Fruit Classification

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Food Sharing and Donation Apps

Food Sharing and Donation Apps

- Search and Post Food

Food Sharing and Donation Apps

- Search and Post Food
- Upload Images

Food Sharing and Donation Apps

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- Upload Images

Problem

Food Sharing and Donation Apps

- Search and Post Food
- Upload Images

Problem

- Manually Input Information

Food Sharing and Donation Apps

- Search and Post Food
- Upload Images

Problem

- Manually Input Information
- User error

Food Sharing and Donation Apps

- Search and Post Food
- Upload Images

Problem
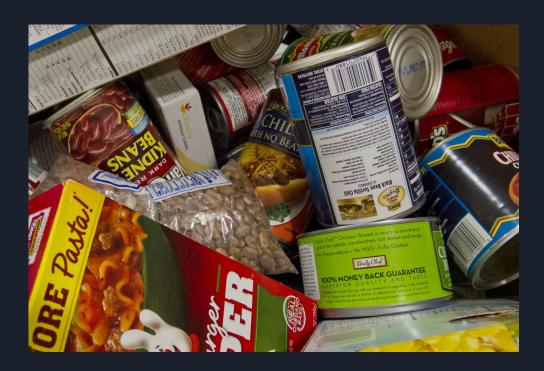
- Manually Input Information
- User error
- Food waste

Solution

Image Classification System

Why?

Why?

- Reduce user error

Why?

- Reduce user error
- Tags

Why?

- Reduce user error
- Tags
  - Easier Search

Why?

- Reduce user error
- Tags
  - Easier Search
  - Less Food Waste

Why?

- Reduce user error
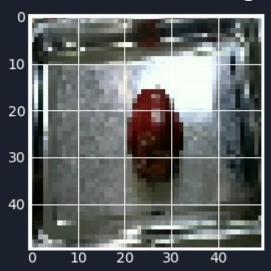- Tags
  - Easier Search
  - Less Food Waste
- User Images

Why?

- Reduce user error
- Tags
  - Easier Search
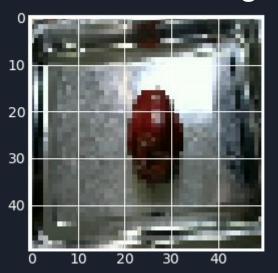 - Less Food Waste
- User Images
  - Better Model

Data

Data

Kaggle

Data

Kaggle

- 44k Fruit Images

Data

Kaggle

- 44k Fruit Images

Kaggle

- 15 Types of Fruit
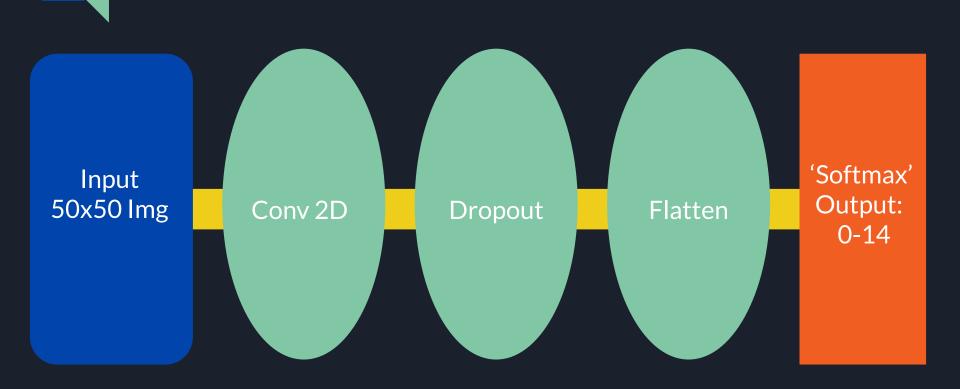 - 2 - 5k Images
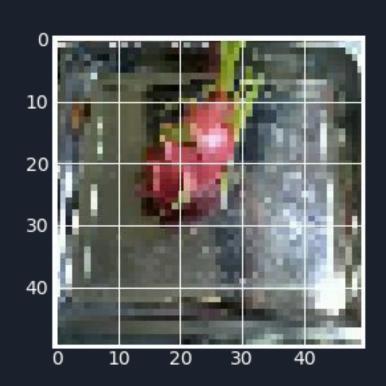
- 44k Fruit Images

Data

Kaggle
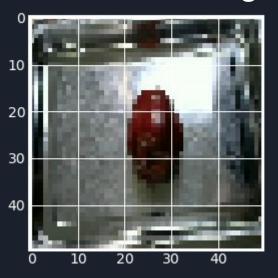
- 44k Fruit Images

- 15 Types of Fruit
  - 2 - 5k Images
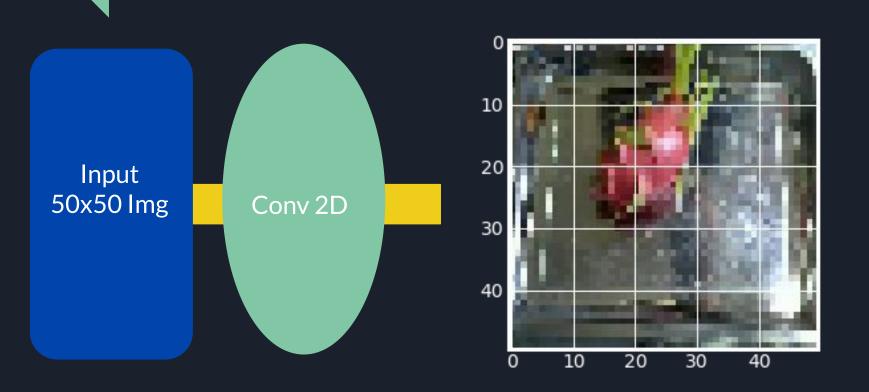
- Lighting, Positioning, and Quantity

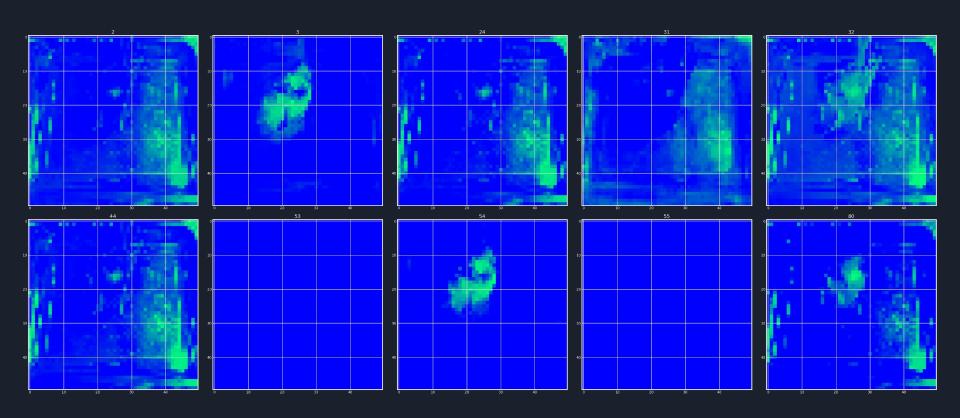Fruit Distribution(%)

My Neural Network

Input 50x50 Img — Conv 2D — Dropout — Flatten — 'Softmax' Output: 0-14

Neural Network

Input
50x50 Img

Neural Network

Input
50x50 Img

Conv 2D

Neural Network

Input 50x50 Img

Conv 2D

Neural Network

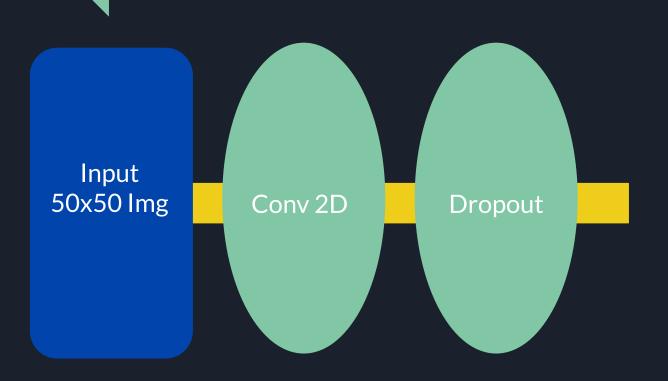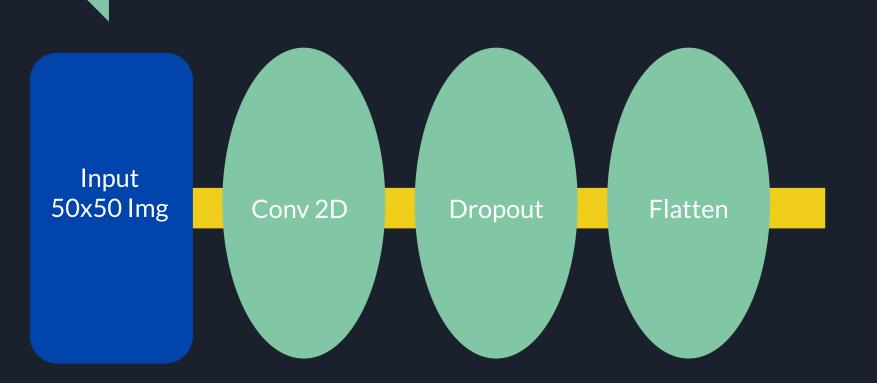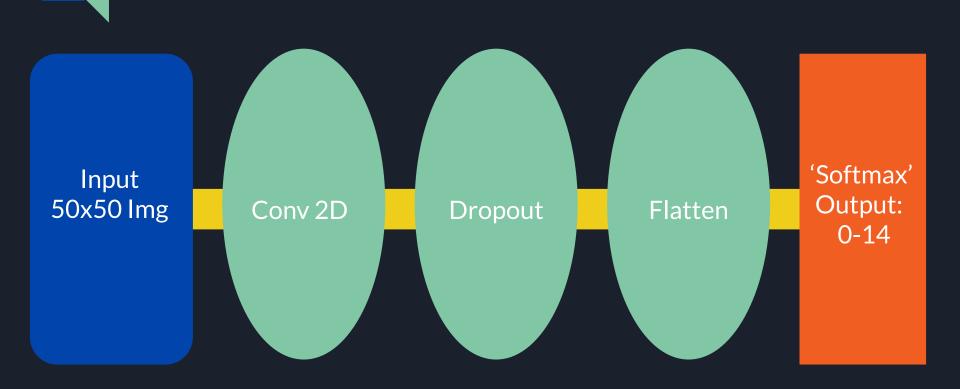Input 50x50 Img → Conv 2D → Dropout → Flatten
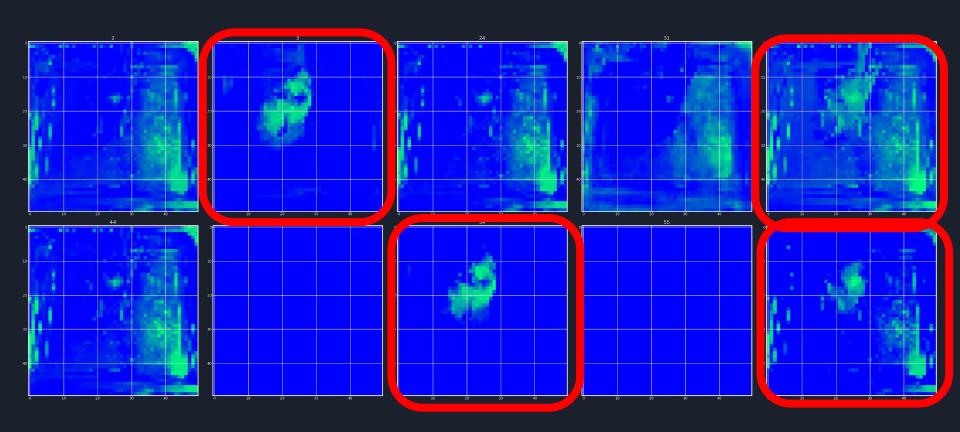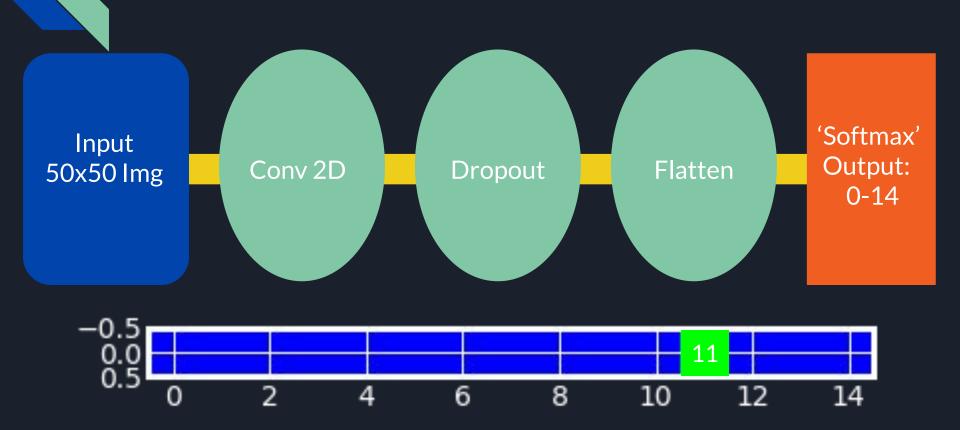
Performance

Metrics

Precision: 93.83%

Metrics

Precision: 93.83%
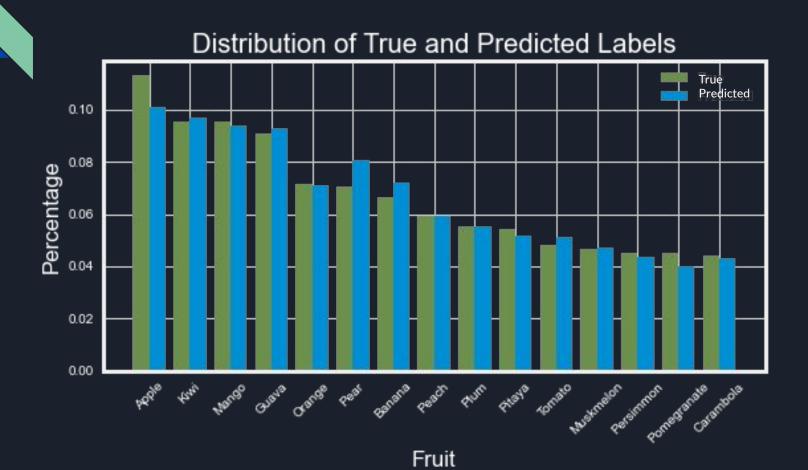
Recall: 93.67%

Metrics

Precision: 93.83%

F1: 93.65%

Recall: 93.67%

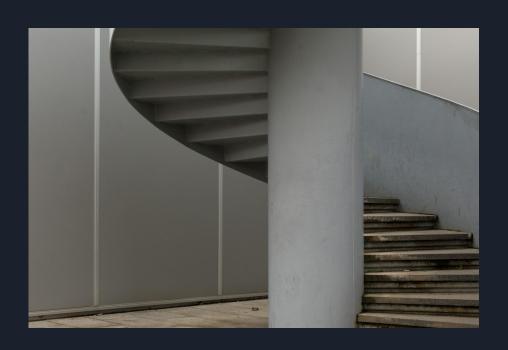# Metrics

Precision: 93.83%

F1: 93.65%

Recall: 93.67%

Distribution of True and Predicted Labels

Example of Incorrect Prediction

Example of Incorrect Prediction

Actual: Apple

Example of Incorrect Prediction

Actual: Apple

Predicted: Muskmelon

Example of Incorrect Prediction

Actual: Apple

Predicted: Muskmelon
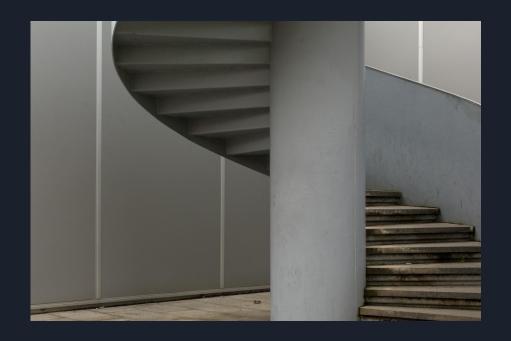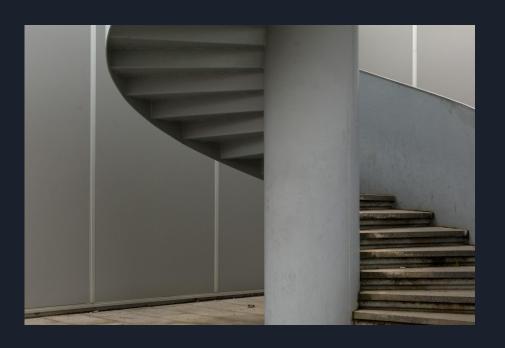
Next Steps

Next Steps

- Split Fruit into Subsets
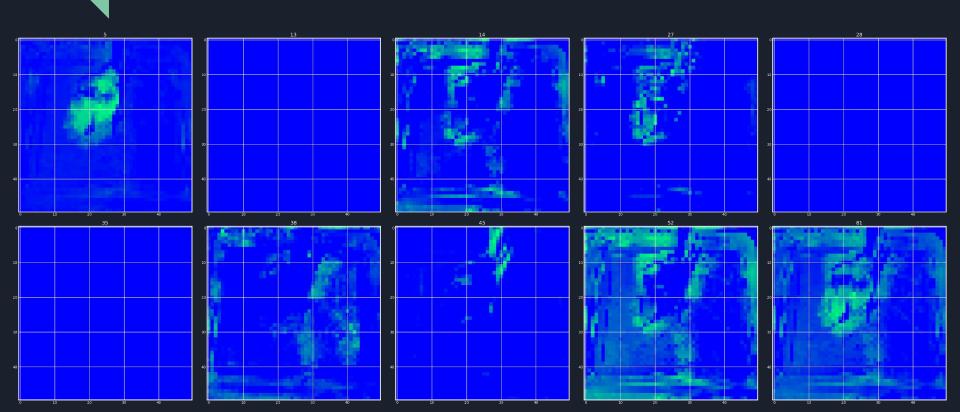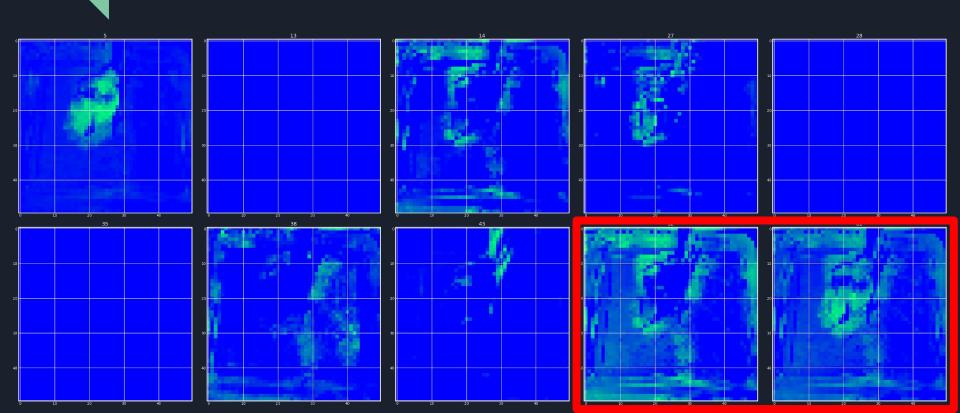
Next Steps

- Split Fruit into Subsets
- Run different:
  - Layers
  - Activation Alg's
  - Transformations

Next Steps

- Split Fruit into Subsets
- Run different:
  - Layers
  - Activation Alg's
  - Transformations
- Incorporate Other Images
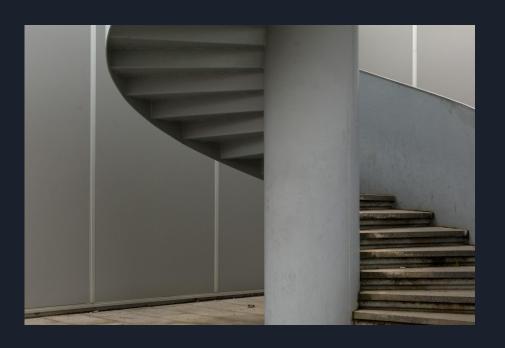
Next Steps

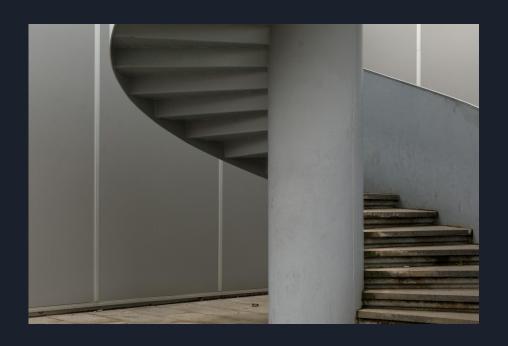# Next Steps

Next Steps

- Split Fruit into Subsets
- Run different:
  - Layers
  - Activation Alg's
  - Transformations
- Incorporate Other Images

Next Steps

- Split Fruit into Subsets
- Run different:
  - Layers
  - Activation Alg's
  - Transformations
- Incorporate Other Images
- Deploy Flask

Thank You!

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