

GROUP 2 PROJECT CNN

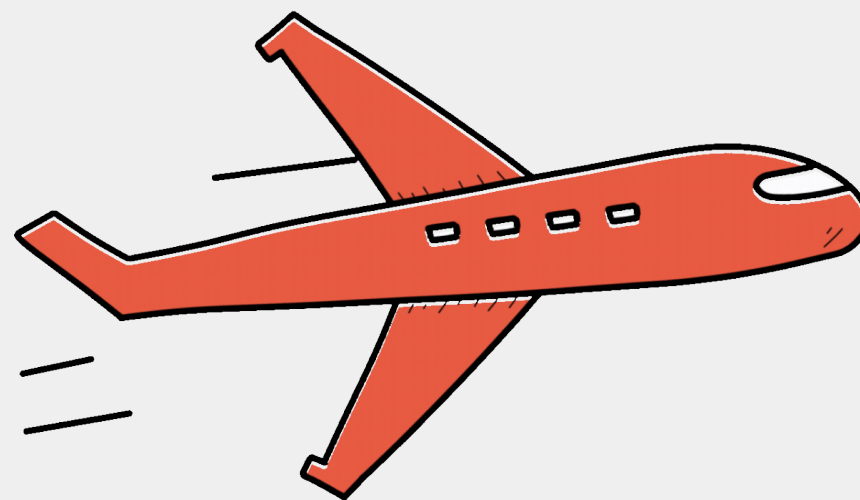
Presented by Ankita and Bruno

OUR TEAM

- Ankita Kalangutkar
- Bruno Augusto

INTRODUCTION

IS IT A BIRD?



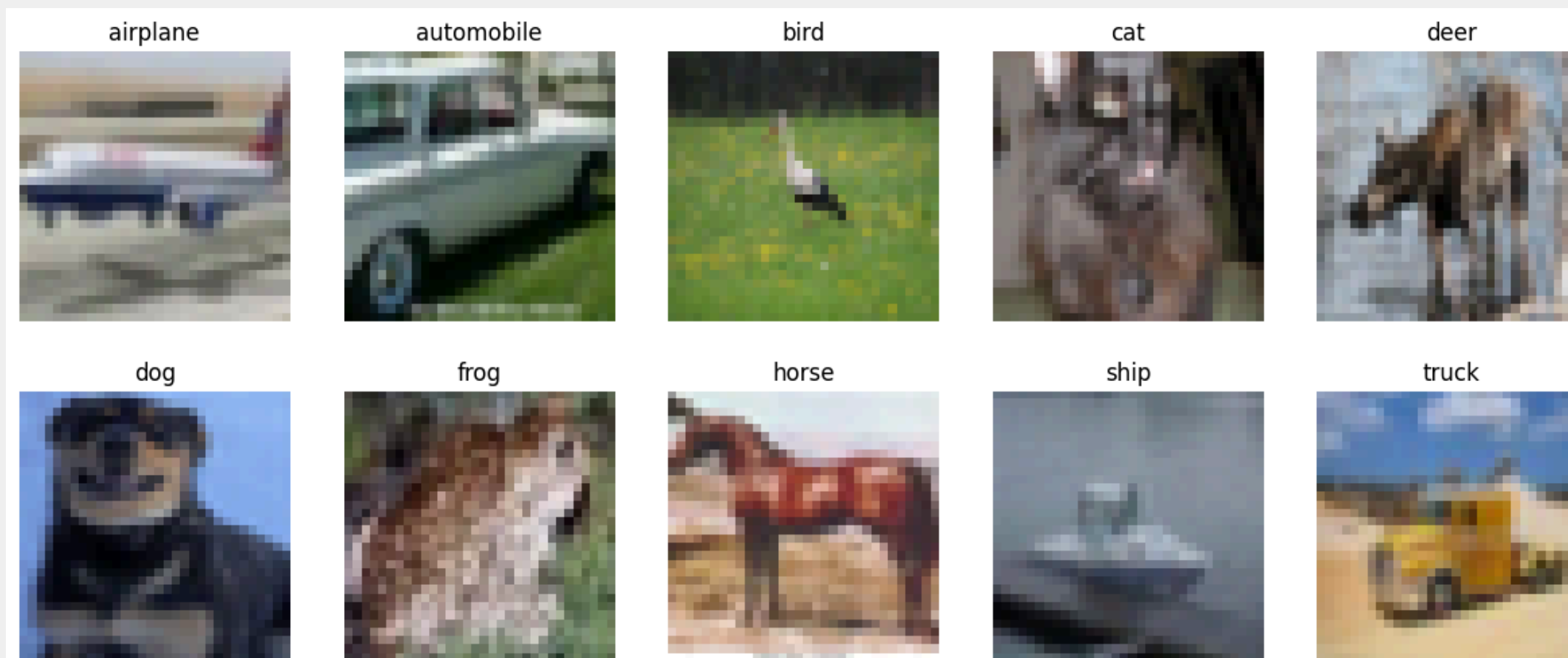
**IS IT A
PLANE?**



**NO! IT'S
SUPER CNN**

DATA SET CIFAR 10

It consists of 60,000 small 32x32 color images, divided into 10 different classes: airplanes, cars, birds, cats, deer, dogs, frogs, horses, ships, and trucks.

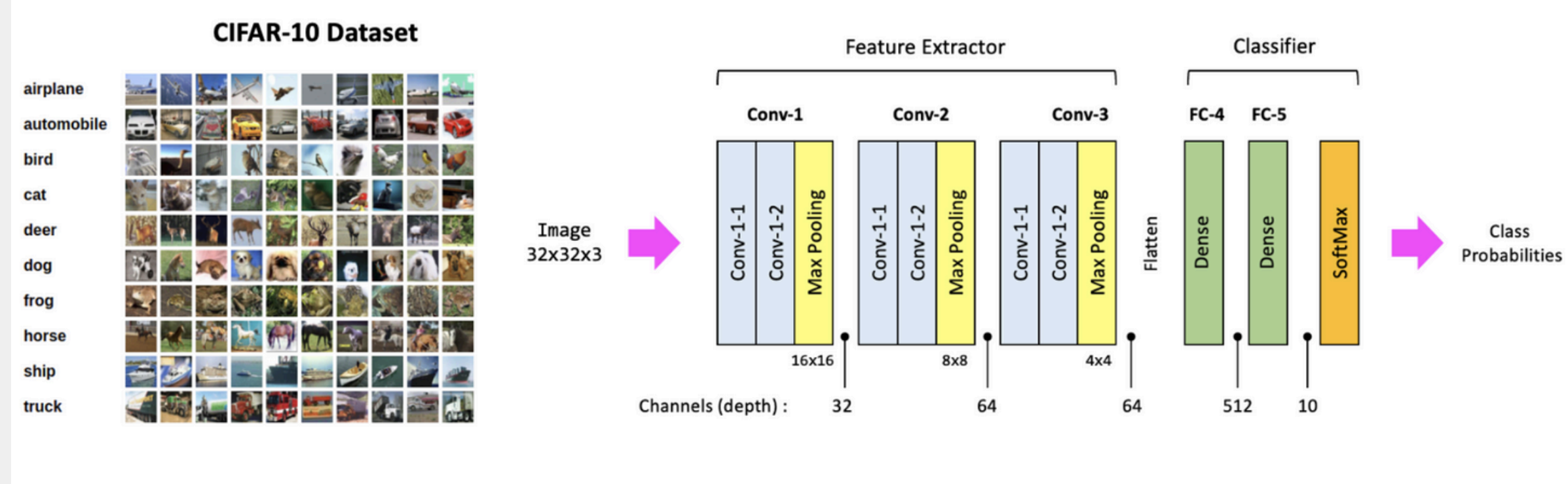


DATA PREPROCESSING

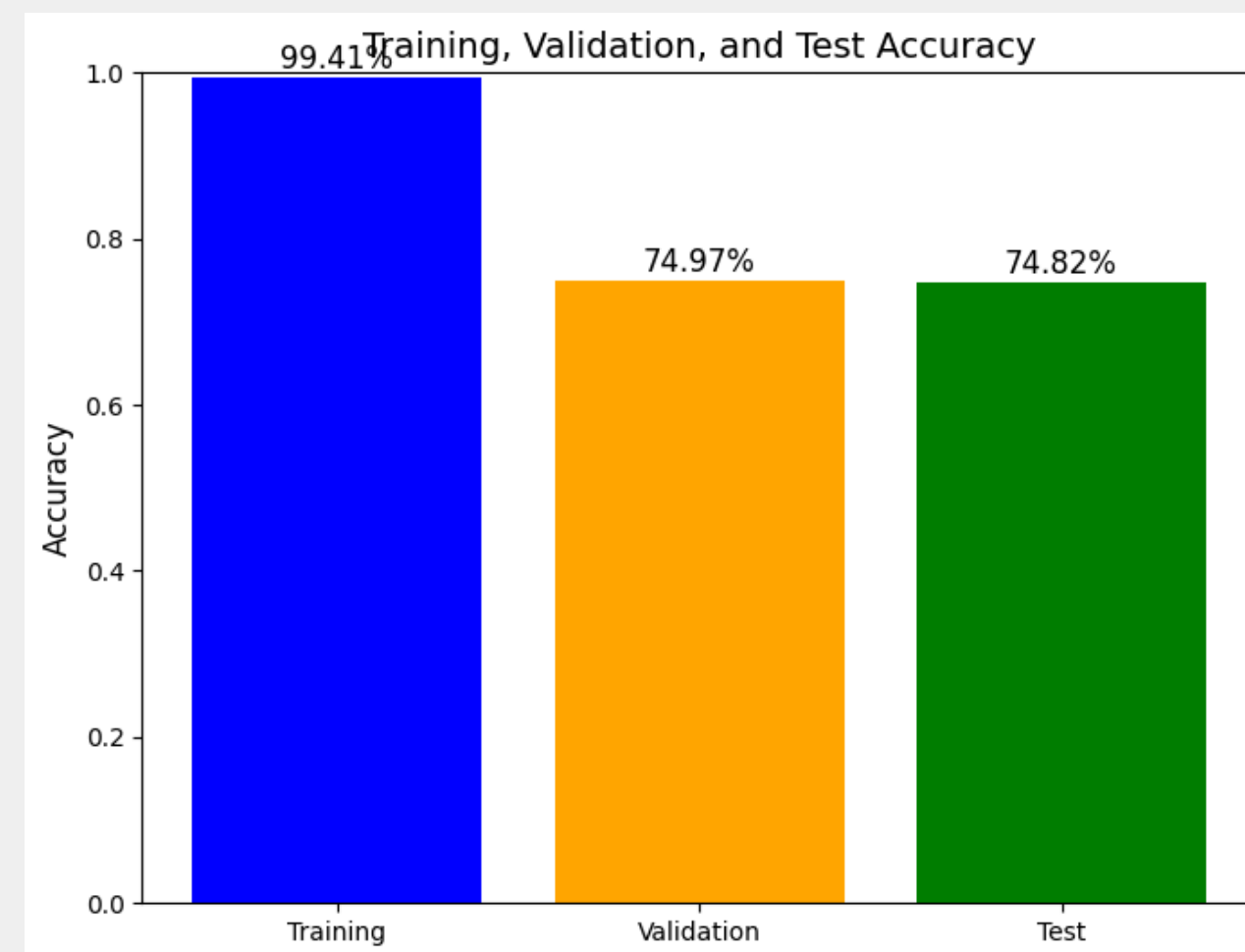
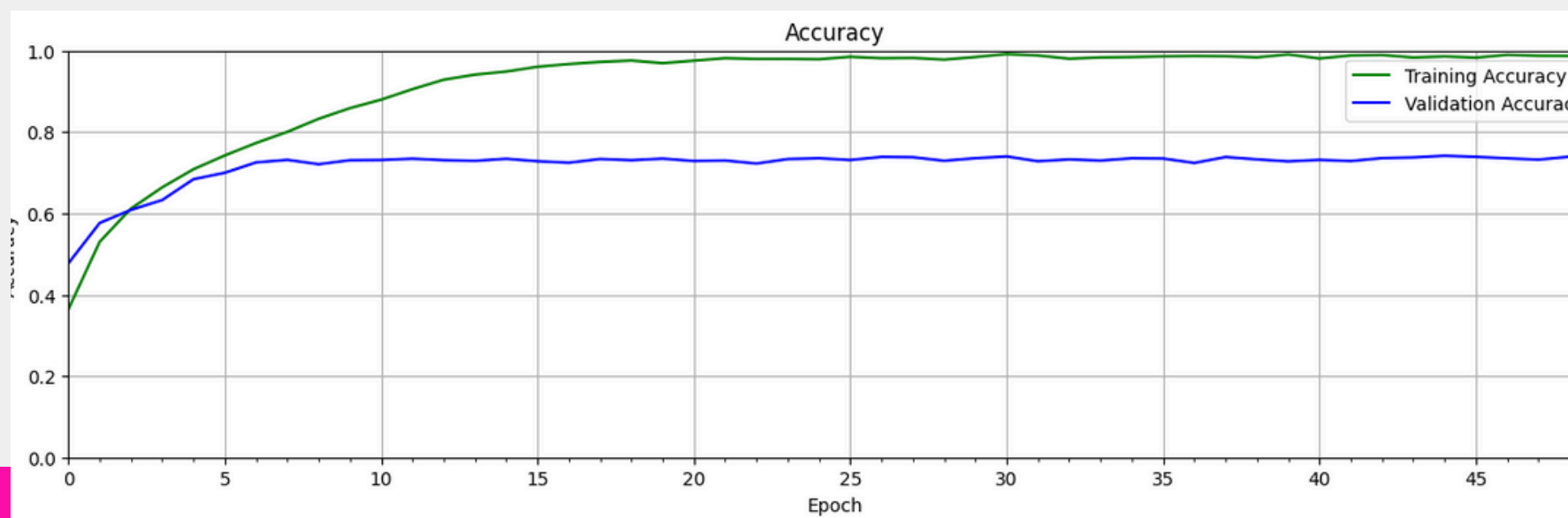
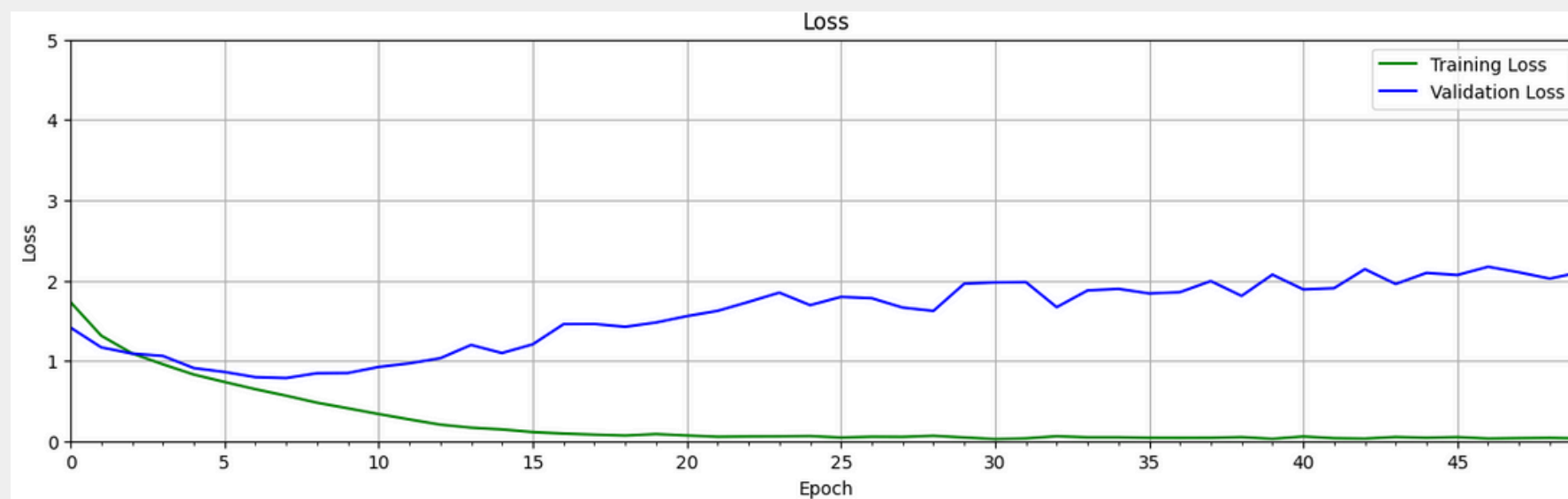
- **Normalization:** Scaled pixel values to $[0, 1]$ for faster model convergence.
- **No Resizing:** Images already at required size (32x32).
- **Data Augmentation:** Applied techniques like flipping and rotation to increase dataset variety and prevent overfitting.
 - Random rotation by 15 degrees
 - Random shift images horizontally by 10%
 - Random shift images vertically by 10%
 - Random flip images horizontally
 - Random zoom by 10%

DESIGN CNN

- *Design CNN suitable for image classification. Include convolutional layers, pooling layers, and fully connected layers.*



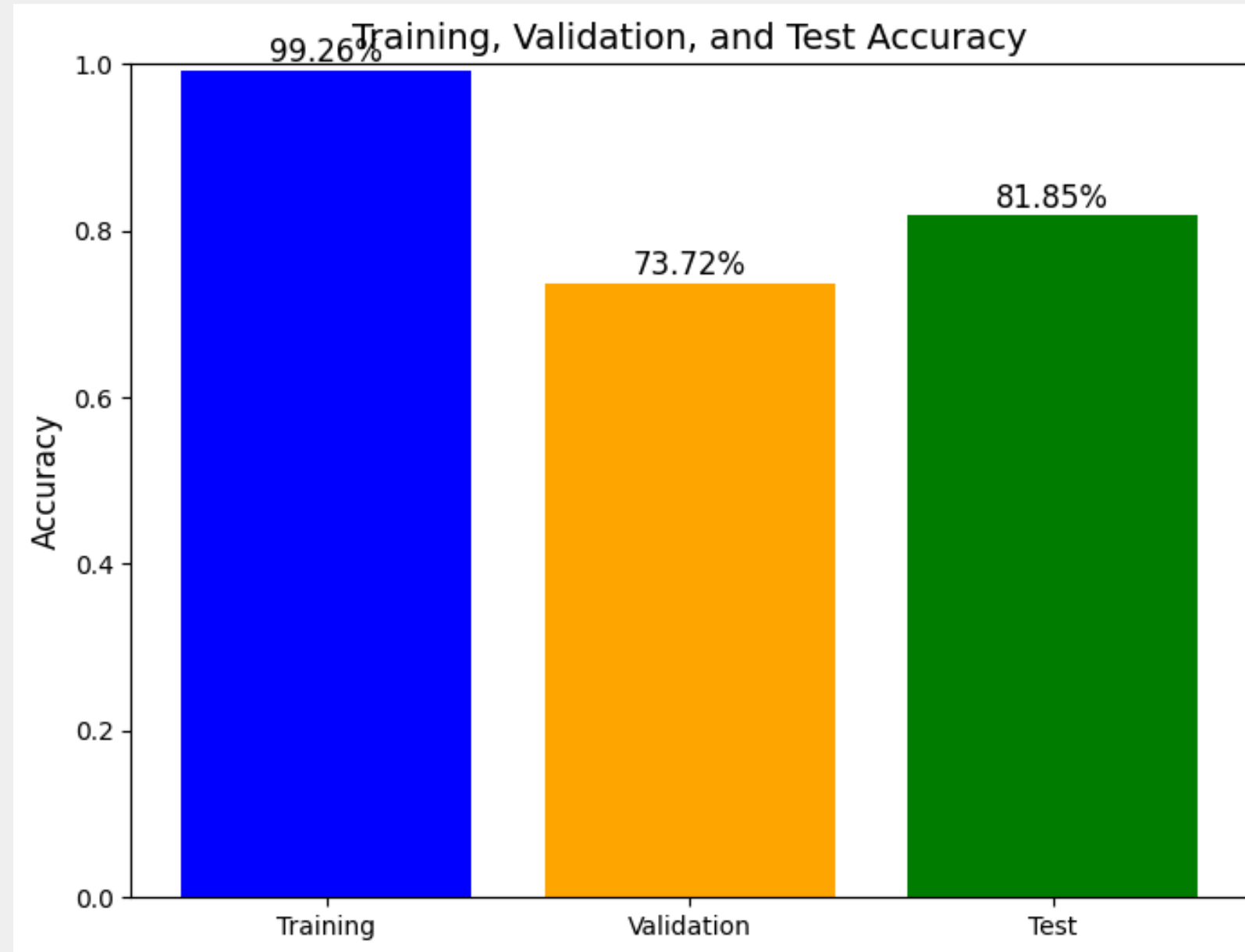
COMPILE AND TRAIN



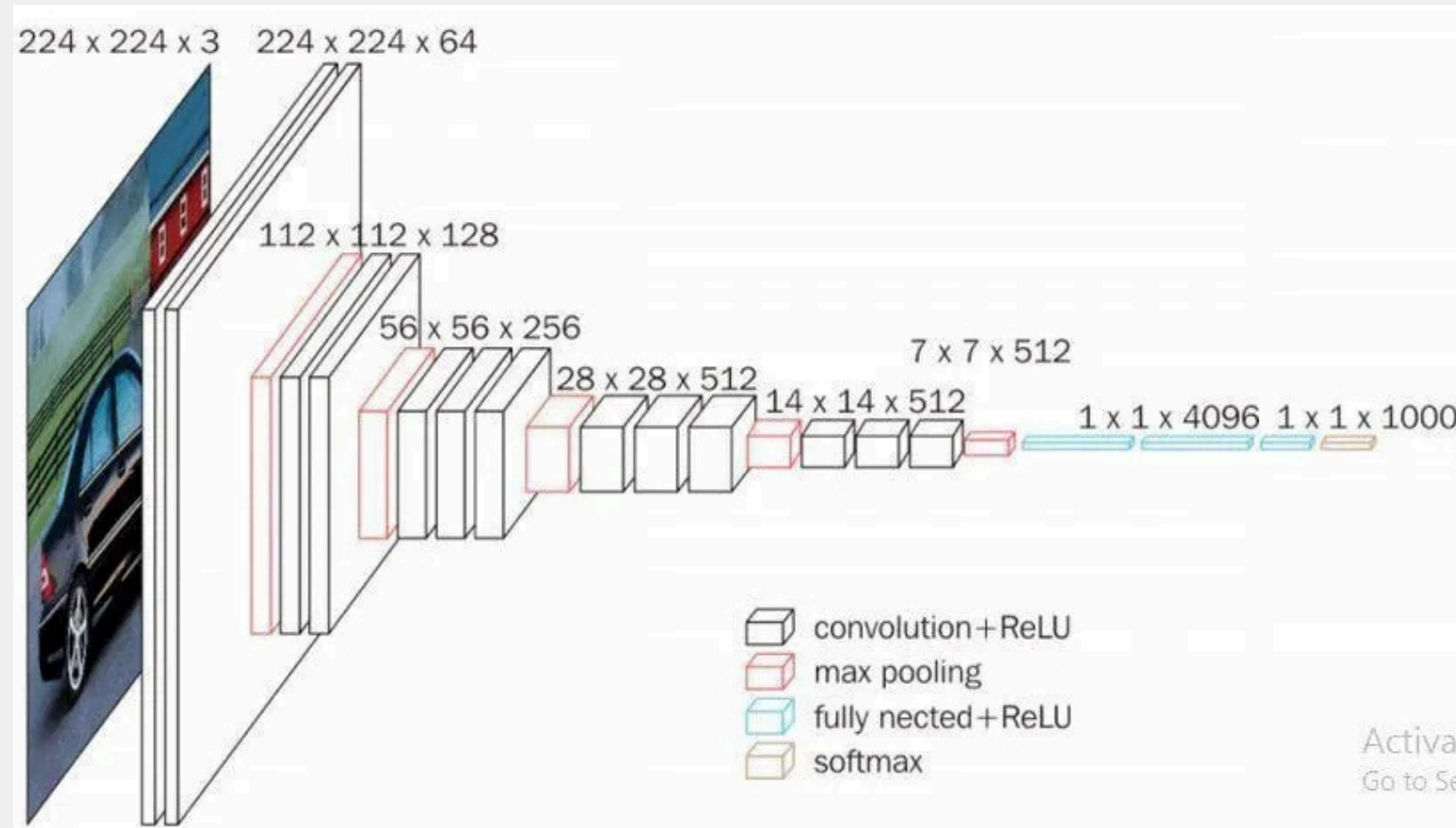
OPTIMIZATION TECHNIQUES

- **Dropout:**

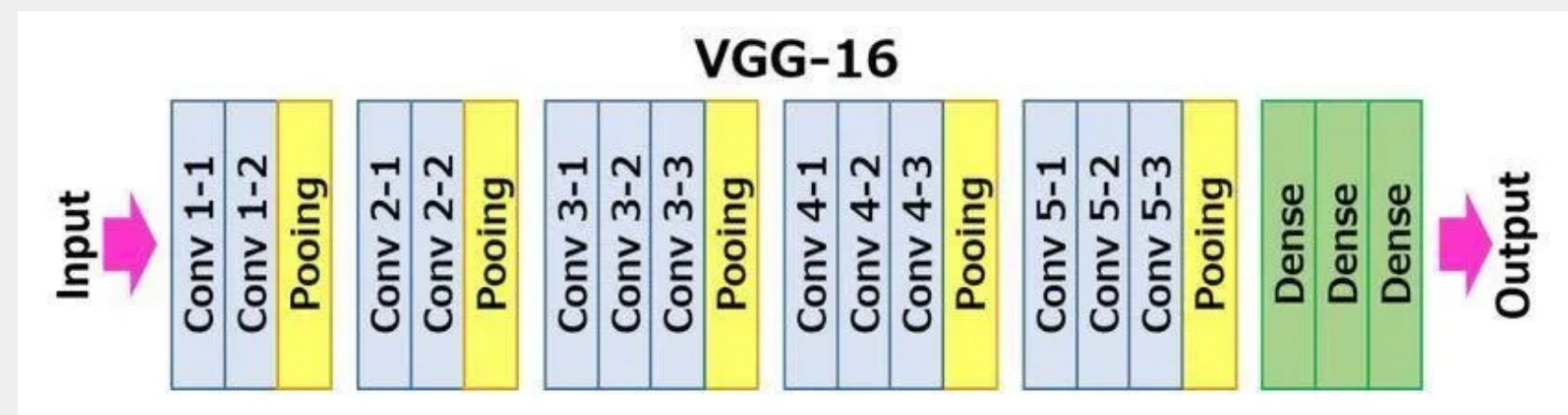
To Prevent
Overfitting Dropout
was applied to all
layers



TRANSFER LEARNING

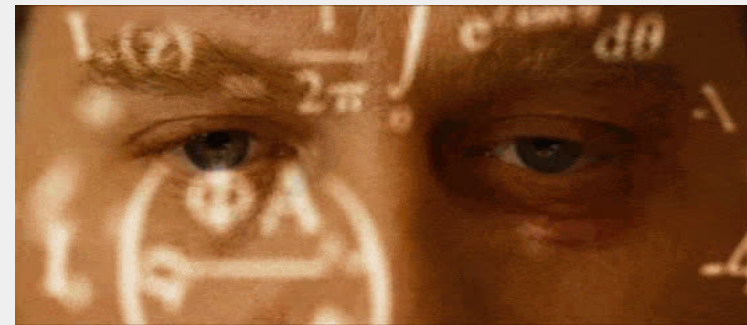


- **VGG16 Pre Trained Model**



TRANSFER LEARNING

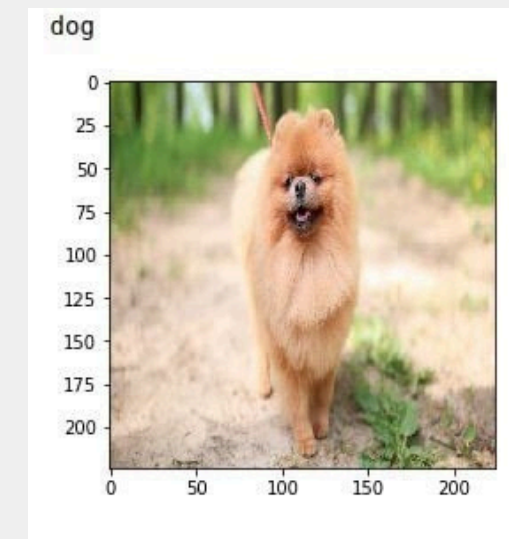
- VGG16 Pre Trained Model



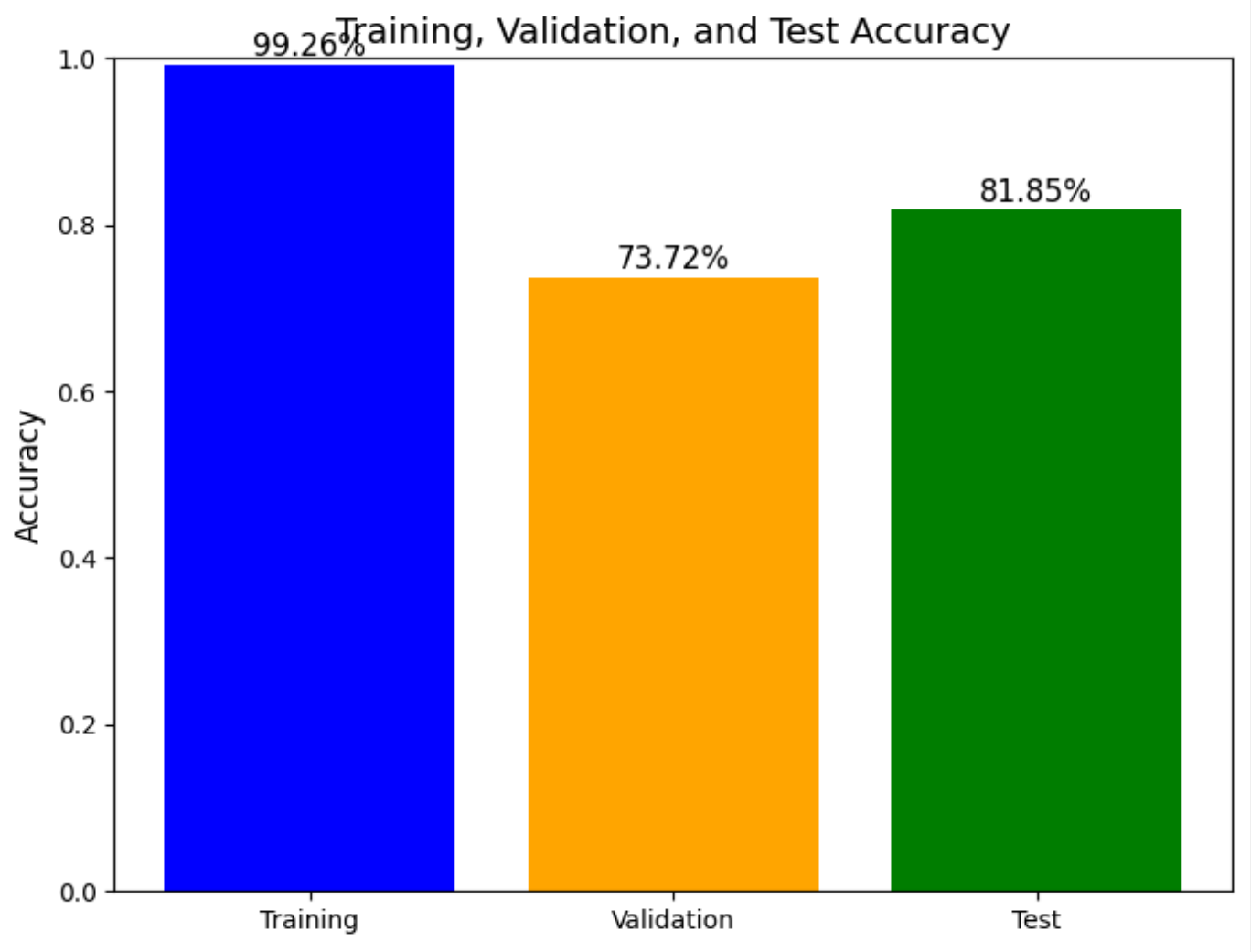
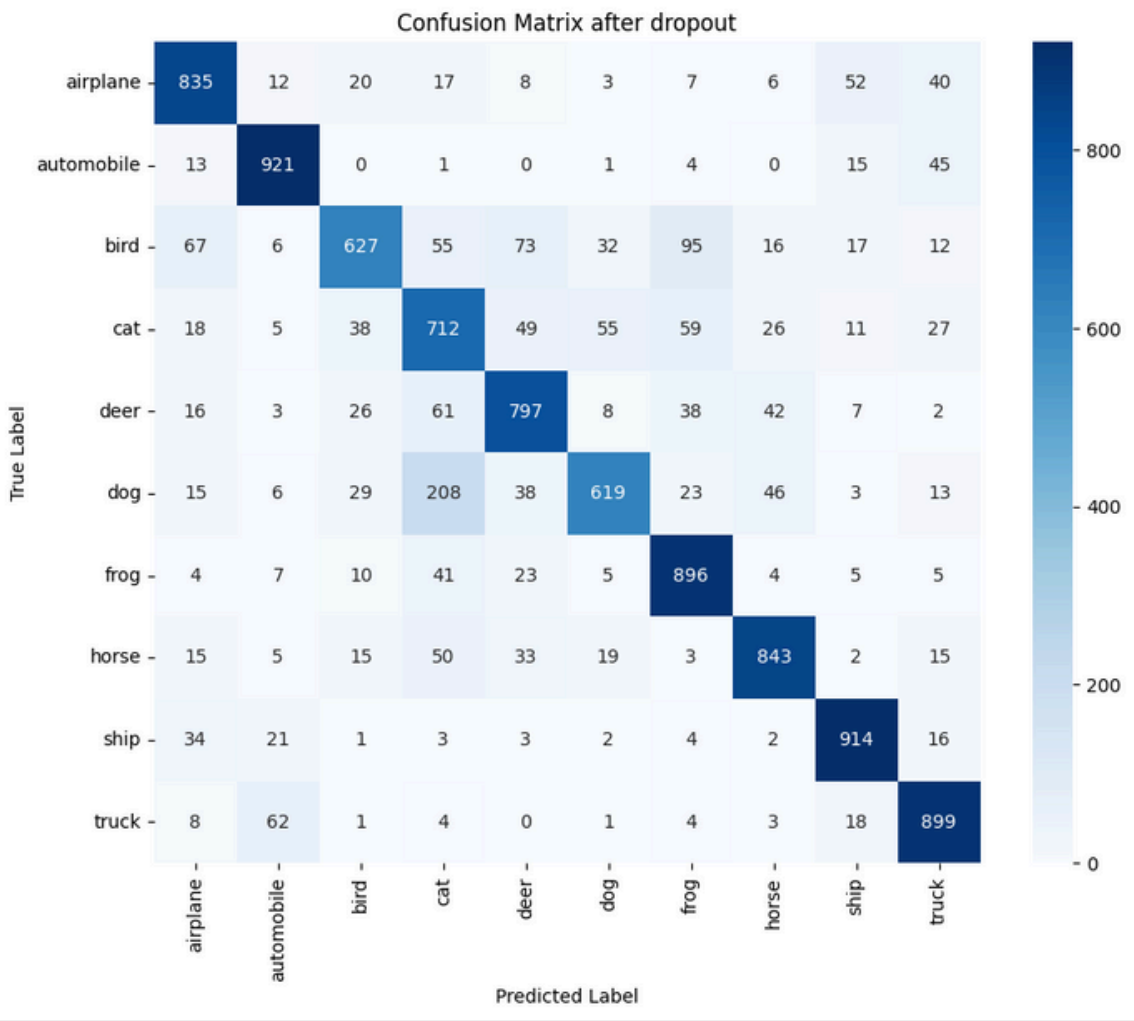
- CIFAR 10



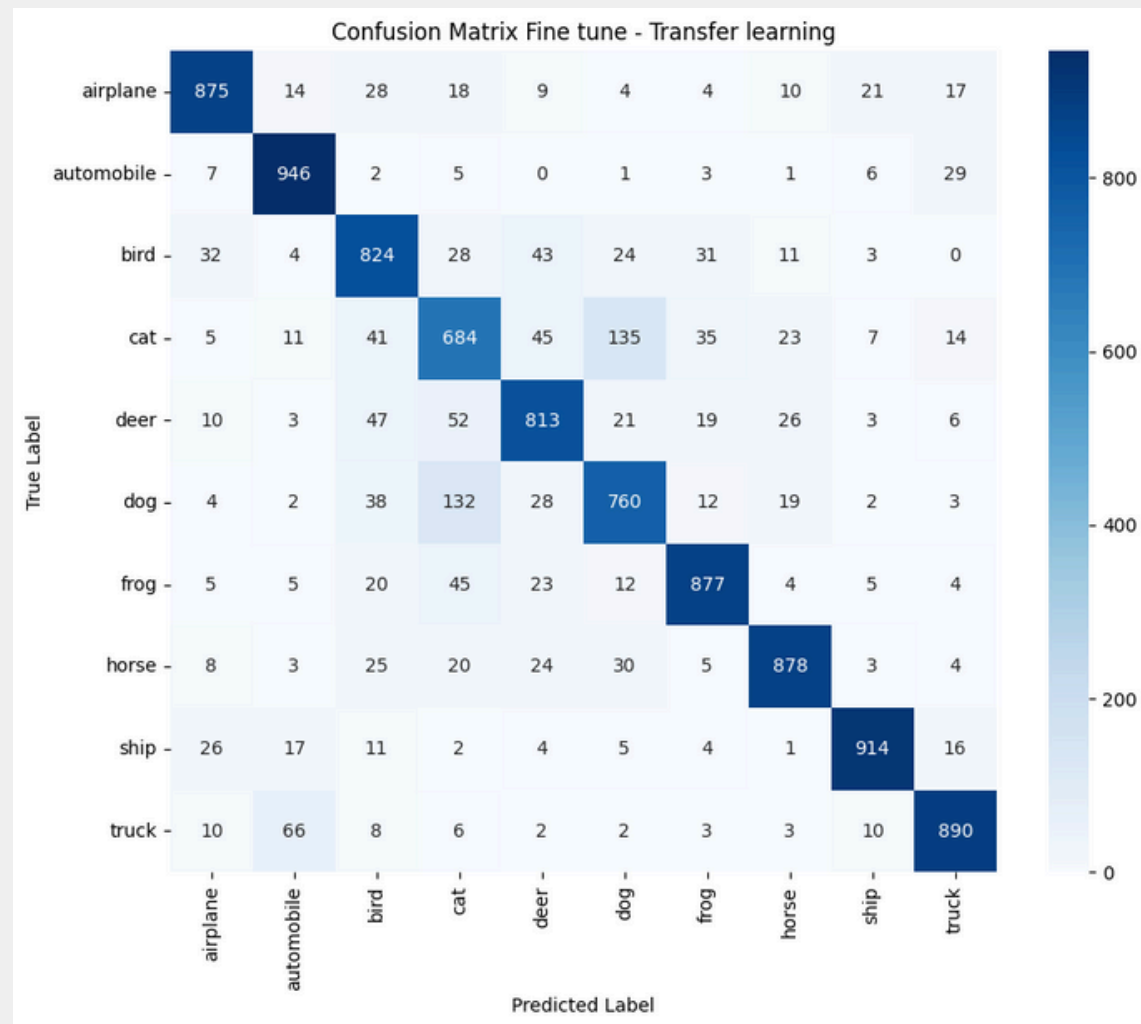
- VGG16



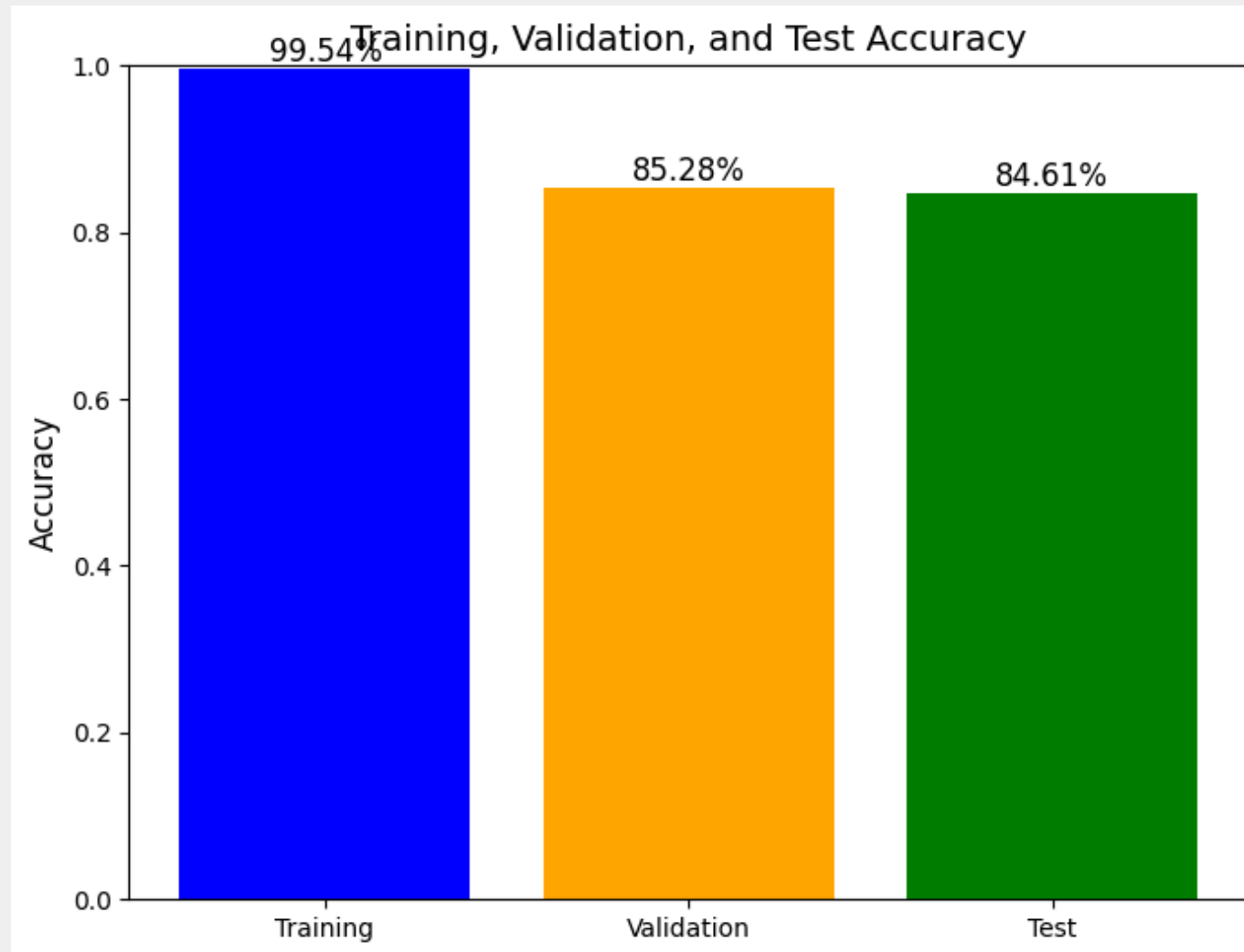
EVALUATION - CNN



EVALUATION - TRANSFER LEARNING

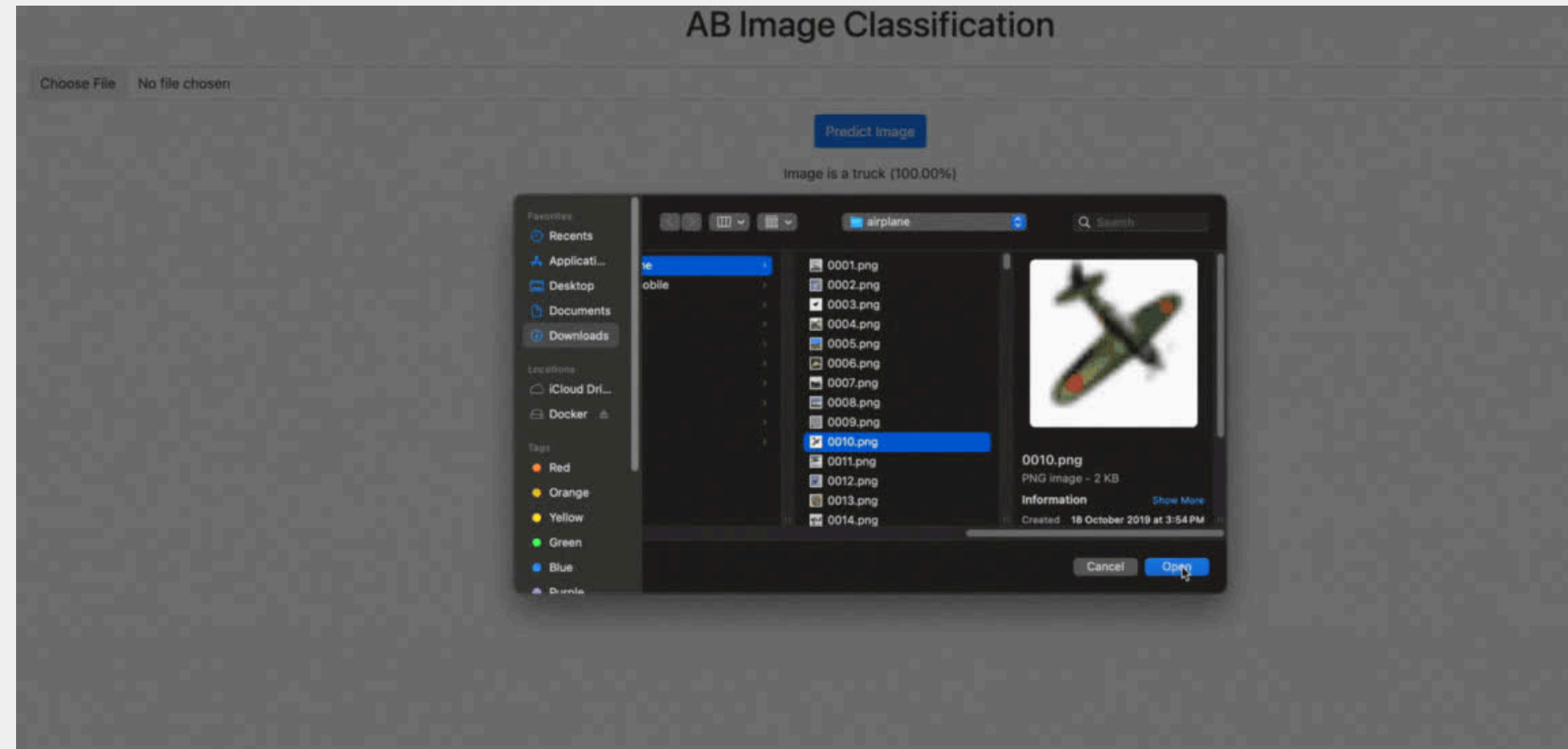


Used a pre-trained model VGG16 to leverage learned features, followed by fine-tuning to adapt the model to the CIFAR-10 dataset.



MODEL DEPLOYMENT

The best model was deployed locally by building an app using Flask.



RECAP

WHO BUILD THIS MODEL?

We did - That is a great motivation



The image features a vibrant, abstract border composed of various geometric shapes like circles, squares, and triangles in shades of orange, pink, blue, and purple. This border frames a central white rectangular area.

QUESTIONS

The image features a vibrant, abstract border composed of various geometric shapes like circles, squares, and triangles in shades of orange, purple, blue, and pink. This border frames a central white rectangular area. Within this white space, the words "THANK" and "you" are displayed in a bold, sans-serif typeface. "THANK" is in blue and "you" is in pink, with the "you" being slightly smaller and positioned directly below "THANK".

THANK
you