Straw Hat Fanart Classifier

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Any anime fans out there?

Anime Fandom

Cosplay, Fan fiction, Fanart

Straw Hats from ‘One Piece’

Test your skills

Can the model recognize your character?

Fanart

Beep
Boop!

Zoro!

Straw Hat Fanart Classifier

Raise the Sails!

- Identify a Model
- Find/Explore the Data
- Transform the Data
- Build/Fit the Model
- Evaluate the Model
- Implement in Application

The Data

myanimelist.net
animecharactersdatabase.com

Image Scraping

```
def anime_scraper_2(url_folder, alt):

    for i in url_folder:
        time.sleep(3)

        headers = {
            'User-Agent': 'Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36
(KHTML, like Gecko) Chrome/90.0.4430.93 Safari/537.36'
            }

        soup = BeautifulSoup(requests.get(i[0], headers=headers).content,
                             'html.parser')

        images = soup.find_all('img', attrs={
        'alt': alt
        })

        image_urls = [img.attrs['src'] for img in images]

        if not os.path.isdir(f'../assets/{i[1]}'):
            os.makedirs(f'../assets/{i[1]}')

        for url in image_urls:
            new_path = 'https://ami.animecharactersdatabase.com/uploads/chars/'
            img_name = url.split('/')[-1]

            filename = os.path.join(f'../assets/{i[1]}', img_name)

            time.sleep(2)

            res = requests.get(new_path + img_name,
                               stream=True,
                               headers=headers)

            with open(filename, 'wb+') as f:
                for chunk in res.iter_content(1024):
                    f.write(chunk)
```

Libraries

Bs4 (Beautiful Soup)

Requests

Time.sleep

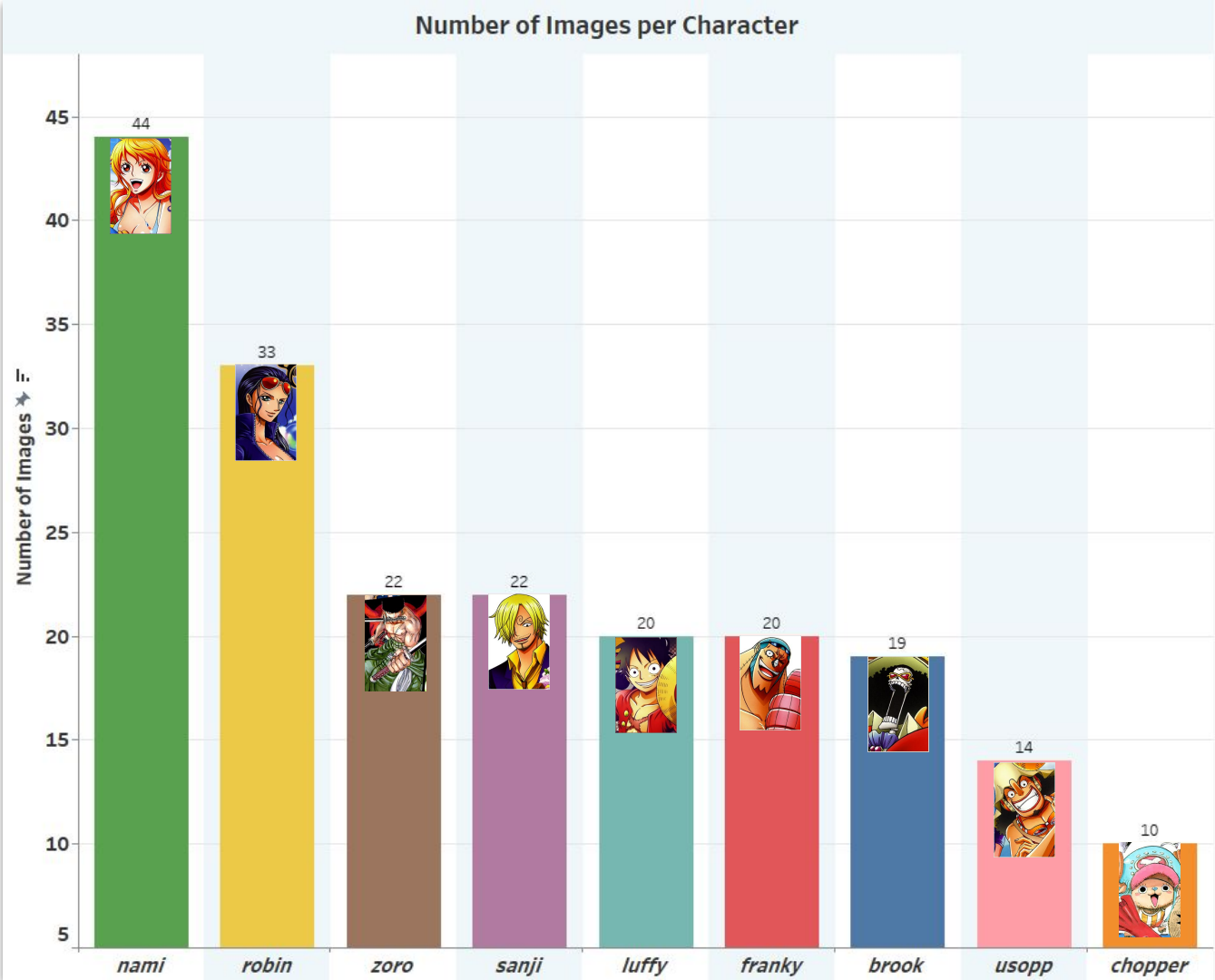
OS

References

https://www.thepythoncode.com/article/download-web-page-images-python

https://stackoverflow.com/questions/16694907/download-large-file-in-python-with-requests

Distribution of Characters



TensorFlow

Data Transformation

NumPy

Libraries

Numpy

Tensorflow

Sklearn

References

https://www.geeksforgeeks.org/cnn-image-data-pre-processing-with-generators/

https://keras.io/api/preprocessing/image/

https://www.tensorflow.org/guide/data

The Model

Convolutional Neural Network

Layers of the Model

Layers

Conv2D

MaxPooling2D

Flatten

Dense

Dropout

Loss & Metrics

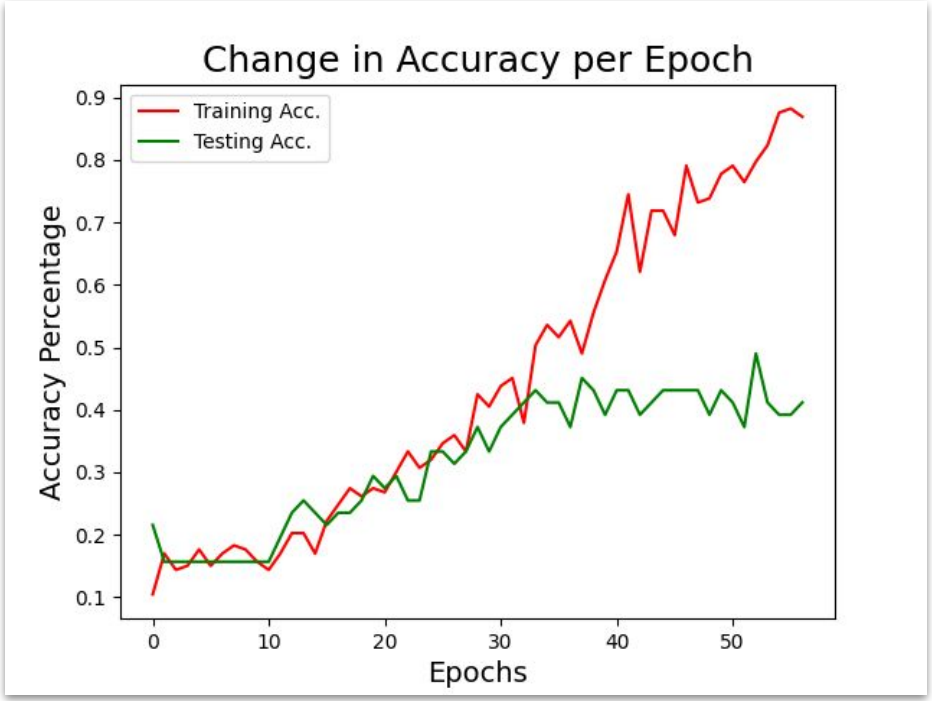
Loss

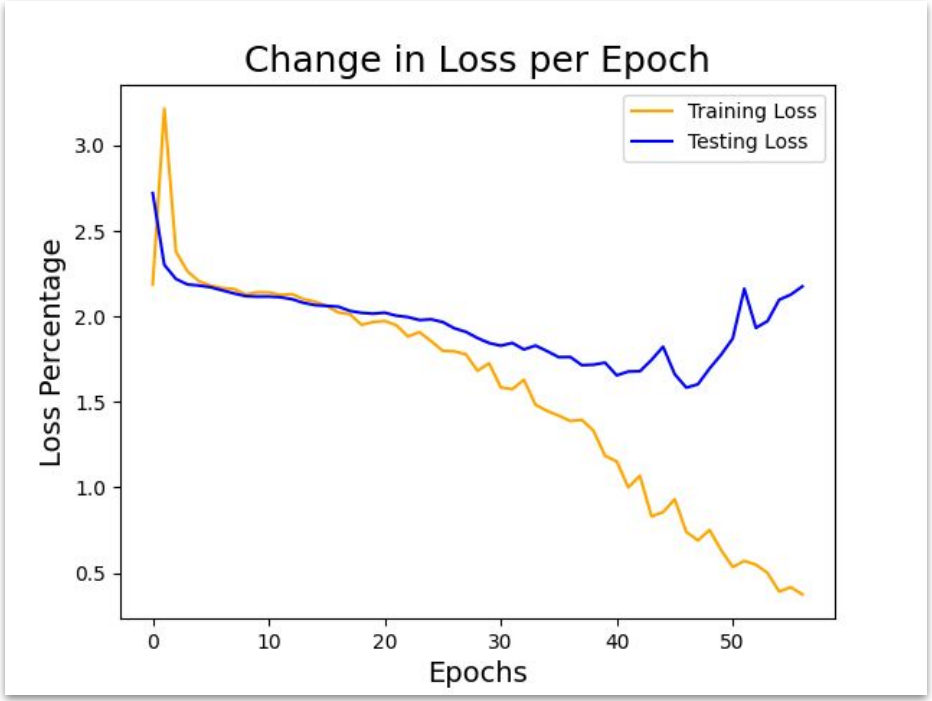
Categorical Cross Entropy

Metrics

Accuracy

66%





Baseline Acc.: 22% | Actual Best: 49%

Flask Application

Interactive Deployment

Conclusion

Assumptions, Risks, Limitations

In Conclusion

Limitations: Storage capacity, processing power

Risks: Copyright infringement, real life image data, privacy issues

Assumptions: <100% accuracy

Thank you!

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