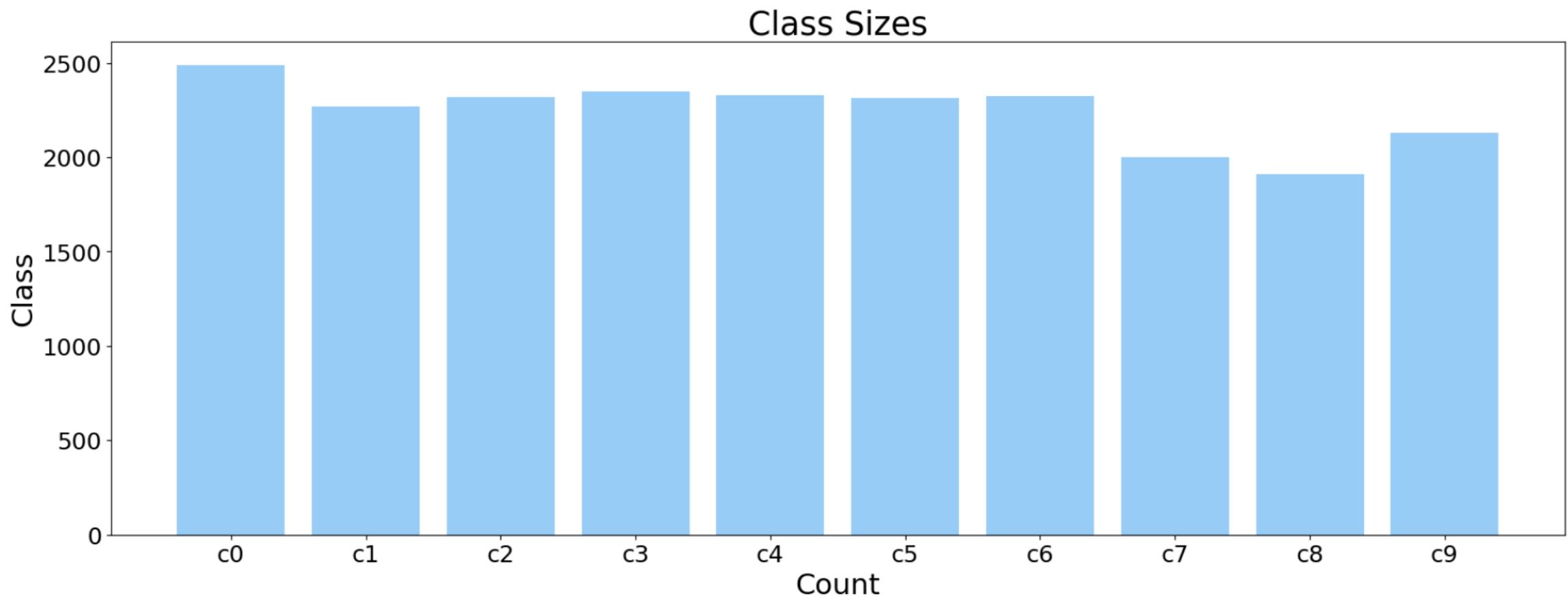
c4: Talking on the phone
with left hand

c9: Talking to passenger

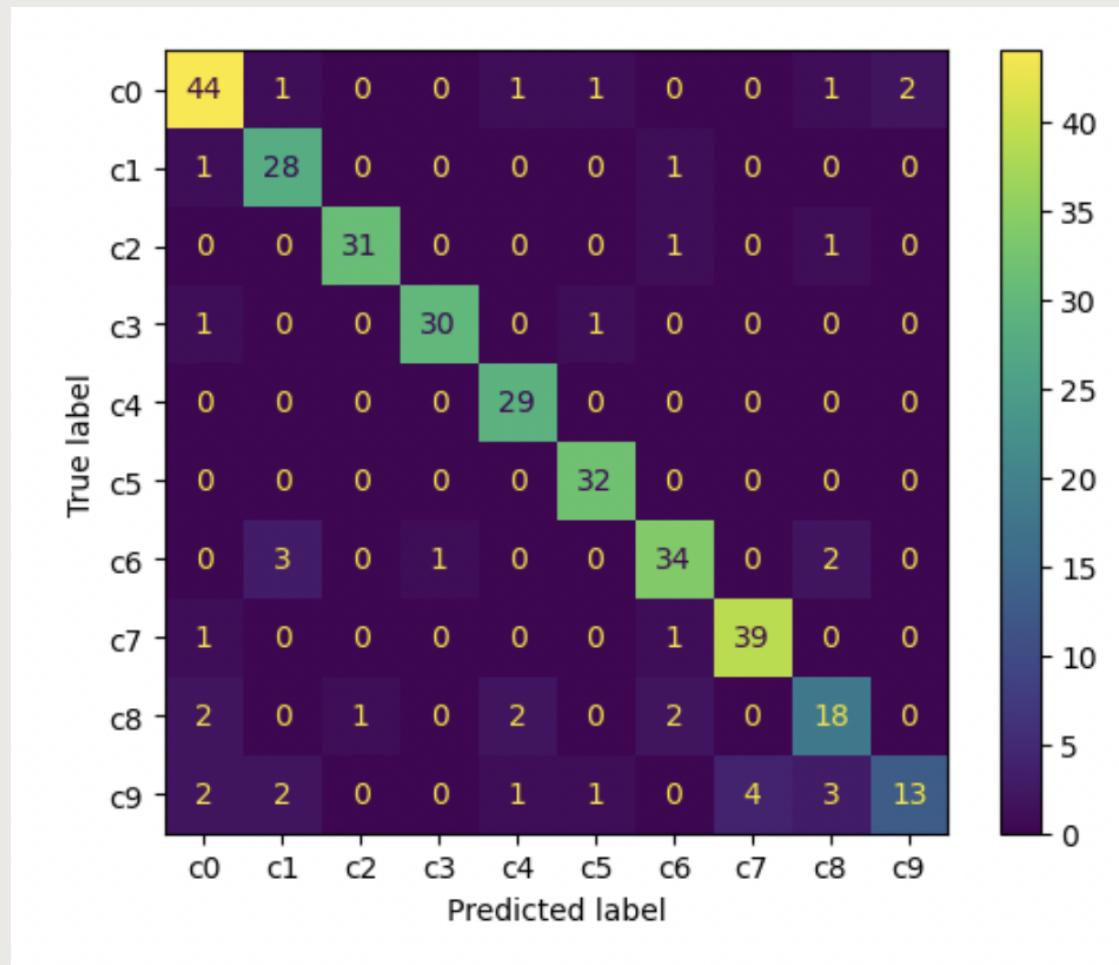
DATA UNDERSTANDING



DATA ANALYSIS



MODELING



Train Accuracy Score: 1.00

Train Loss: 2.7923e-08

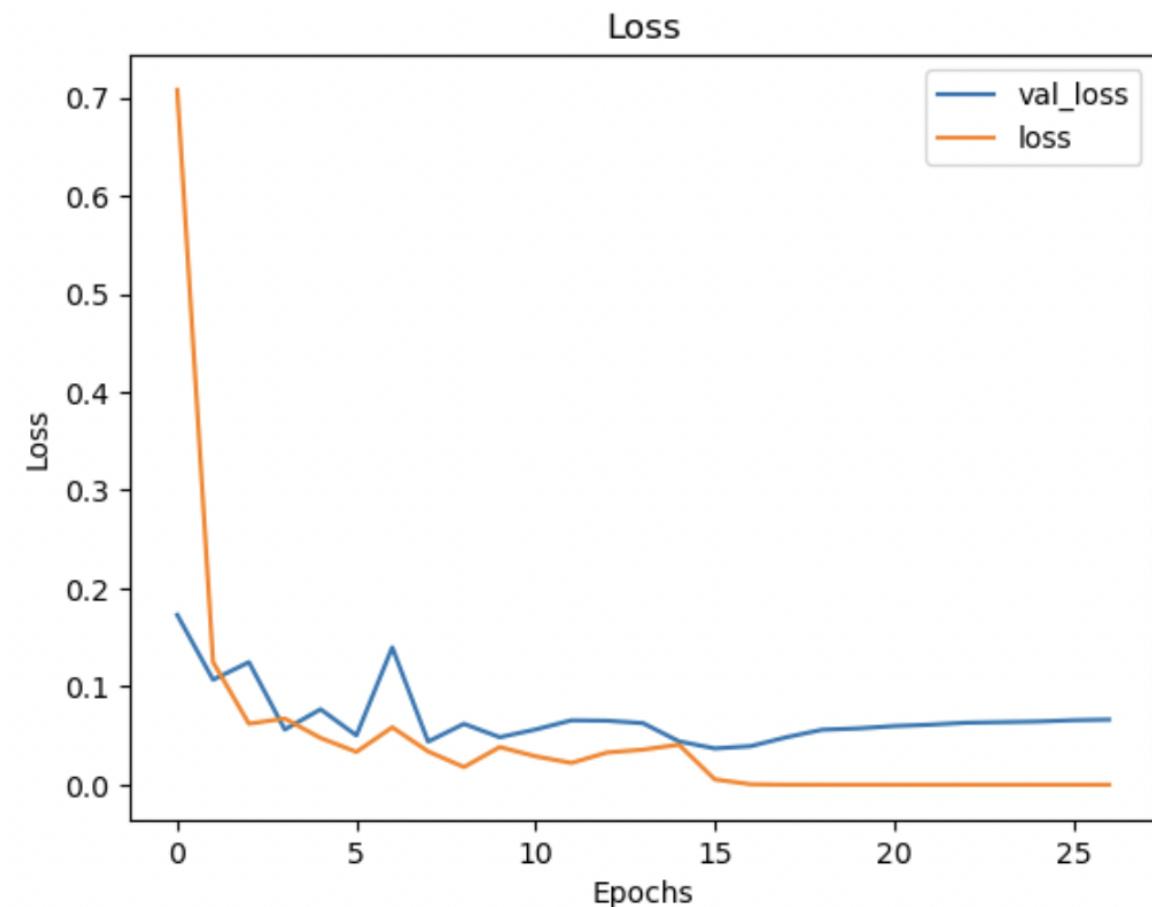
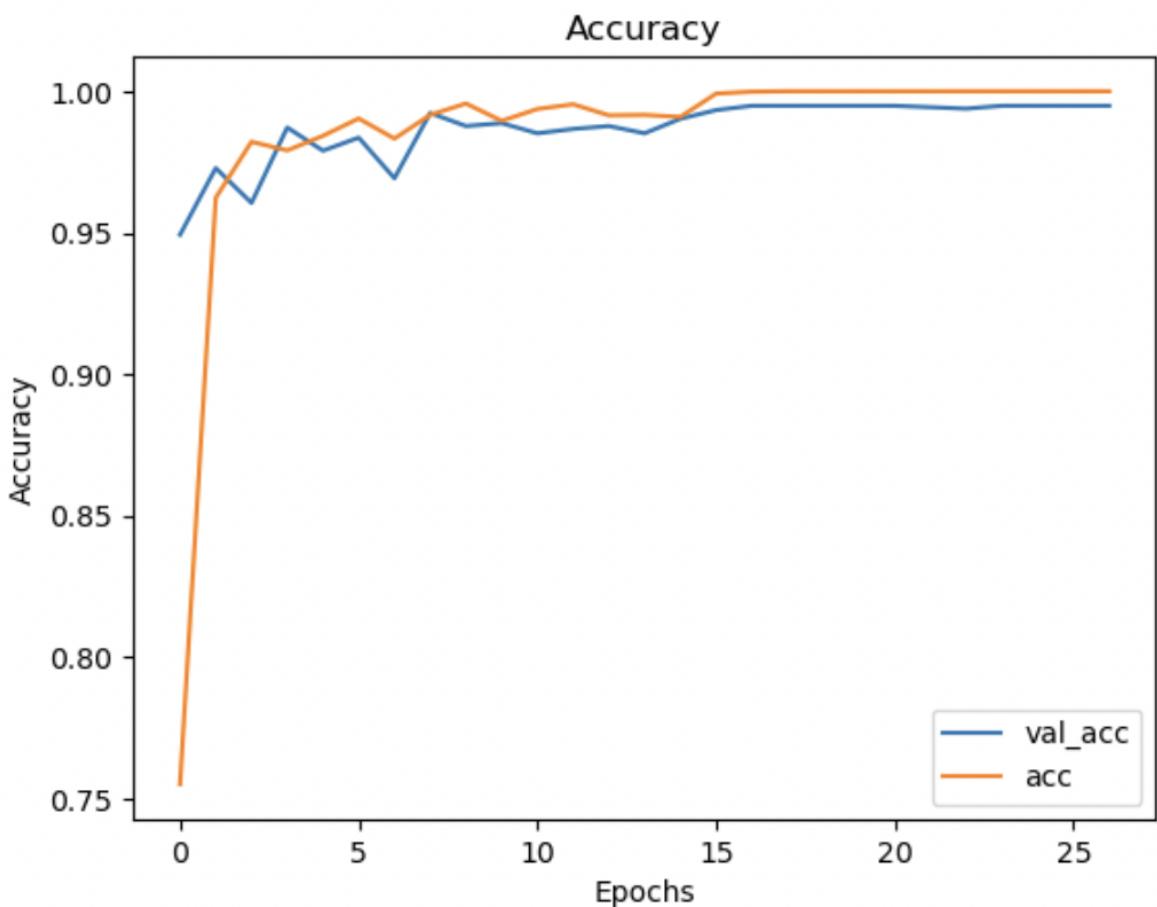
Validation Accuracy Score: 0.995

Validation Loss: 0.0663

Test Accuracy Score: 0.882

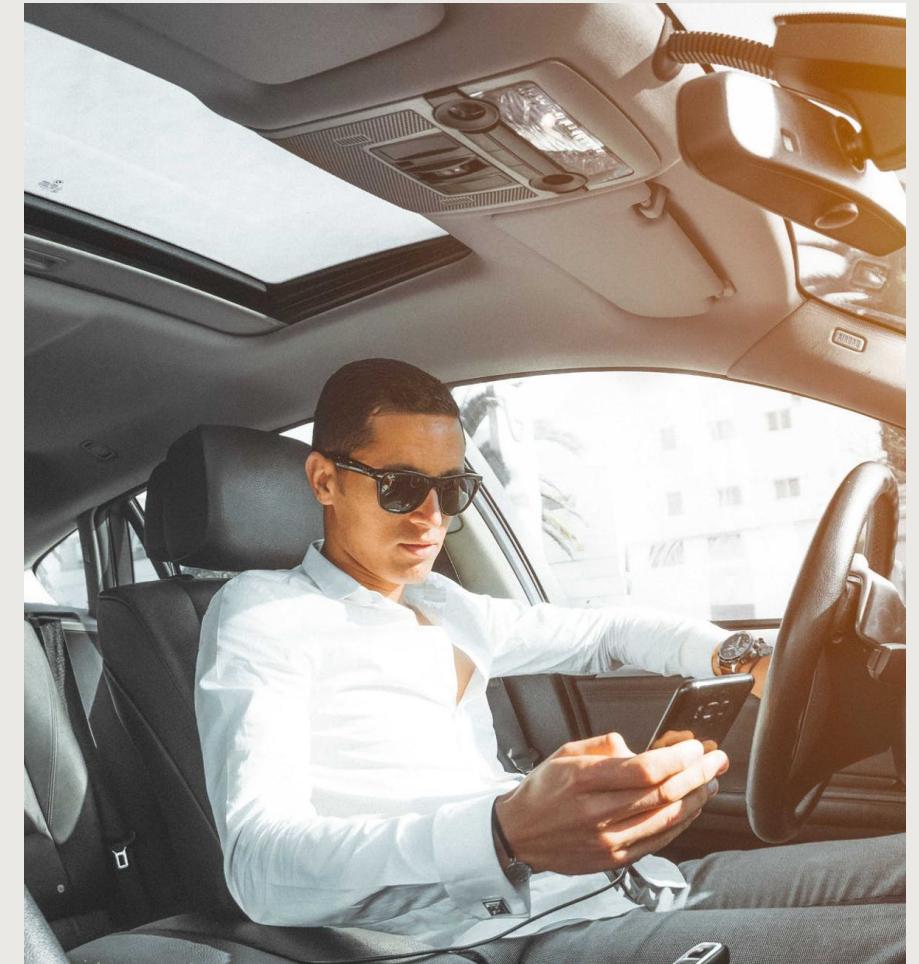
Test Loss: 1.2035

MODELING



LIMITATIONS

- 1 The test images had to be manually labeled, and as a result, the size of the test data is small
- 2 The images are from a single angle, so in practice, the State Farm DashCam would need to be positioned the same way



NEXT STEPS



- 1 Obtain a greater amount of labeled test data
- 2 Build the model based on images from various angles
- 3 Analyze a potential relationship between the use of a DashCam and improvements in driving behaviors



CONTACT INFORMATION

@ jtepper724@gmail.com

 linkedin.com/in/jordana-tepper/

 github.com/jordanate