

Data Science Portofolio

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Introduction

I have a strong interest in the field of Data Science and decided to switch careers by attending a bootcamp at Dibimbing.id. I am very enthusiastic about starting a career in Data Science and utilizing my skills and experience to contribute to this industry.



Education

**Bandung State Polytechnic
(2018 - 2021)**

D3 - Electronic Engineering

**Dibimbing.id
(Sept 2022 - Feb 2023)**

Bootcamp Data Science Batch 16



Work Experience

Indonesia Multi Colour Printing
MAR 2022 - AUG 2022

Management Trainee Production

- Learning about the production process and quality control from raw materials to finished products
- Developing and implementing strategies to improve efficiency and productivity
- Being a part of a team that works to ensure all quality and environmental standards are adhered to

Skill

01 Python

02 SQL
Query

03 Data
Visualization

04 Machine
Learning

05 Deep
Learning



Data Science Project



[League of Legends : Winner prediction using machine learning \(Classification\)](#)



[Flower Classification Model Using CNN](#)

Table Of Content



Background



Exploratory Data Analysis



Data Preparation



Modeling & evaluation



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Background

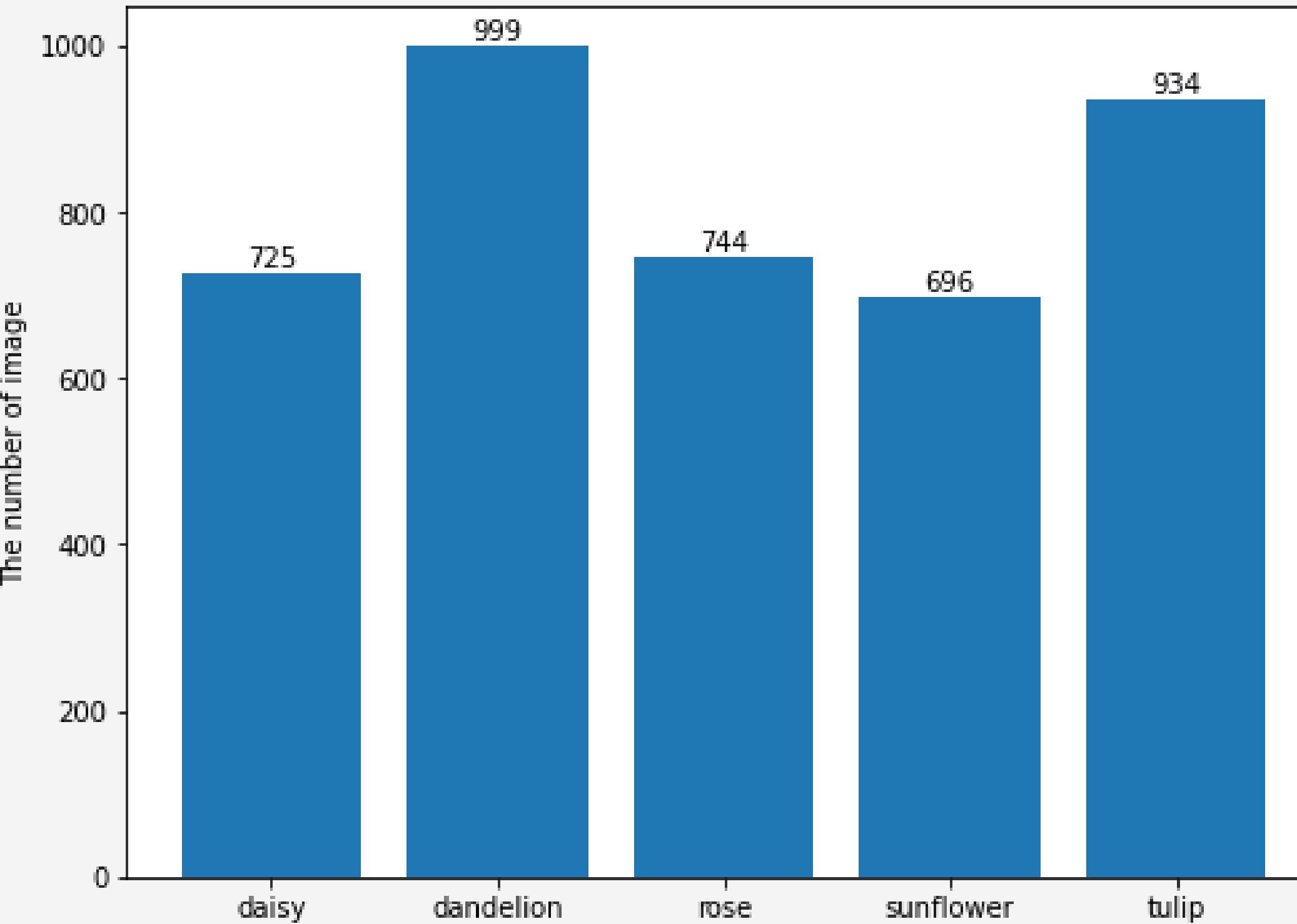
Children are visual learners, which makes the use of a flower classification model a great way to engage them in learning about different types of flowers.

By providing children with an interactive tool that enables them to identify and learn about flowers, the flower classification model can help spark their curiosity and encourage them to explore more about the natural world.



Data Preparation

The number of image in a dataset

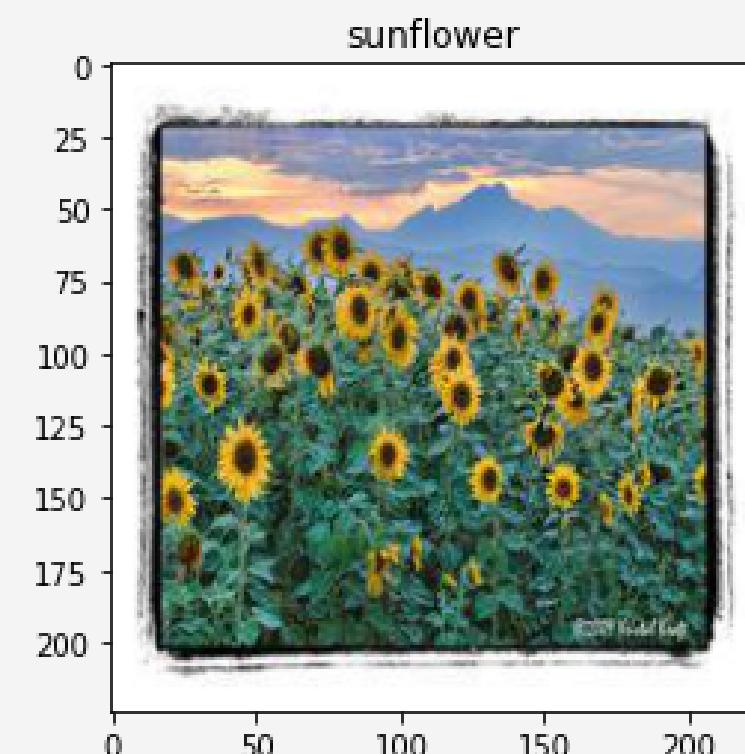
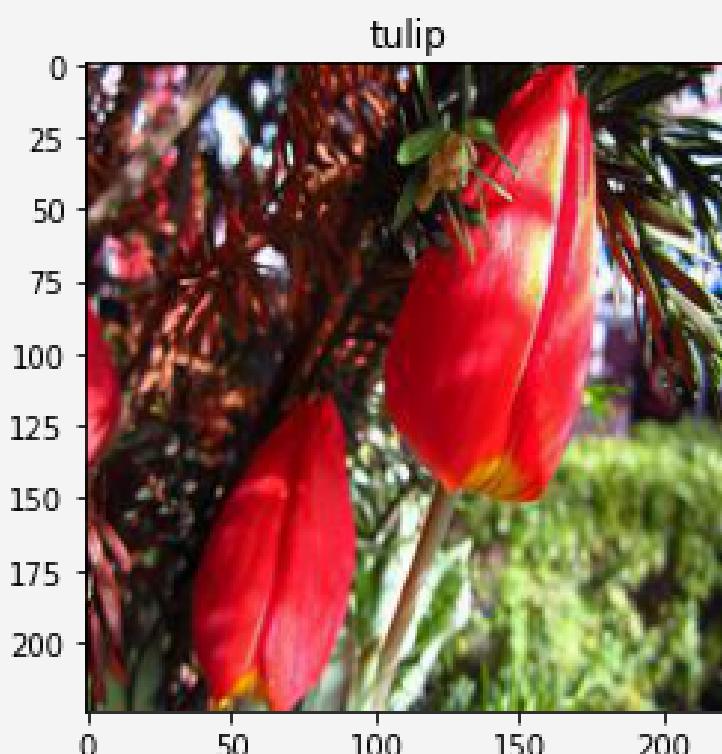
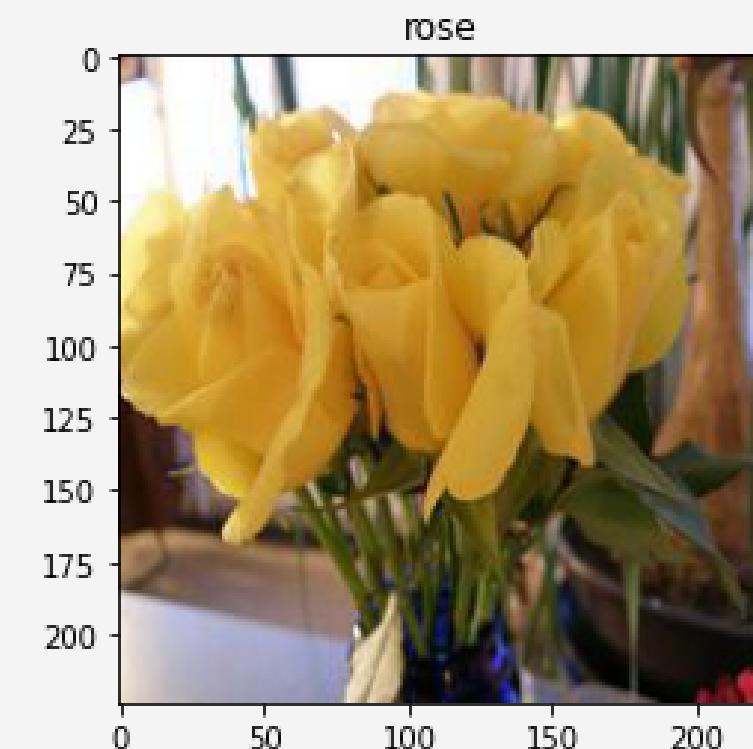
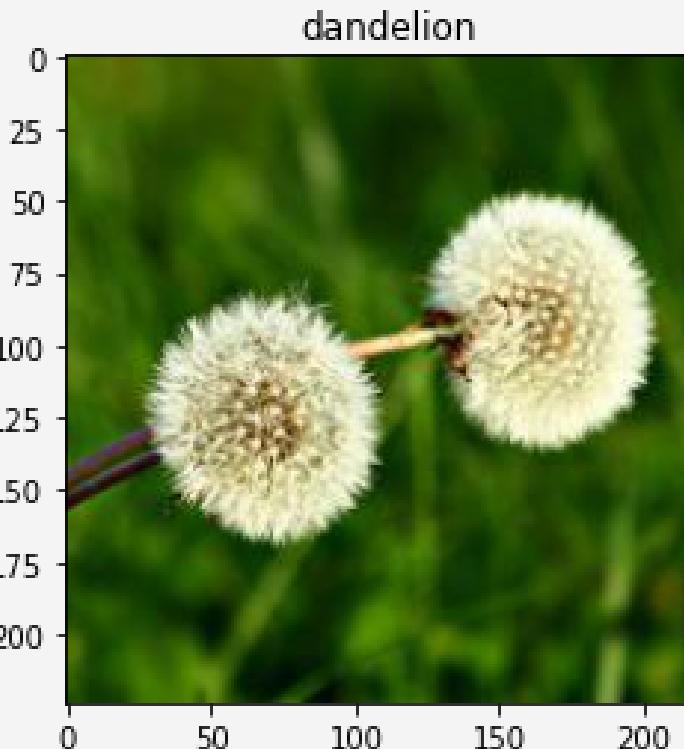
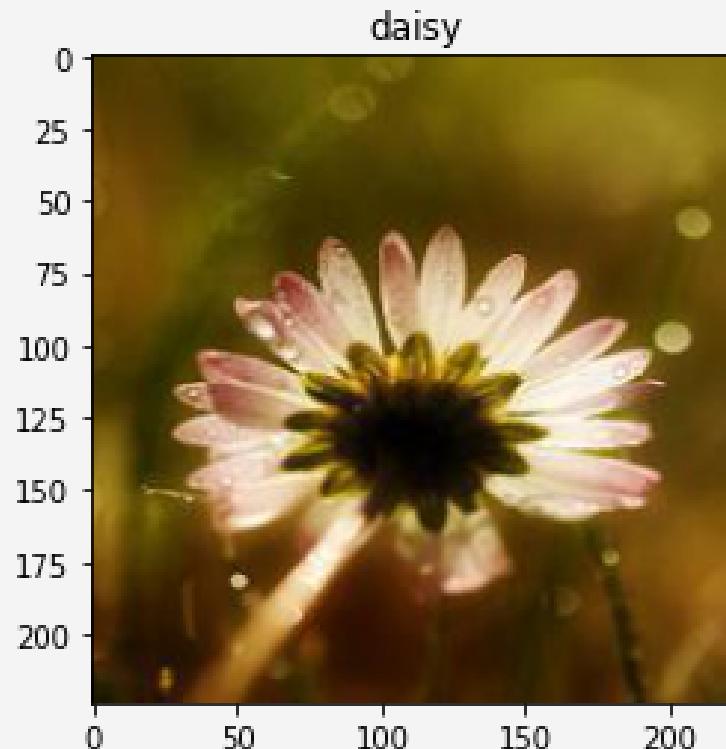


Total : 4098

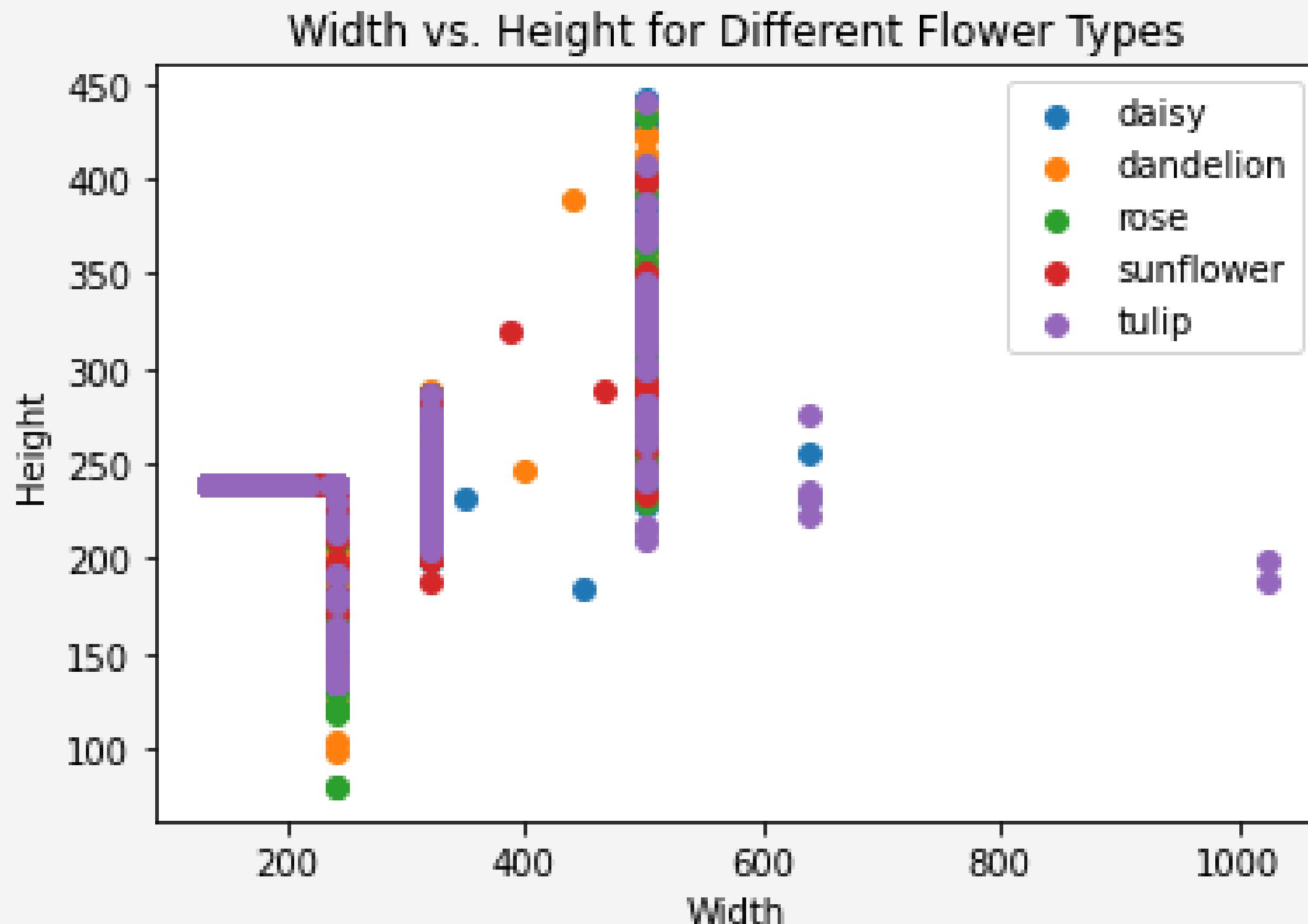
Classes :

- Daisy
- Dandelion
- Rose
- Sunflower
- Tulip

Data Understanding



Data Understanding



Data Preparation



Split Data
80:20

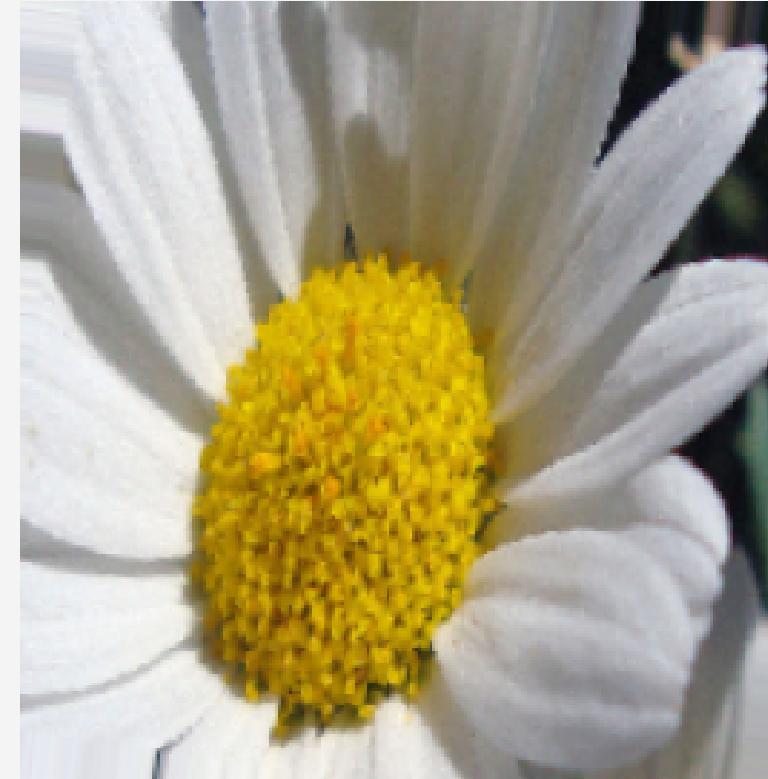
Augmentation Data
**Rescale,Flip,Rotation,
Zoom**

Data Preparation

Original Image



Augmented Image 1



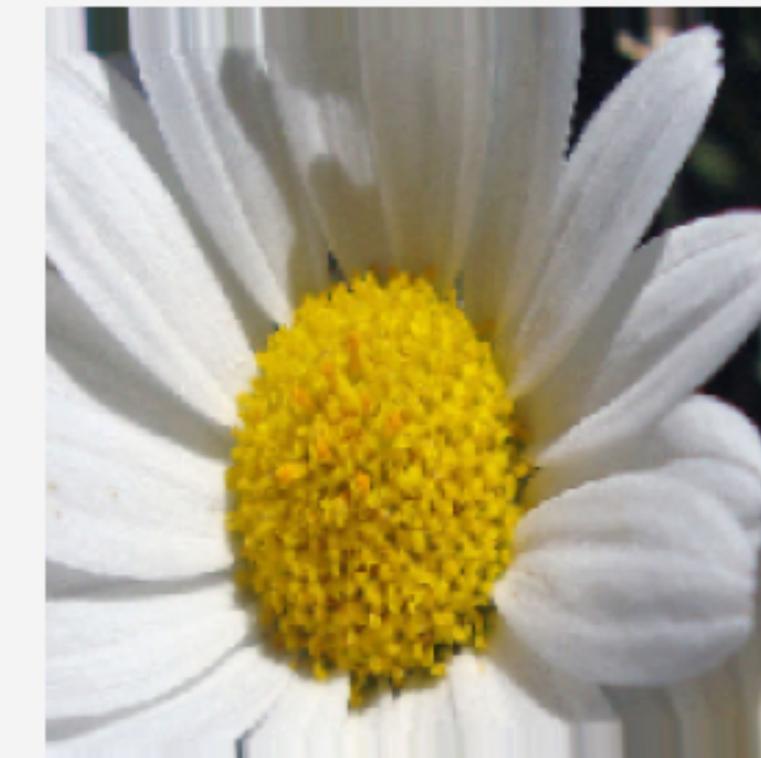
Augmented Image 2



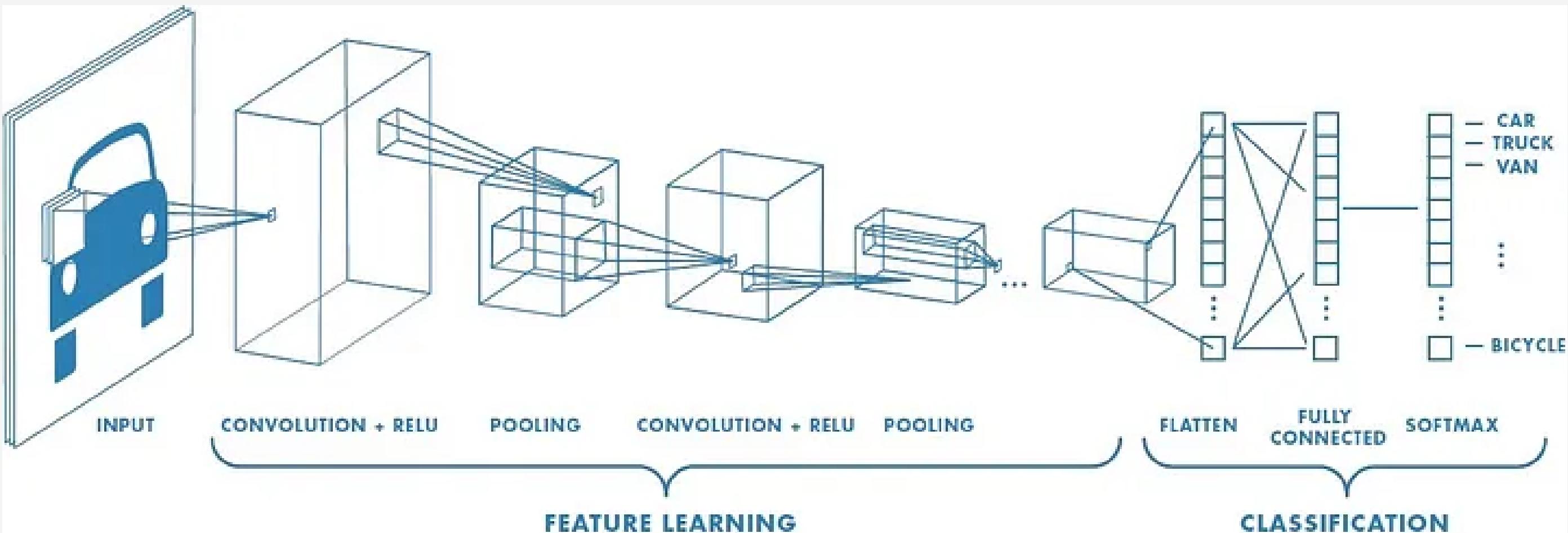
Augmented Image 3



Augmented Image 4



Modeling

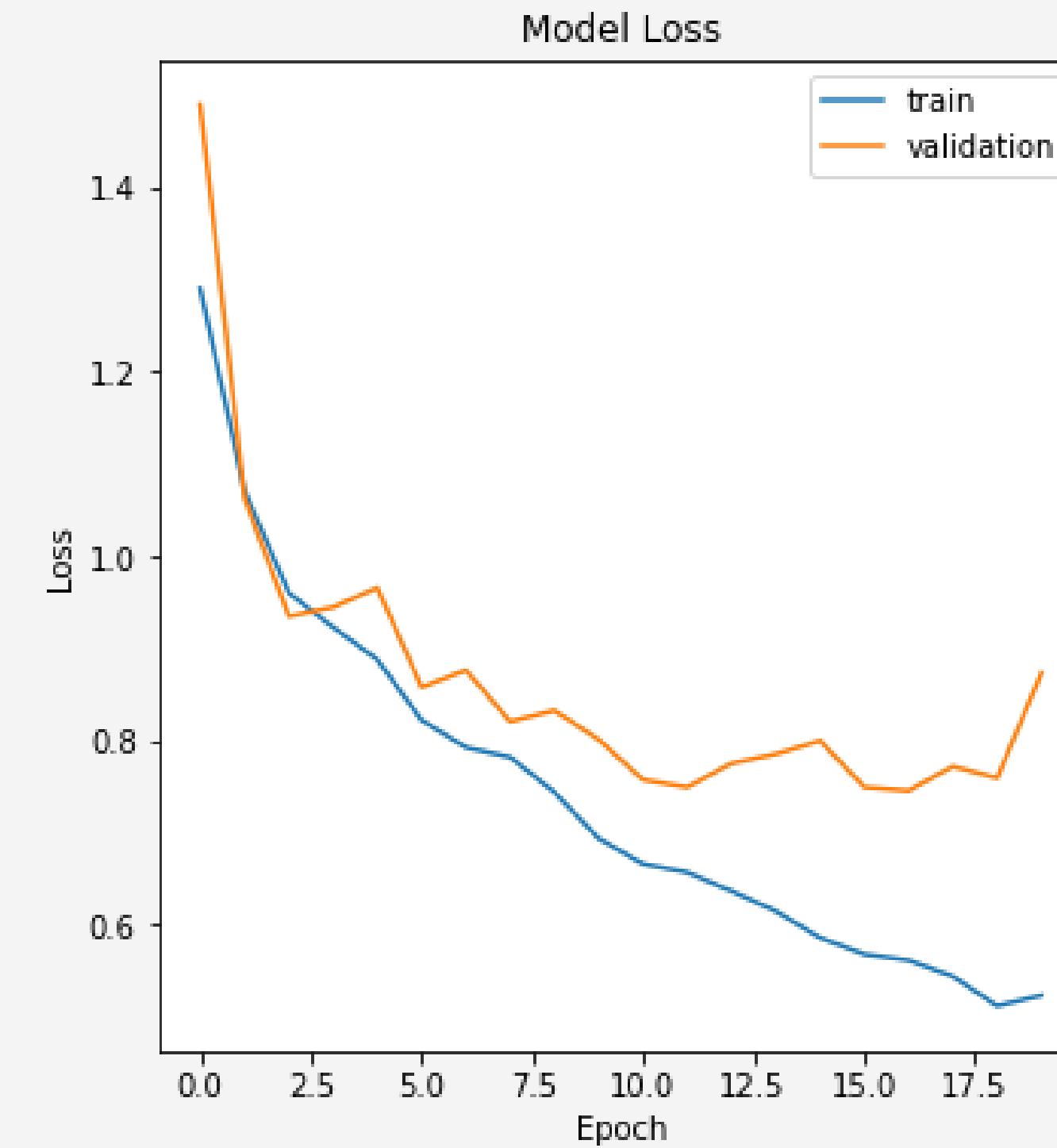
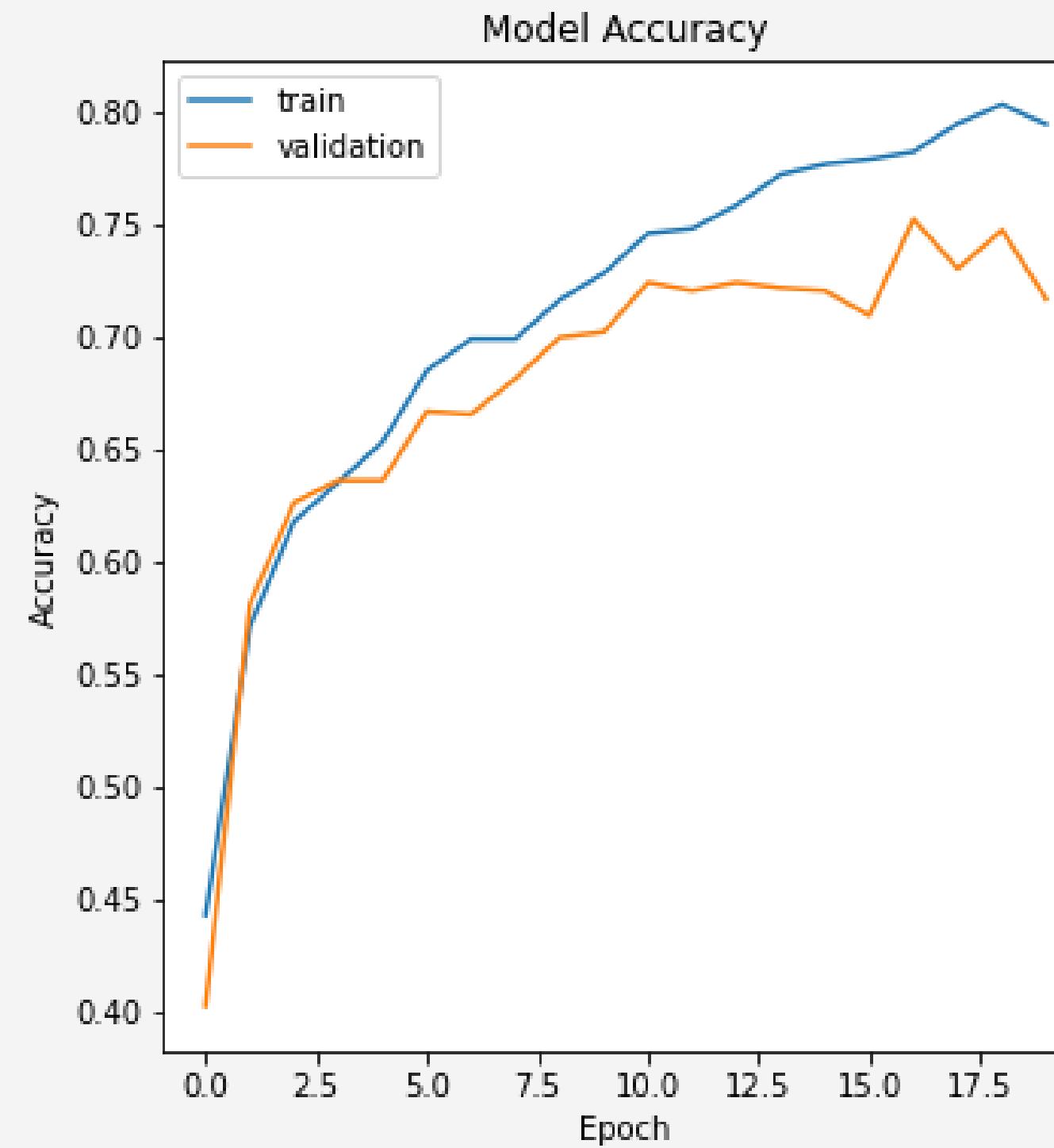


◆ **CNN**

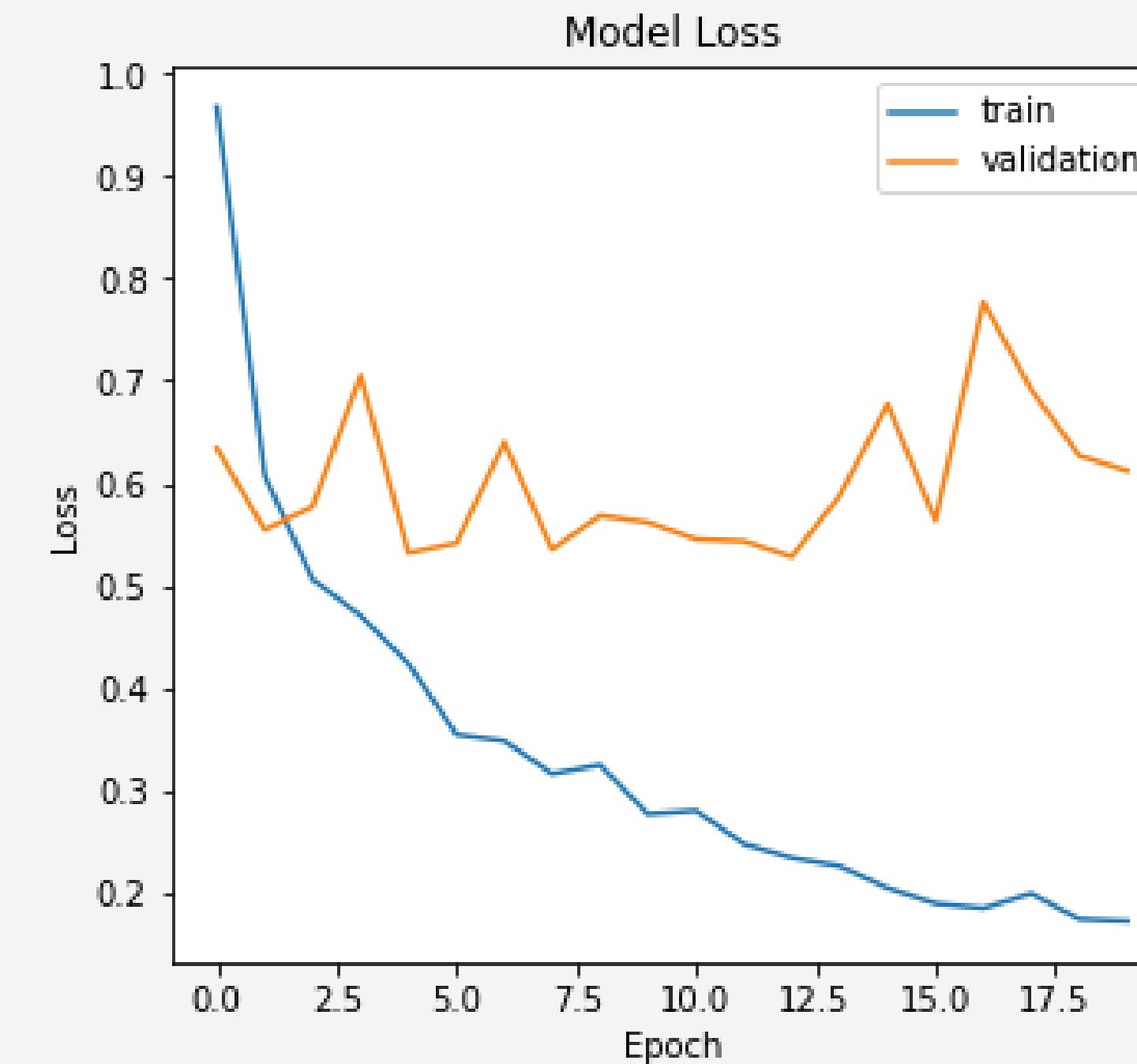
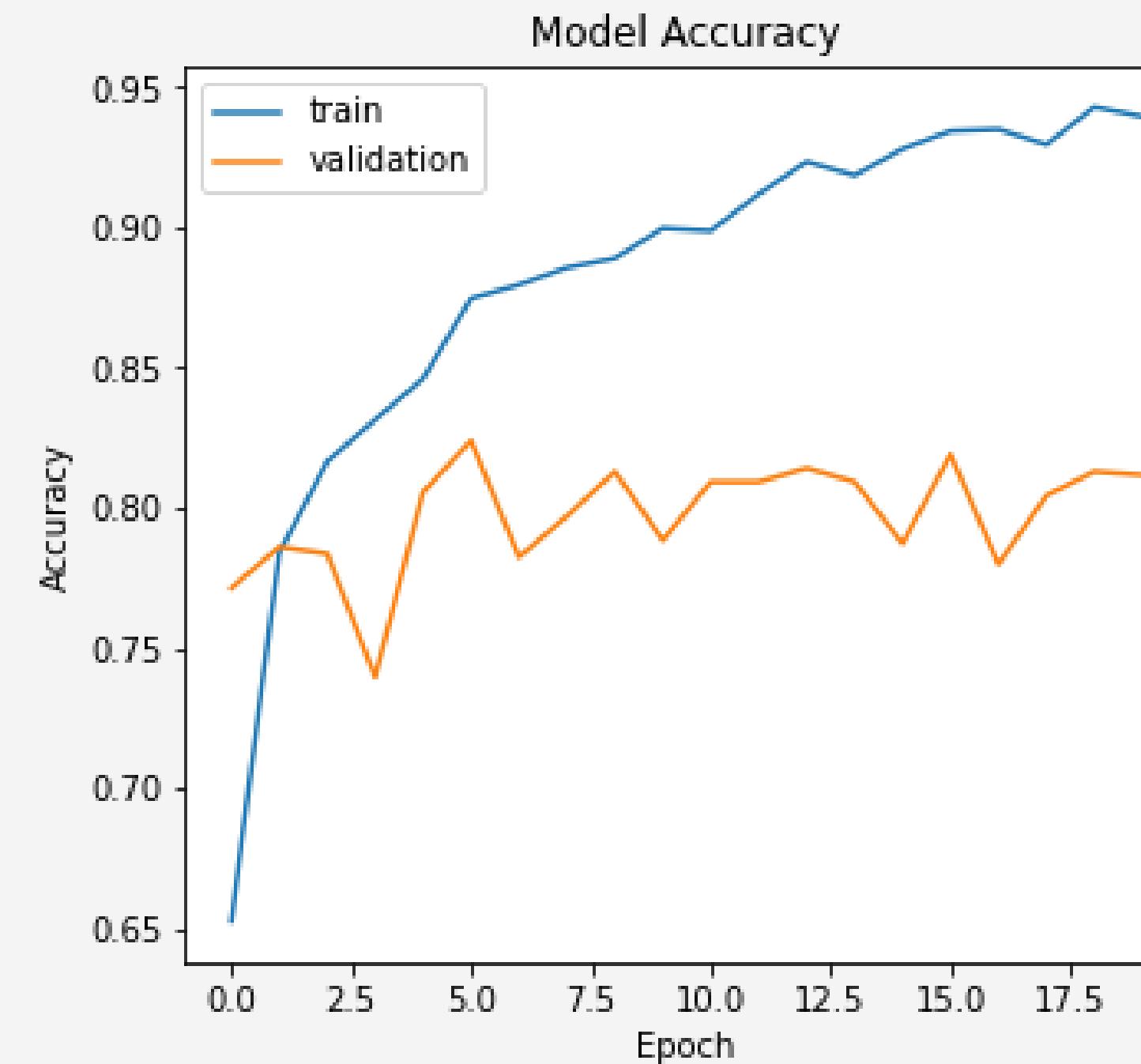
◆ **VGG16**

◆ **DenseNet121**

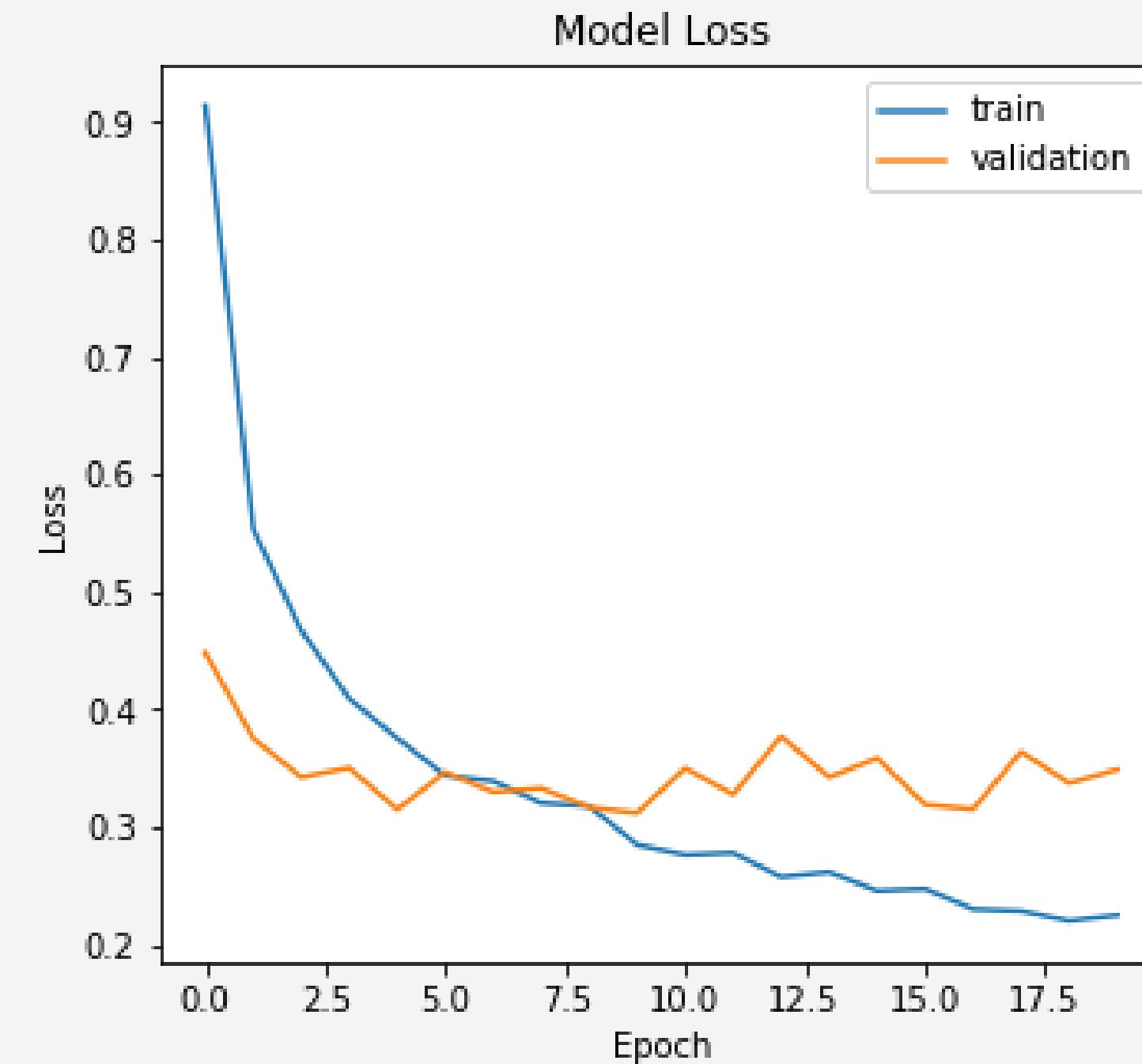
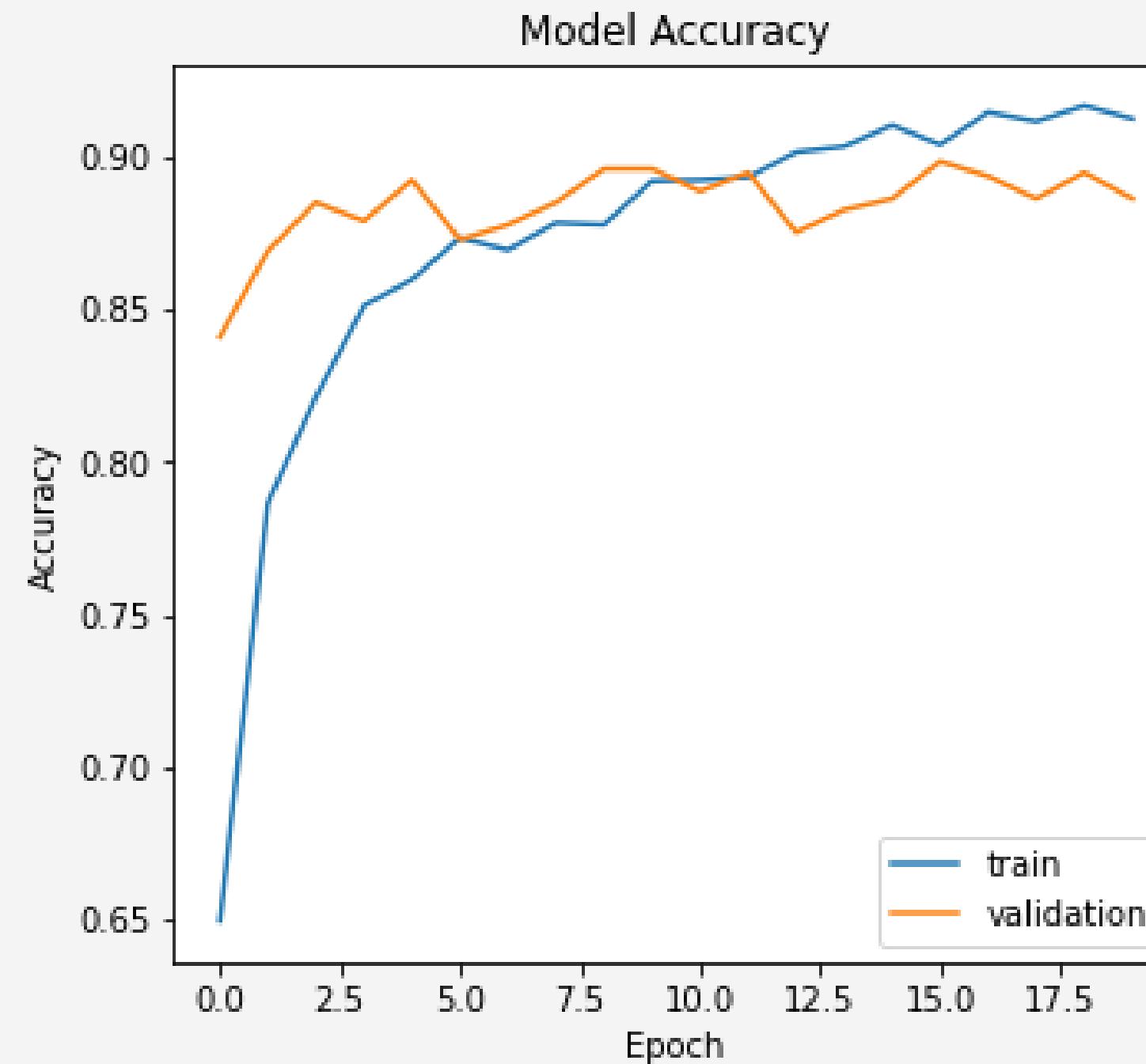
CNN



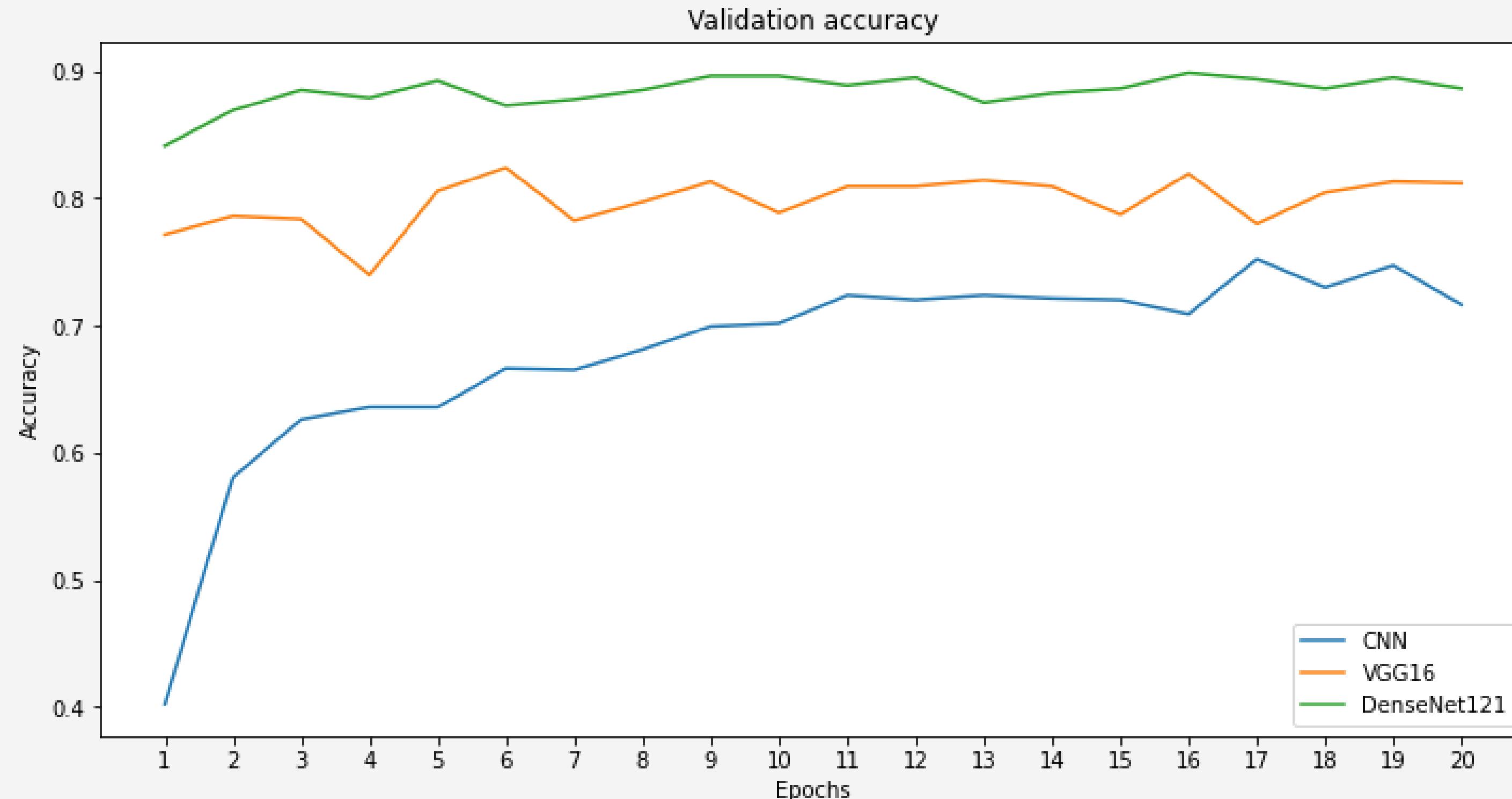
VGG16



DenseNet121



Best Performance



Test

```
▶ class_indices = train_data.class_indices
class_indices = dict((v,k) for k,v in class_indices.items())
class_names = list(class_indices.values())

# load image
img_path = '/content/drive/MyDrive/Dataset/Flower/test/tulip/7003964080_4566470798_n.jpg'
img = image.load_img(img_path, target_size=(224, 224)) # resize the image to 224 x 224
x = image.img_to_array(img)
x = np.expand_dims(x, axis=0)

# predict
preds = model_densenet_nt.predict(x, batch_size=32)
class_idx = np.argmax(preds)

# get actual class name from image path
actual_class_name = img_path.split('/')[-2]

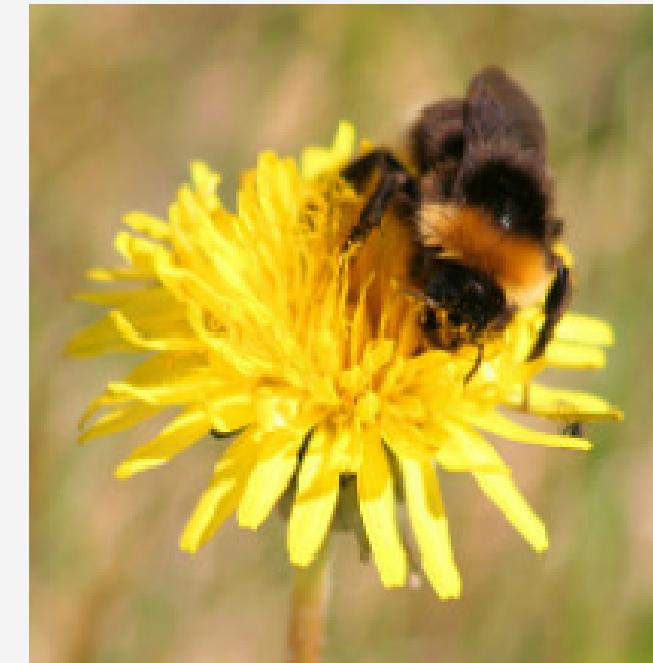
# show image and prediction
plt.imshow(img)
plt.axis('off')
plt.title(f"Actual flower class: {actual_class_name} | Predicted flower class: {class_names[class_idx]}")
plt.show()
```

Test

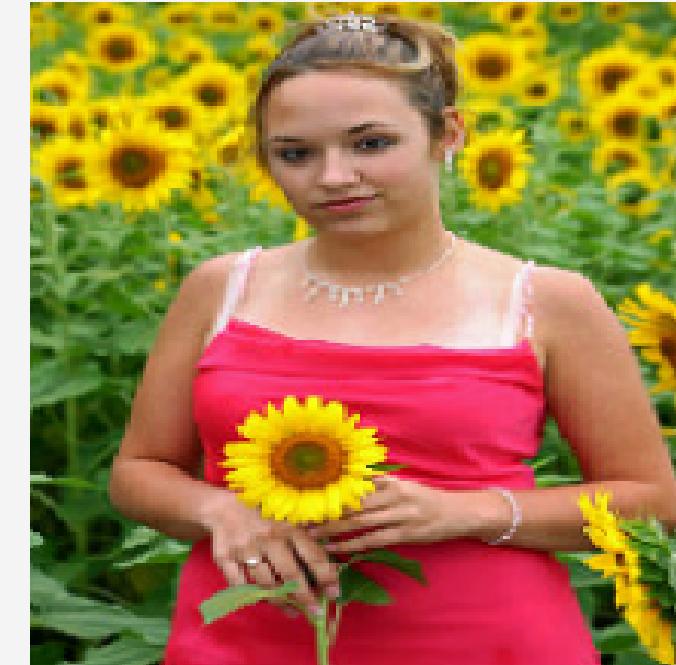
Actual flower class: daisy
Predicted flower class: daisy



Actual flower class: dandelion
Predicted flower class: dandelion



Actual flower class: sunflower
Predicted flower class: sunflower



Actual flower class: tulip
Predicted flower class: tulip



Actual flower class: rose
Predicted flower class: rose

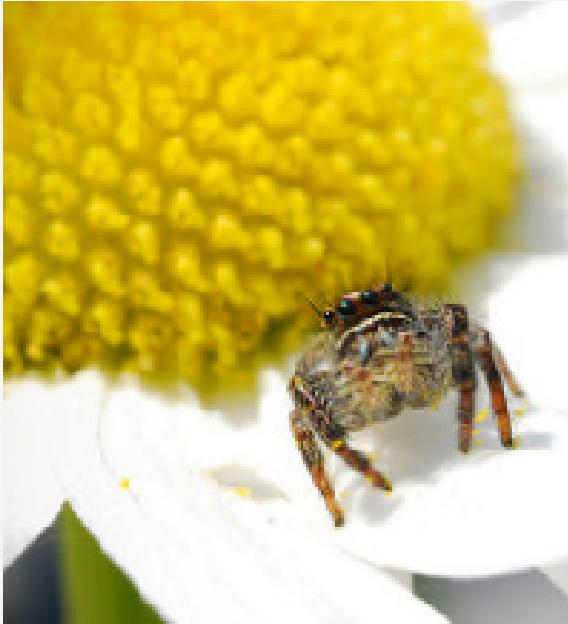


Test

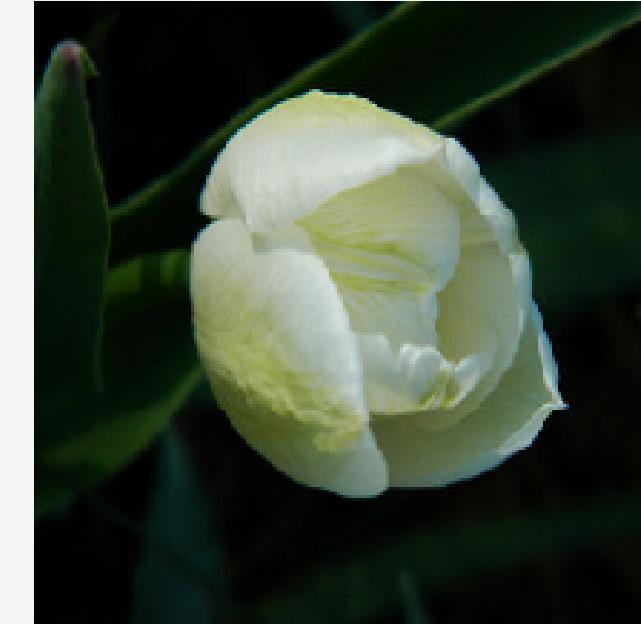
Actual flower class: rose
Predicted flower class: sunflower



Actual flower class: daisy
Predicted flower class: dandelion



Actual flower class: tulip
Predicted flower class: rose



Actual flower class: daisy
Predicted flower class: tulip



Actual flower class: sunflower
Predicted flower class: daisy



Actual flower class: dandelion
Predicted flower class: daisy



Conclusion

- ◆ All three CNN models can be used for flower classification
- ◆ The best model is Densenet with an accuracy of around 90%

Recommendation

- ◆ The dataset can be expanded to increase the number of types of flowers that can be classified

Thank You

Thank you for reviewing my portfolio. I look forward to potentially working with you in the future. If you require any further information or have any questions, please feel free to contact me via email at Adrianfirmansyah33@gmail.com.