
Information security and
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# Fruits classification

*Under supervision of:*

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*Done by:*

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# 1) Dataset description:

## Content

The following fruits and vegetables are included:

| Lable | #Training images | #Testing images |
|---|---|---|
| AppleRed1 | 492 | 12 |
| Apricot | 492 | 23 |
| Avocado | 427 | 37 |
| Banana | 490 | 34 |
| Blueberry | 462 | 25 |
| Cherry 1 | 492 | 32 |
| Carambula | 490 | 28 |
| Cocos | 490 | 30 |
| Corn | 450 | 51 |
| Dates | 490 | 30 |
| Lemon | 492 | 46 |
| Mango | 490 | 43 |
| Orange | 479 | 56 |
| Watermelon | 475 | 33 |

## Dataset properties

Total number of images: 1797

Training set size: 6711 images (one fruit or vegetable per image).

Test set size: 480 images (one fruit or vegetable per image).

Number of classes: 14 (fruits and vegetables).

Image size: 100x100 pixels.

## 2) Project Description:

OS library : interact with the operating system to help in reading files

tqdm: show input progress bar

cv2: read images

## 3) Model Description:

Input Layer: the `Flatten()` tool is used with image shape (100, 100, 3).

Dense Layers: 2 dense layers.

- Number of cells equal 128
- the activation function is relu

Output Layer:

- Number of cells equal 15
- the activation function is softmax

Combiling

- the optimizer: adam
- the loss function: sparse_categorical_crossentropy
- the metric function: accuracy

Model fitting:

- the batch size: 128
- number of epochs: 10
- The first epoch accuracy is 0.7
- the last epoch accuracy is 1.0

The accuracy of the model: 0.81

## Participants roles In building the data model:

| *Task* | *Participant* |
|---|---|
| Dataset choosing | Samaa Hemdan |
| Importing data | Gehad Mohamed |
| Converting images & labels from lists into np array to fit in the model | Gehad Mohamed |
| Creating the model | Samaa Hemdan |