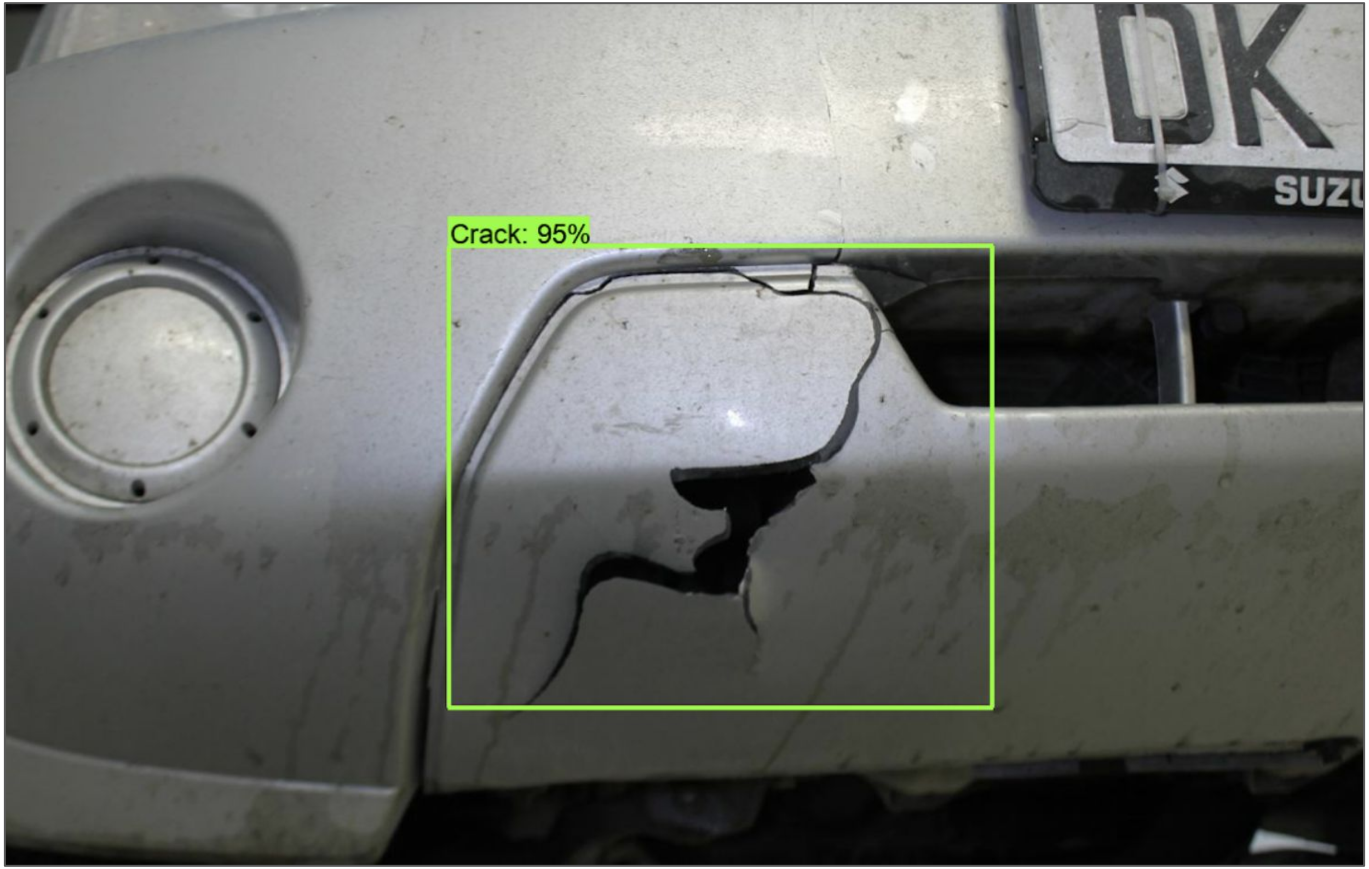
Machine learning in Python


Crack: 95%
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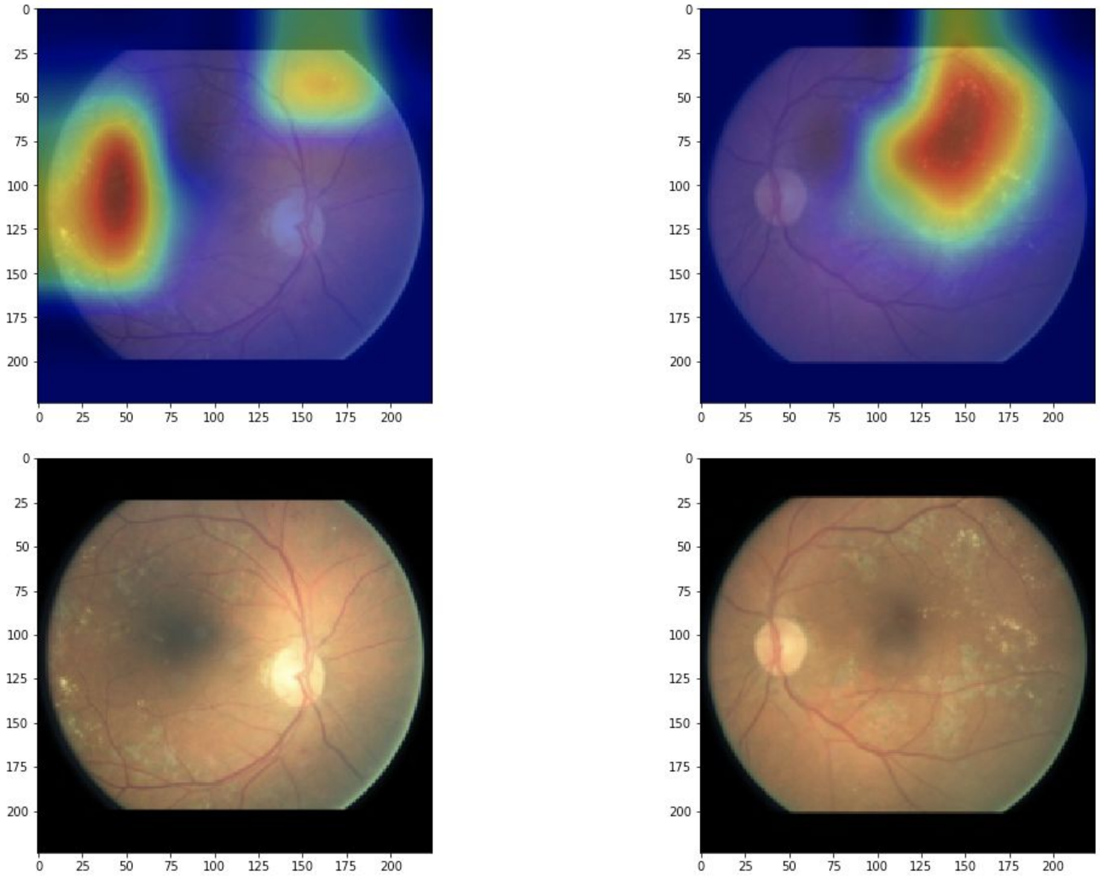
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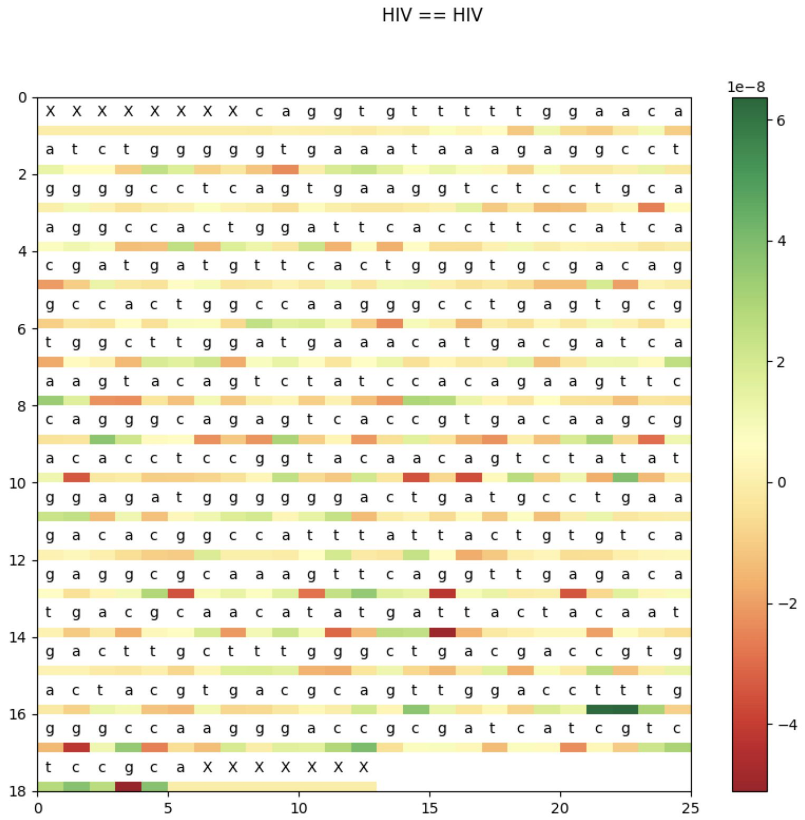
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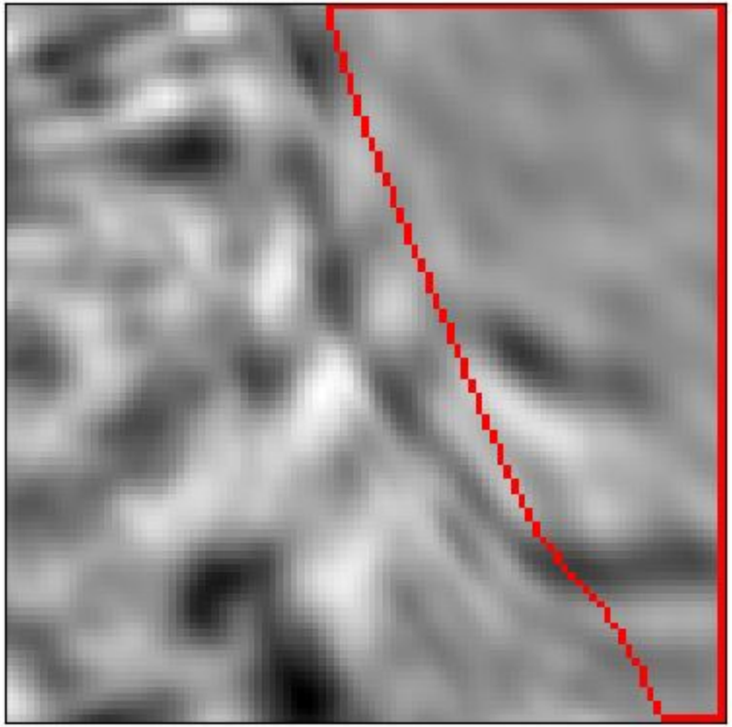
Thank you

I really appreciate the help :)

Amazing!!

What the f**k is going on?!?

Thanks for nothing. What a horrible user experience



01. Algorithms

2 => {2}
3 => {3}
4 => {2, 2}
5 => {5}
6 => {2, 3}
7 => {7}
8 => {2, 2, 2}

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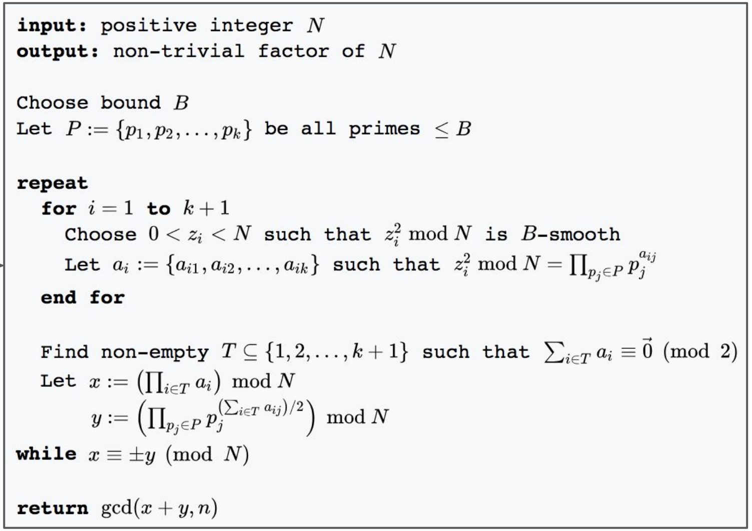

```
input: positive integer $N$
output: non-trivial factor of $N$

Choose bound $B$
Let $P := \{p_1, p_2, \ldots, p_k\}$ be all primes $\leq B$

repeat
  for $i = 1$ to $k + 1$
    Choose $0 < z_i < N$ such that $z_i^2 \bmod N$ is $B$-smooth
    Let $a_i := \{a_{i1}, a_{i2}, \ldots, a_{ik}\}$ such that $z_i^2 \bmod N = \prod_{p_j \in P} p_j^{a_{ij}}$
  end for

  Find non-empty $T \subseteq \{1, 2, \ldots, k + 1\}$ such that $\sum_{i \in T} a_i \equiv \vec{0} \pmod 2$
  Let $x := \left(\prod_{i \in T} a_i\right) \bmod N$
      $y := \left(\prod_{p_j \in P} p_j^{(\sum_{i \in T} a_{ij})/2}\right) \bmod N$
while $x \equiv \pm y \pmod N$

return $\gcd(x + y, n)$
```

01. Algorithms

2 => {2}
3 => {3}
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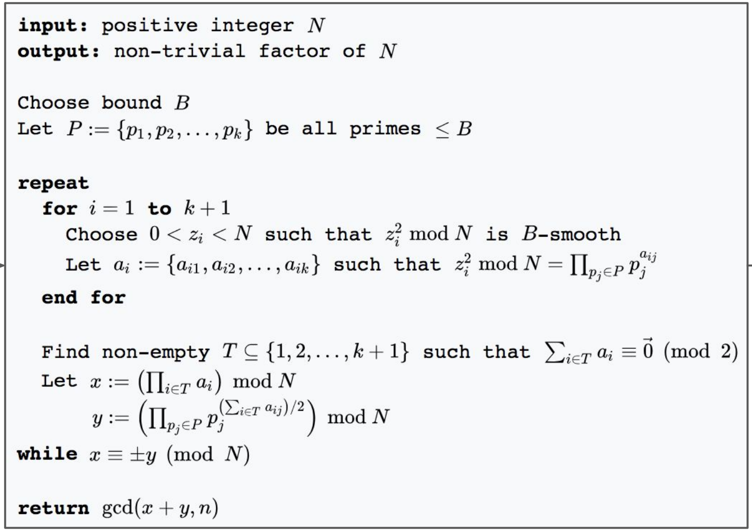

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```

Q.E.D

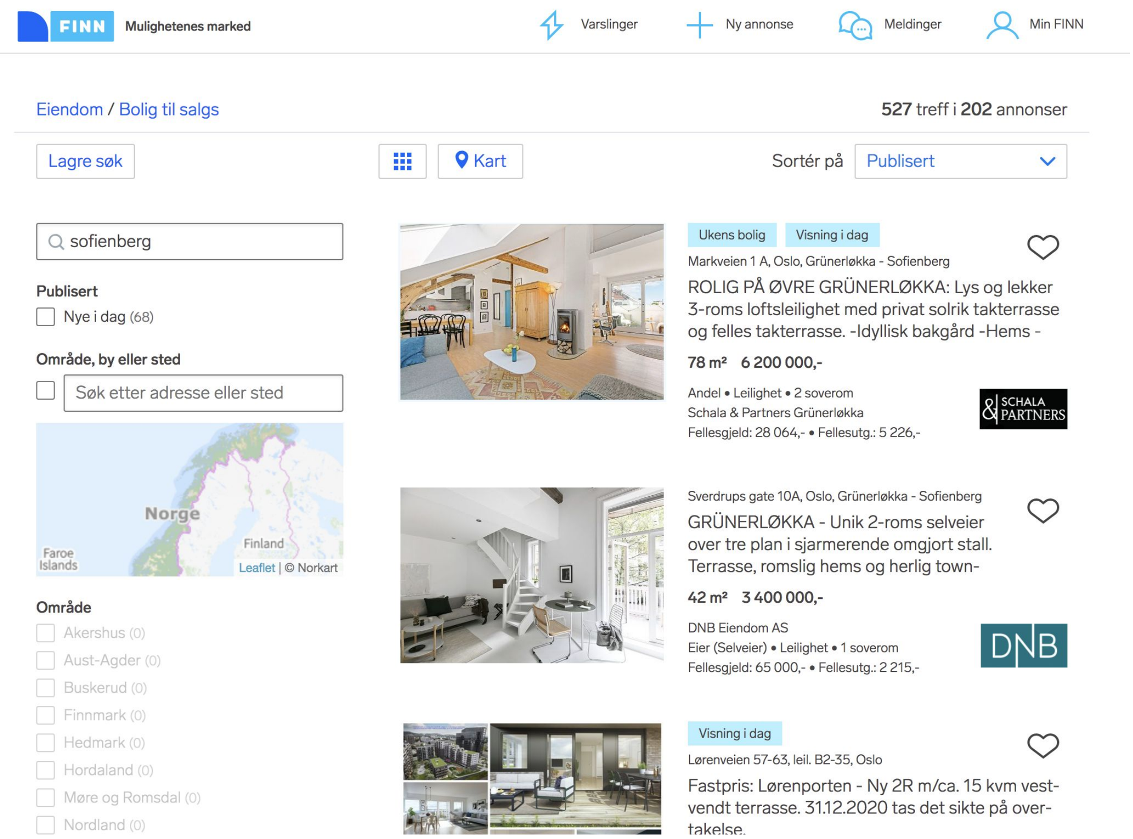
02. Machine Learning

2 => {2}
3 => {7}
4 => {}
5 => {2, 2, 2, 2, 2, ...}
6 => {“airplane”}
7 => {🐻, 🐈}
8 => {ώ}

02. Machine Learning

2 => {2}
3 => {7}
4 => {}
5 => {2, 2, 2, 2, 2, ...} → ?
6 => {“airplane”}
7 => {🐻, 🐈}
8 => {ώ}

03. Linear regression



FINN Mulighetenes marked

Varslinger | Ny annonse | Meldinger | Min FINN

Eiendom / Bolig til salgs

527 treff i **202** annonser

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sofienberg

Publisert

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Område, by eller sted

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Område

□ Akershus (0)
□ Aust-Agder (0)
□ Buskerud (0)
□ Finnmark (0)
□ Hedmark (0)
□ Hordaland (0)
□ Møre og Romsdal (0)
□ Nordland (0)

Ukens bolig | Visning i dag

Markveien 1 A, Oslo, Grünerløkka - Sofienberg

ROLIG PÅ ØVRE GRÜNERLØKKA: Lys og lekker 3-roms loftsleilighet med privat solrik takterrasse og felles takterrasse. -Idyllisk bakgård -Hems -

78 m²   6 200 000,-

Andel • Leilighet • 2 soverom
Schala & Partners Grünerløkka
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Sverdrups gate 10A, Oslo, Grünerløkka - Sofienberg

GRÜNERLØKKA - Unik 2-roms selveier over tre plan i sjarmerende omgjort stall. Terrasse, romslig hems og herlig town-

42 m²   3 400 000,-

DNB Eiendom AS
Eier (Selveier) • Leilighet • 1 soverom
Fellesgjeld: 65 000,- • Fellesutg.: 2 215,-

Visning i dag

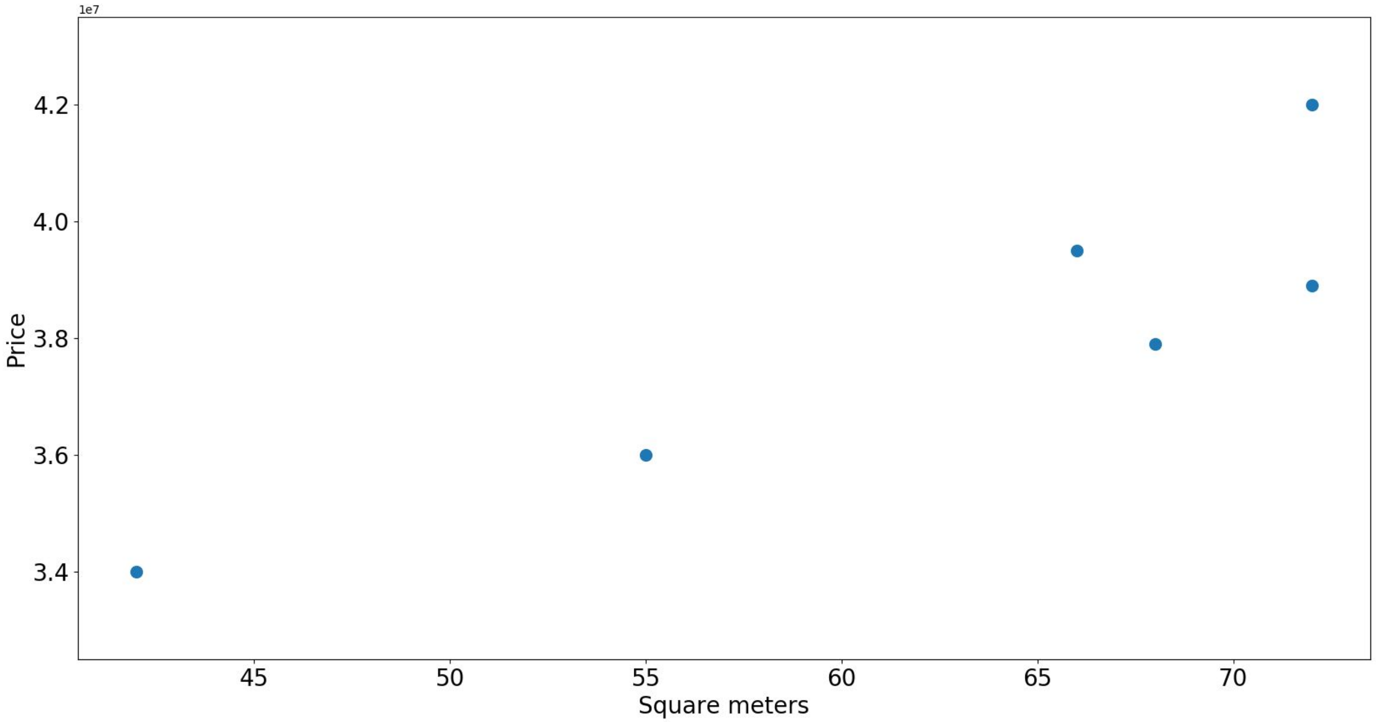
Lørenveien 57-63, leil. B2-35, Oslo

Fastpris: Lørenporten - Ny 2R m/ca. 15 kvm vestvendt terrasse. 31.12.2020 tas det sikte på overtakelse.

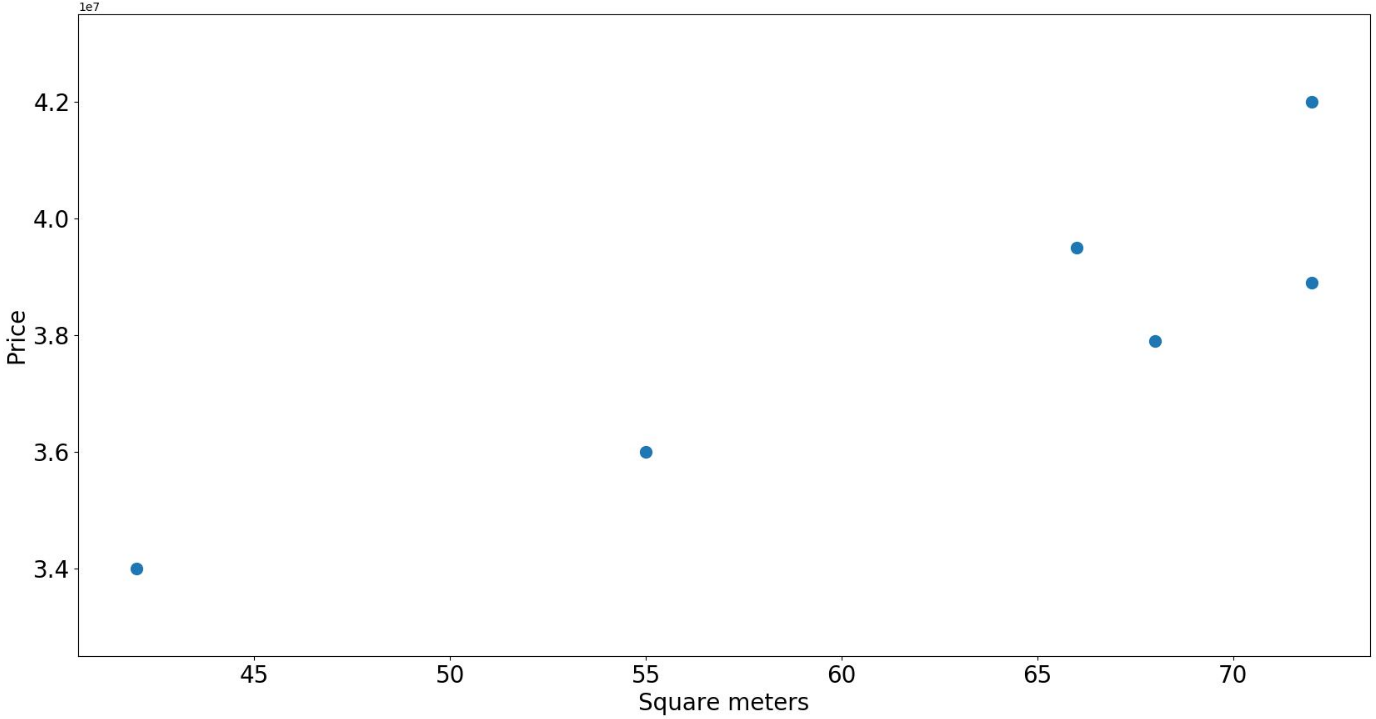
03. Linear regression

m^2	**NOK**
72	4 200 000
68	3 790 000
72	3 890 000
42	3 400 000
66	4 950 000
55	3 600 000

03. Linear regression

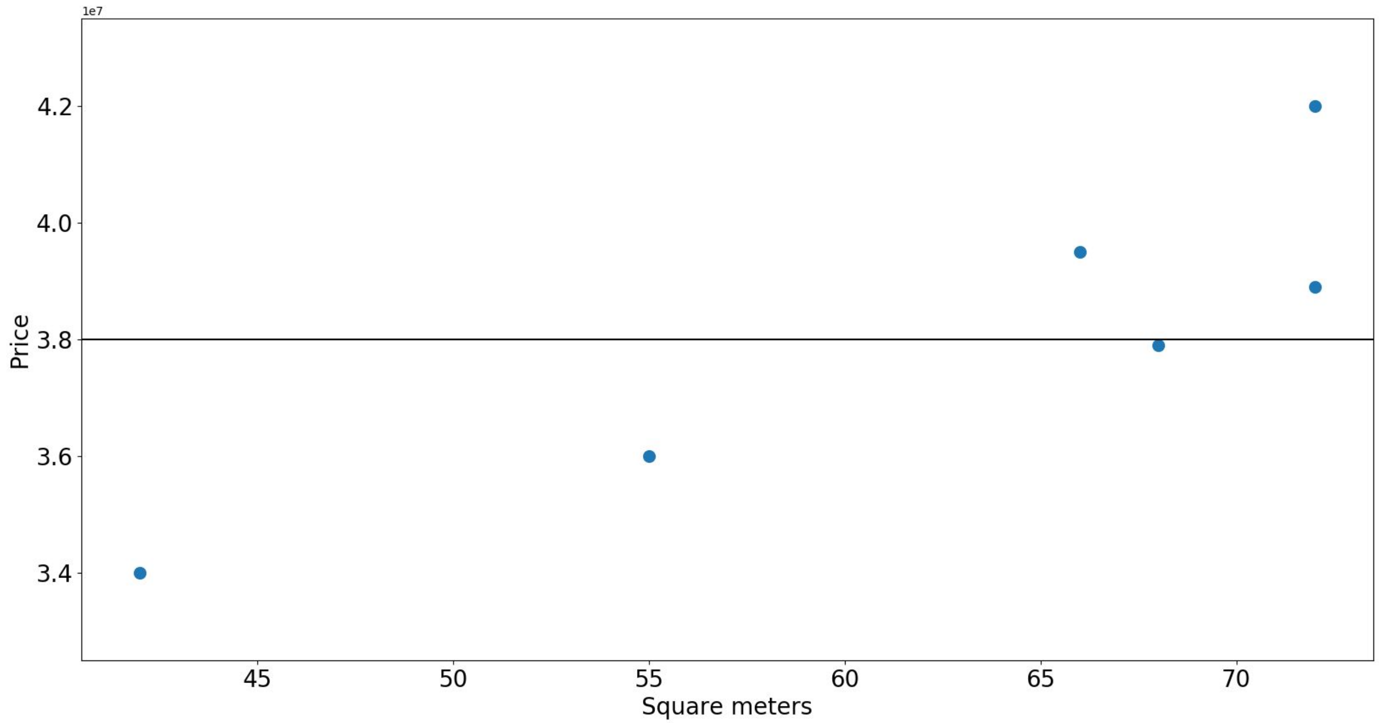


03. Linear regression



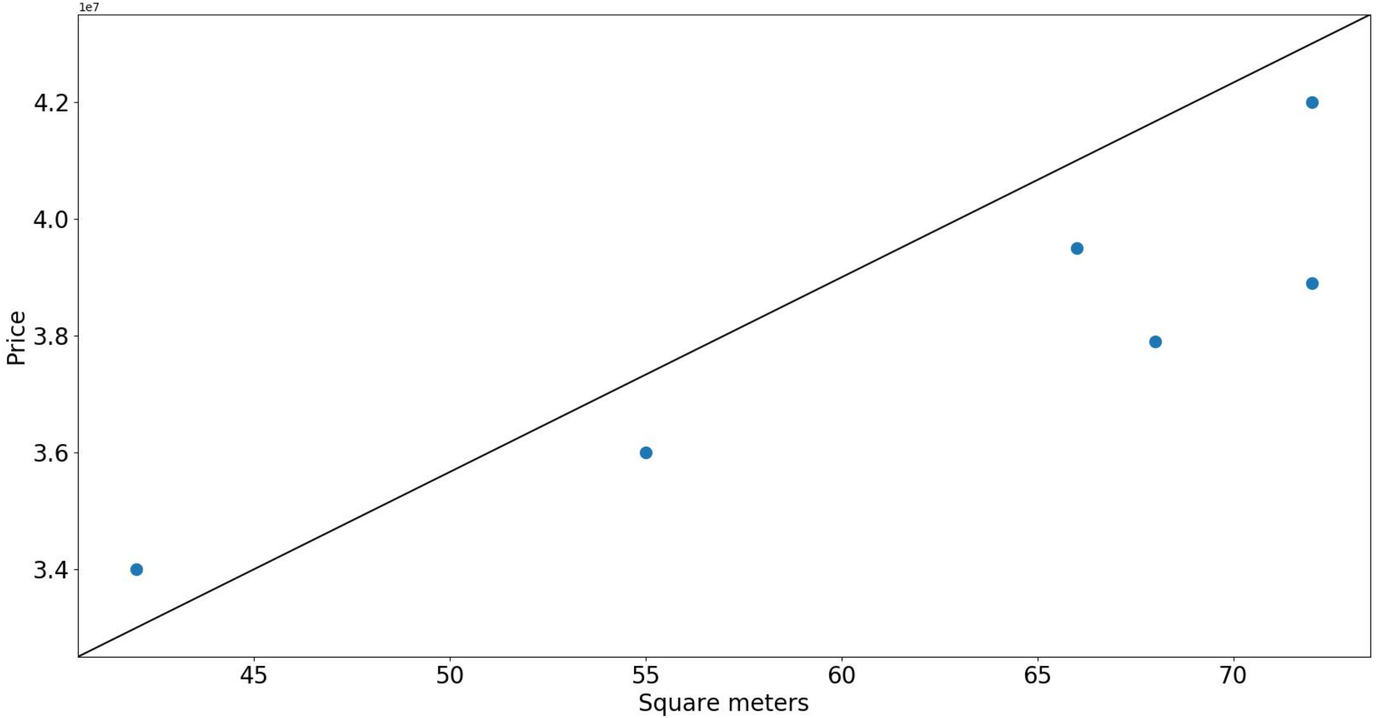
$$f(x) = ax+b$$

03. Linear regression



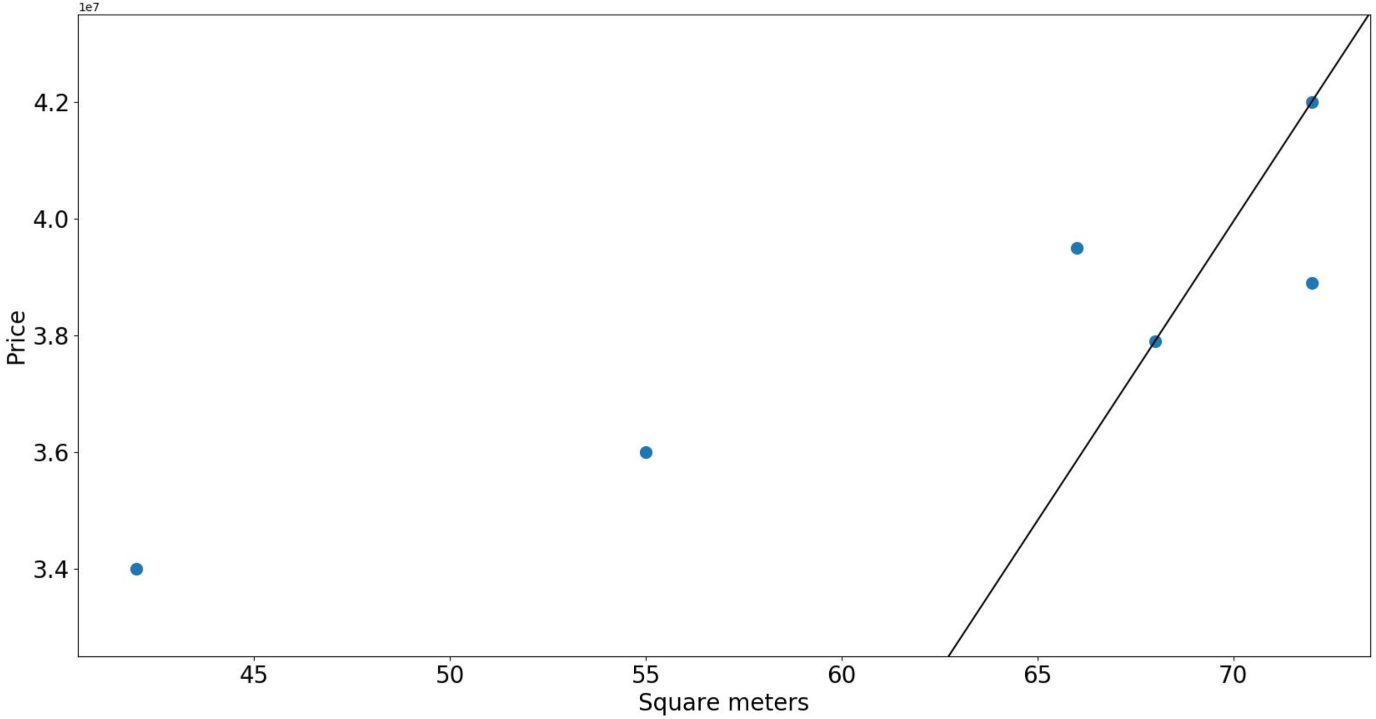
$$f(x) = 0x+3800000$$

03. Linear regression



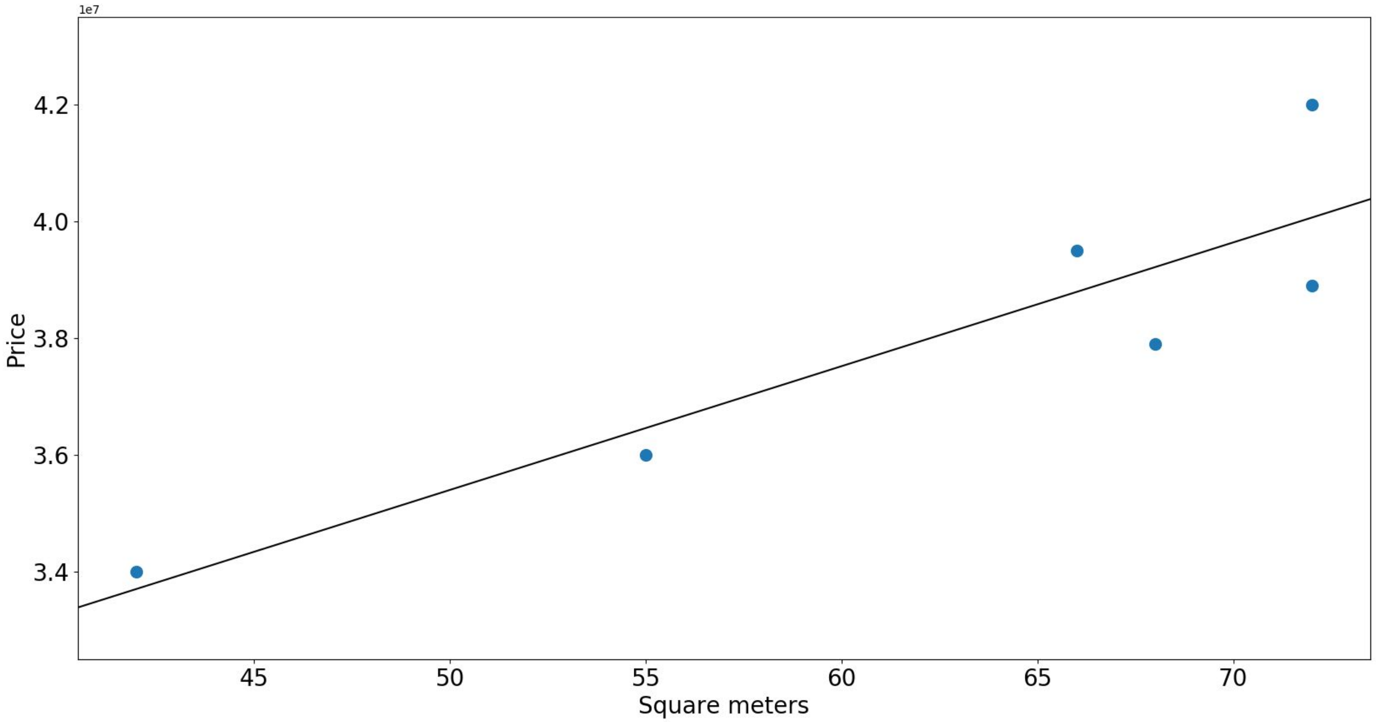
$$f(x) = 27272x+2145484$$

03. Linear regression



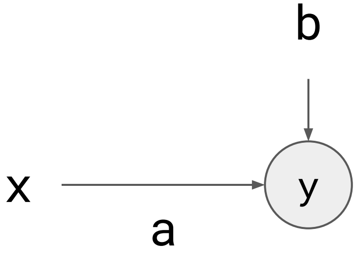
$$\text{cost}(x, f(x)) = \begin{cases} 0 \text{ if } f(x) = x \\ 1 \end{cases}$$

03. Linear regression



$$\mathrm{cost}(x,\ f(x)) = (f(x)\ -\ x)^2$$

04. Neural nets



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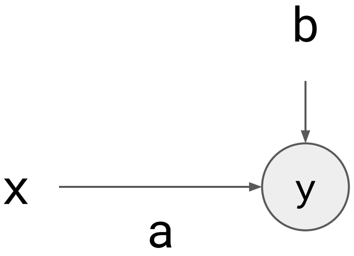

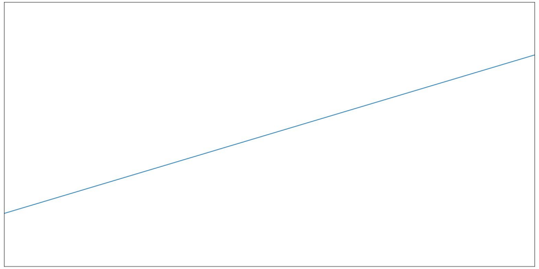

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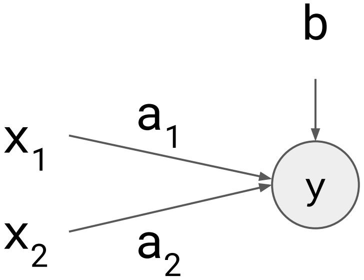

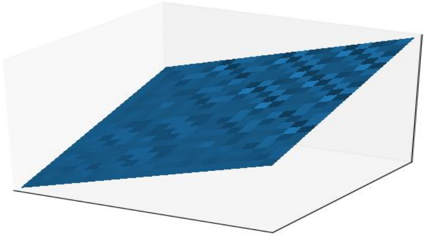

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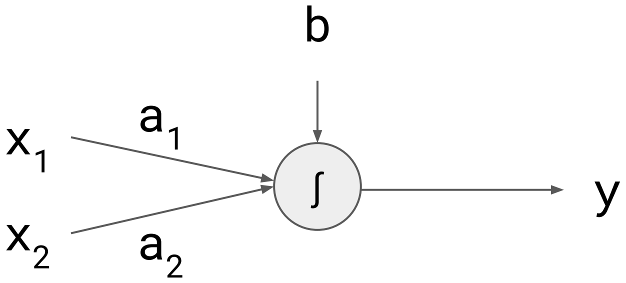

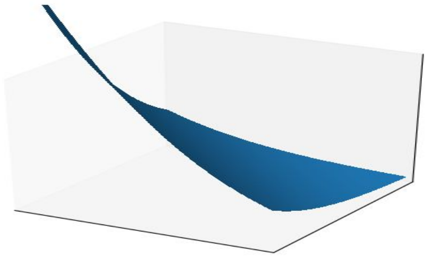

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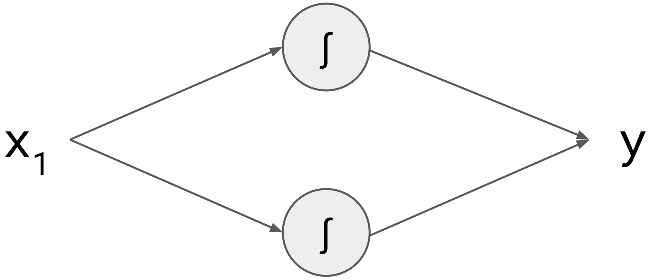

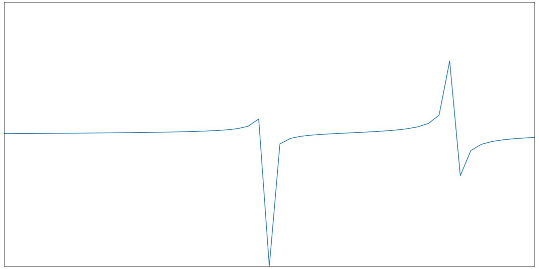

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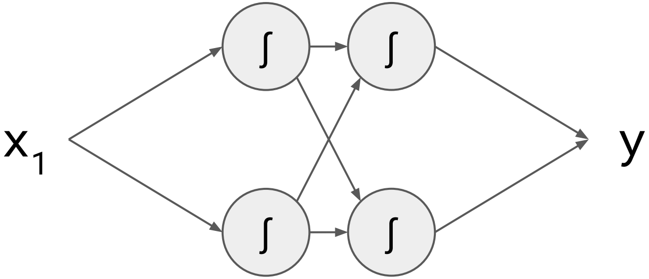

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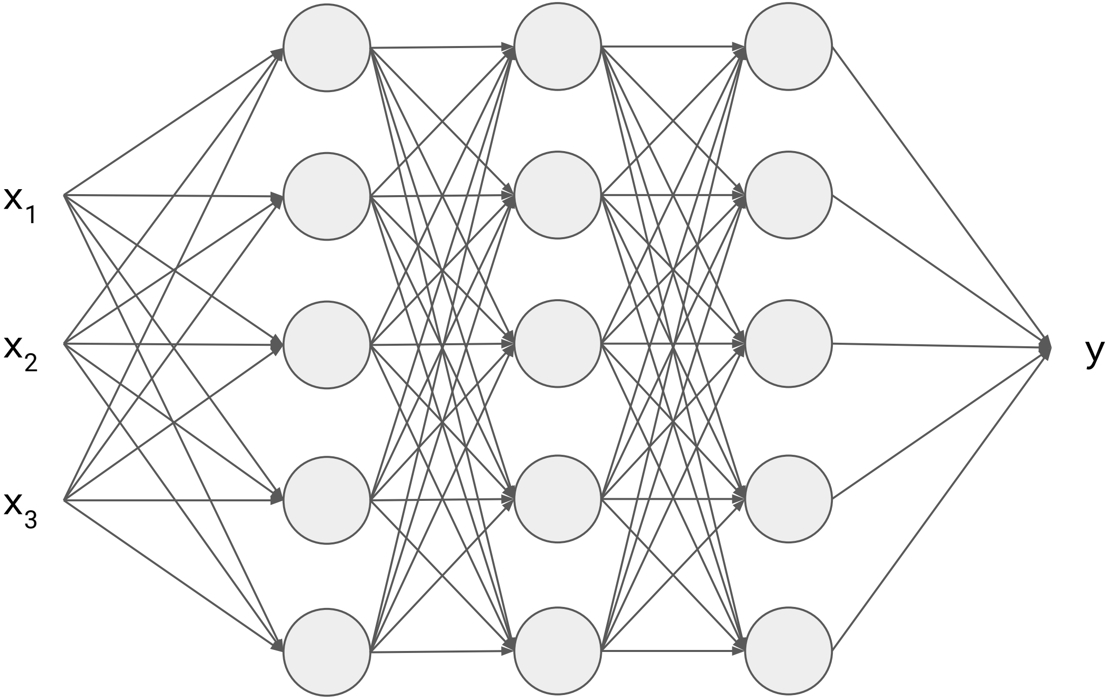

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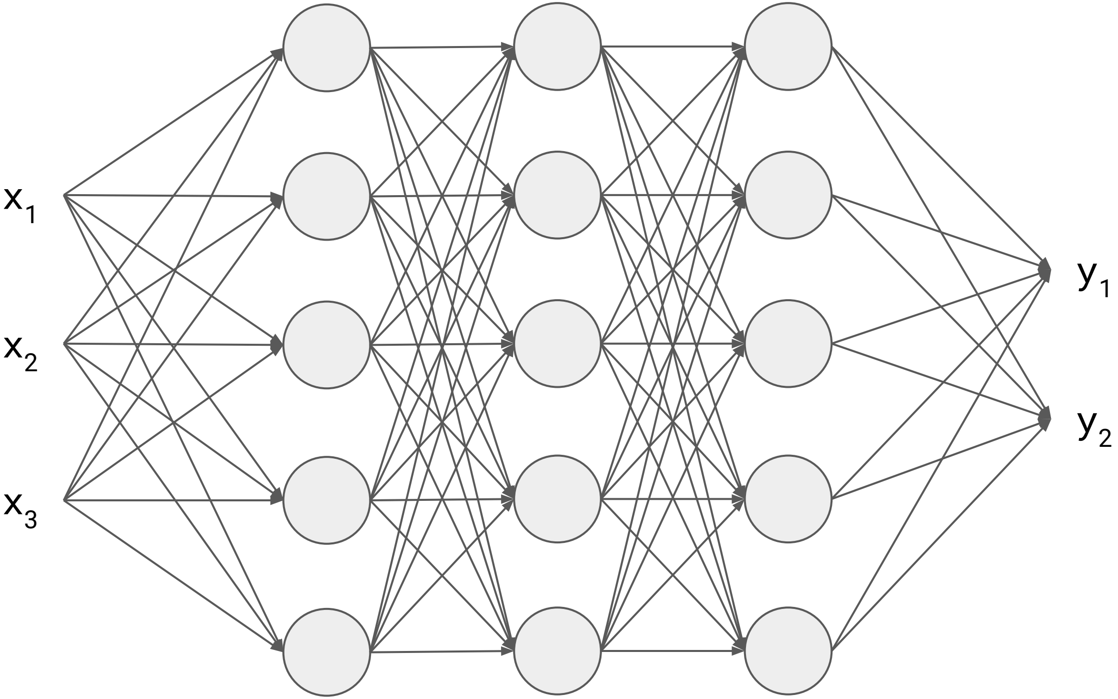

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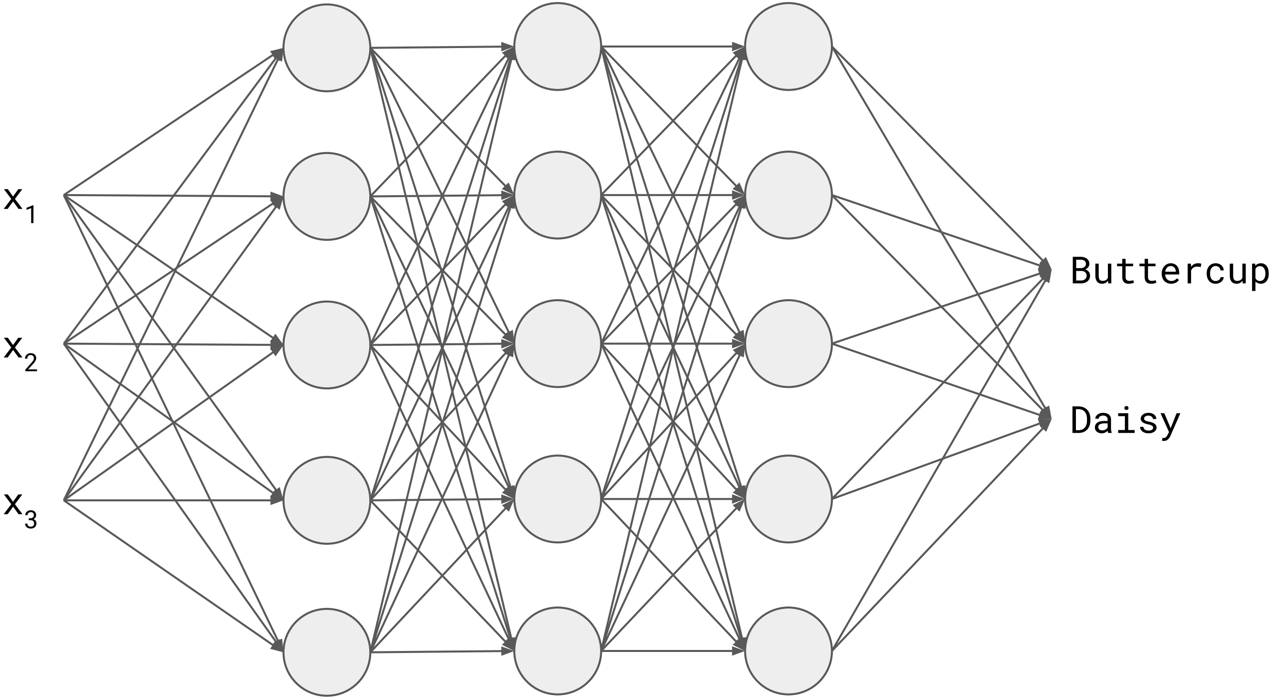

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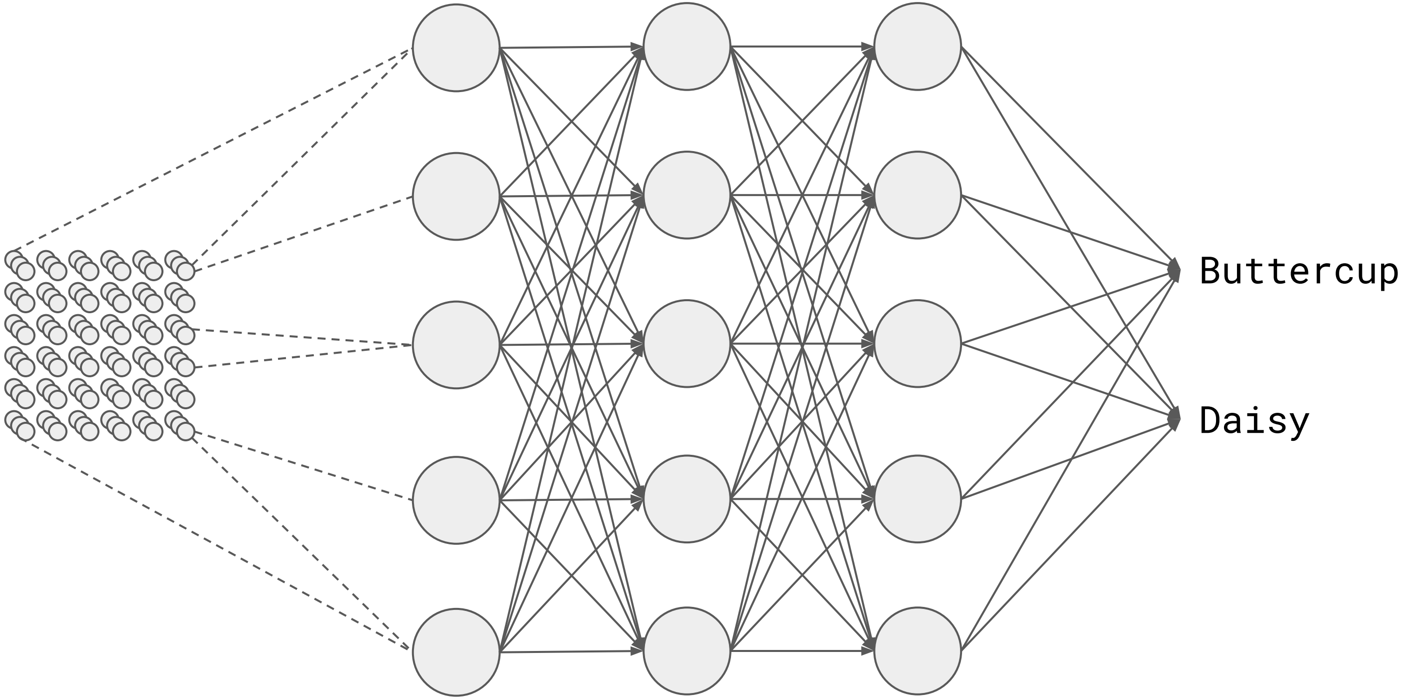

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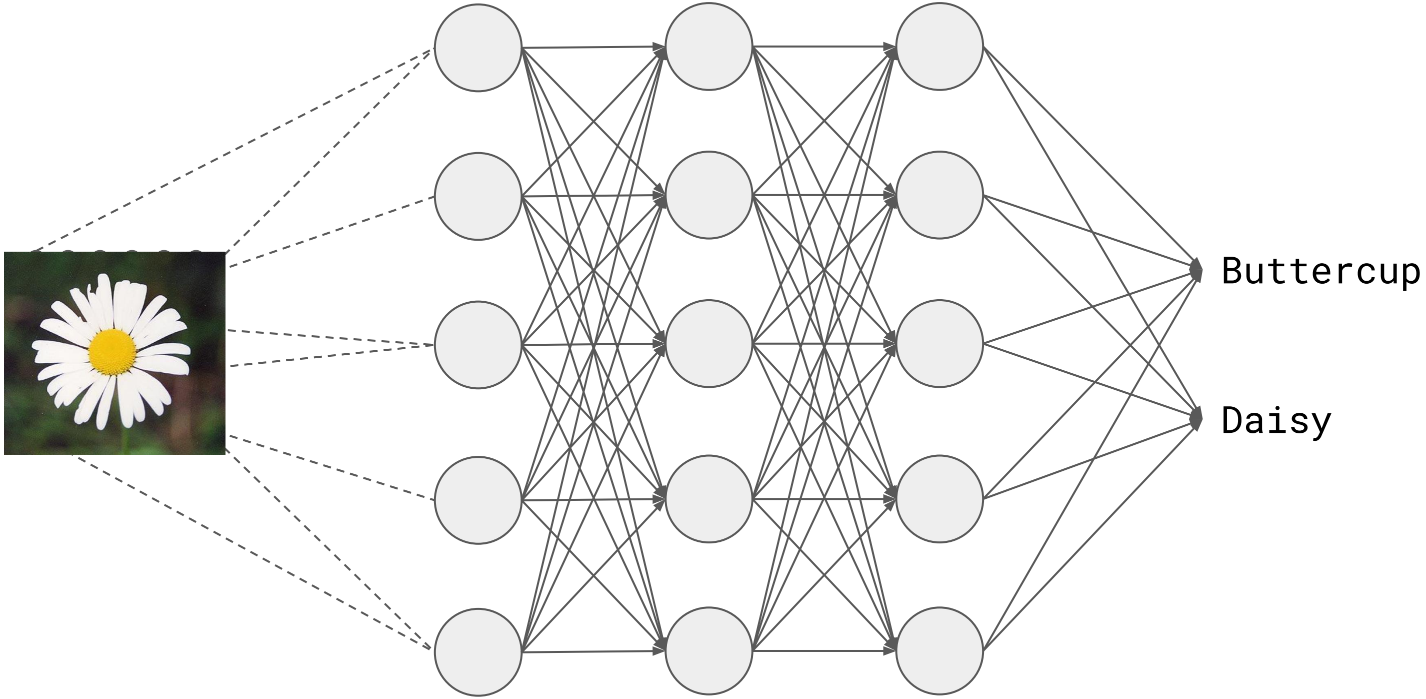

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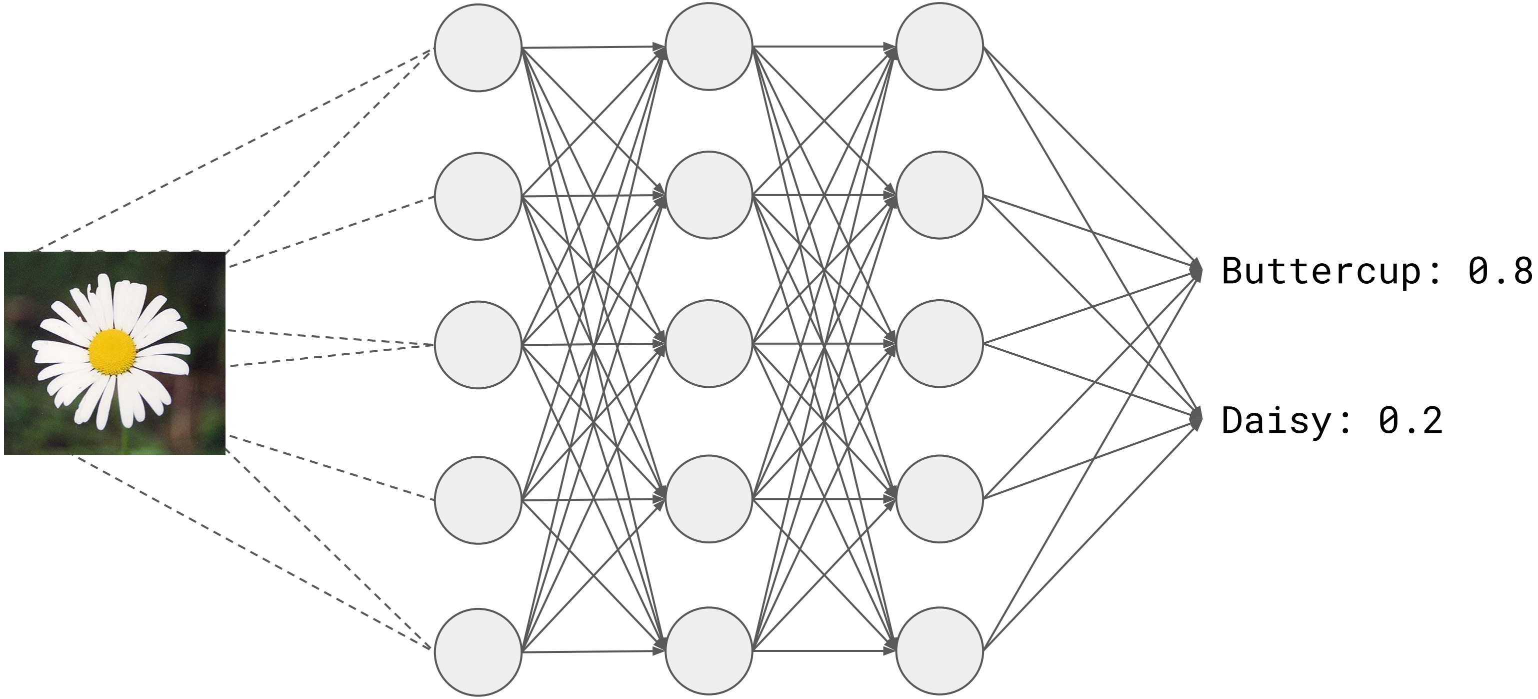

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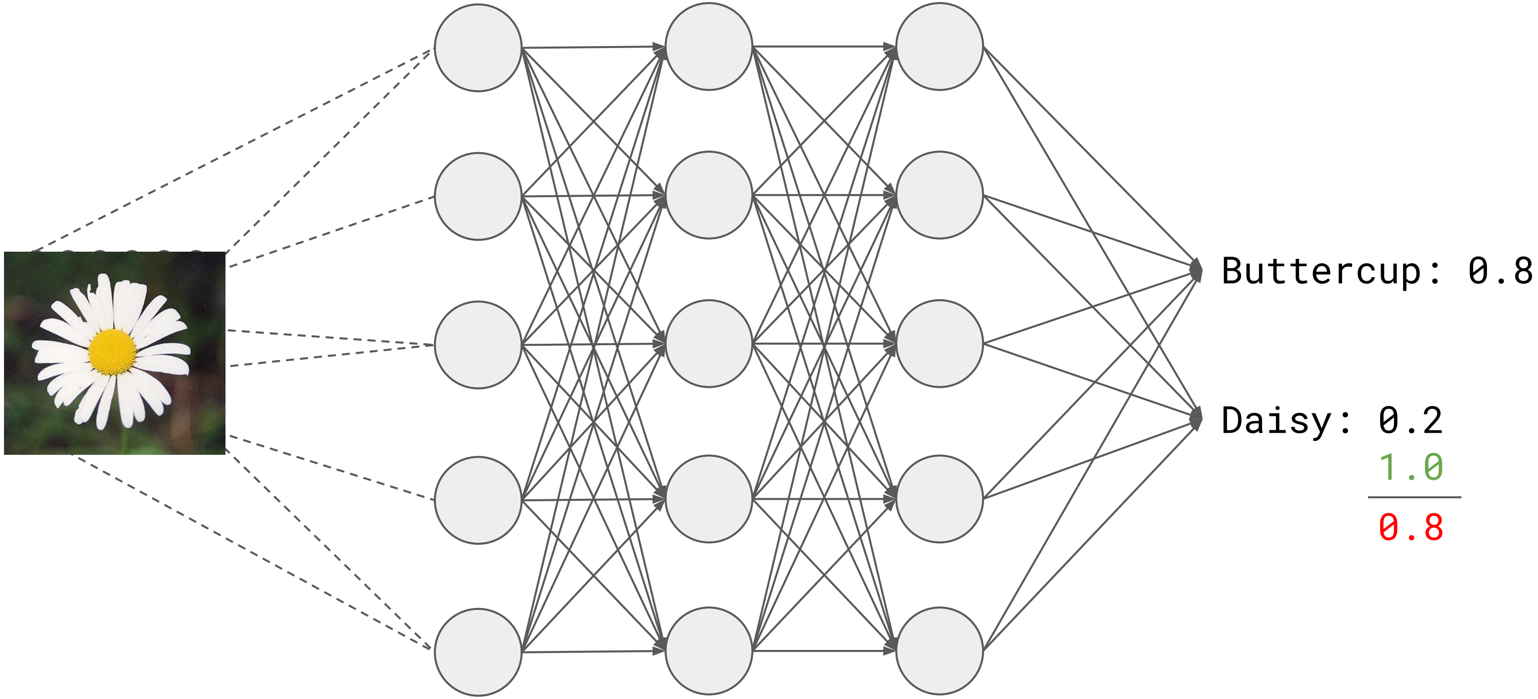

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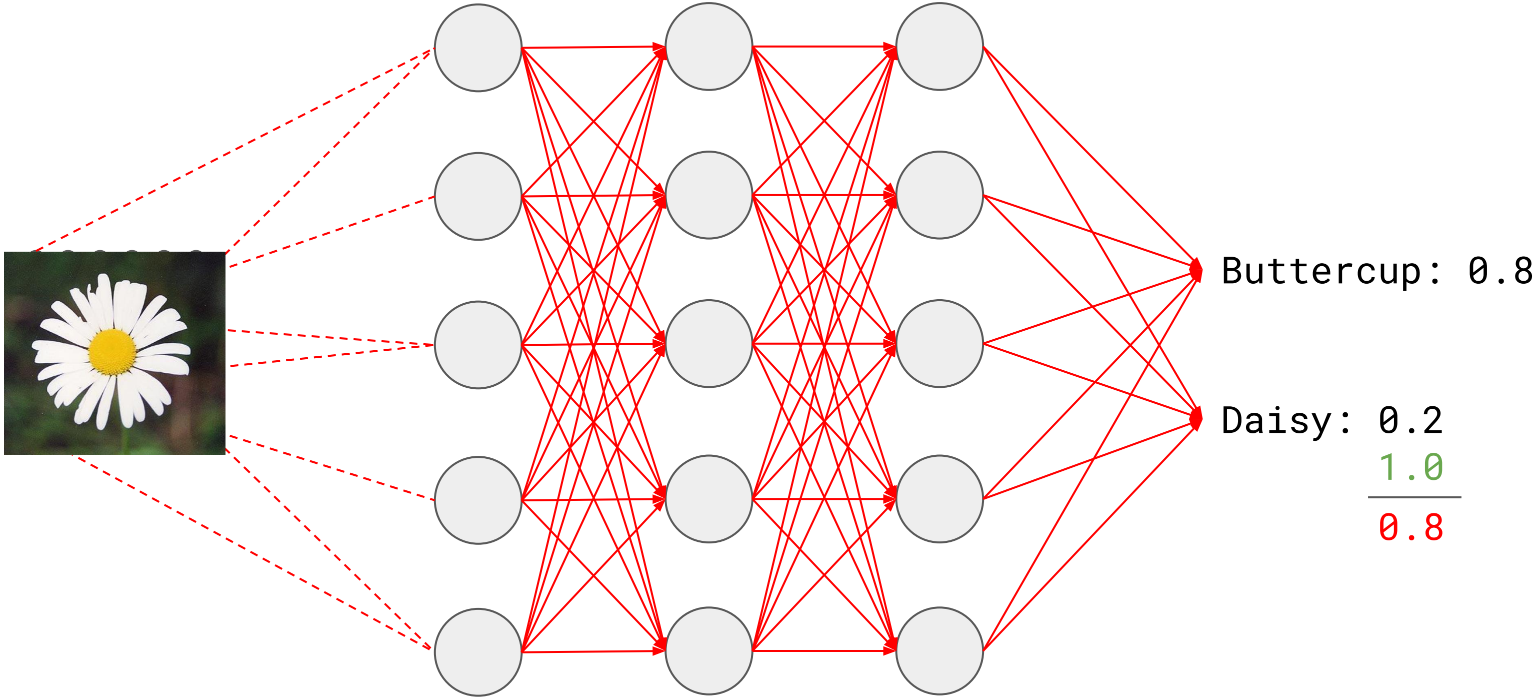
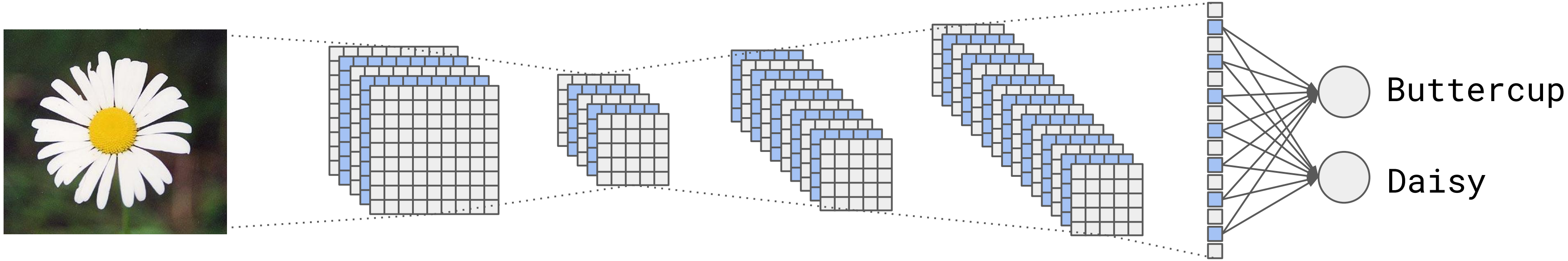


05. Convolutional Neural Nets



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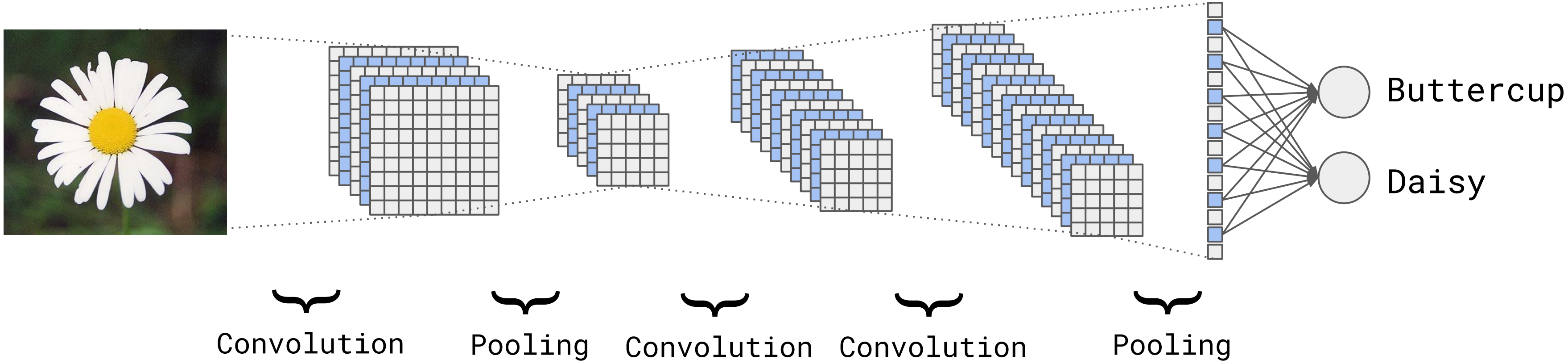

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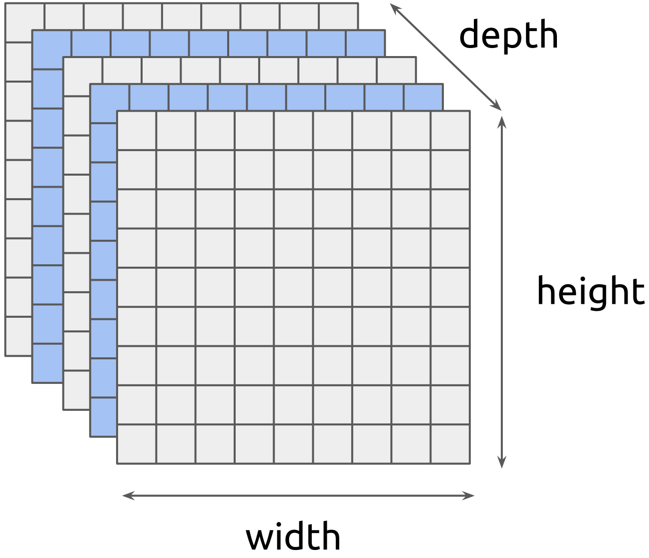

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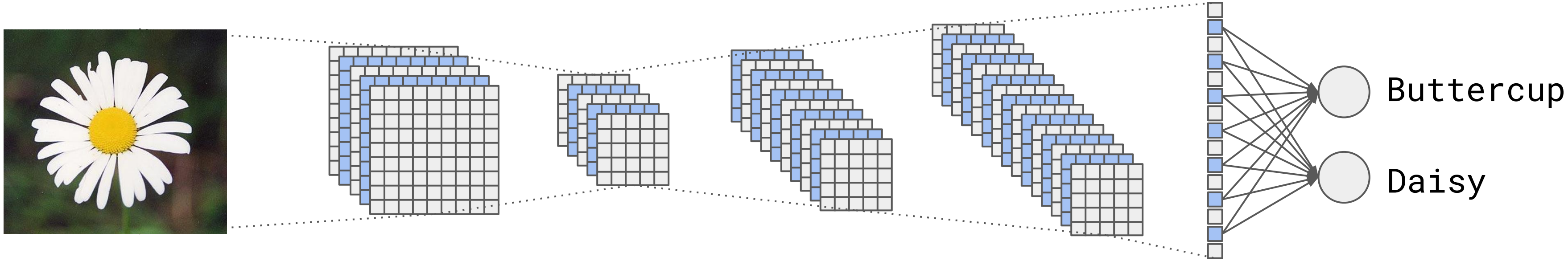

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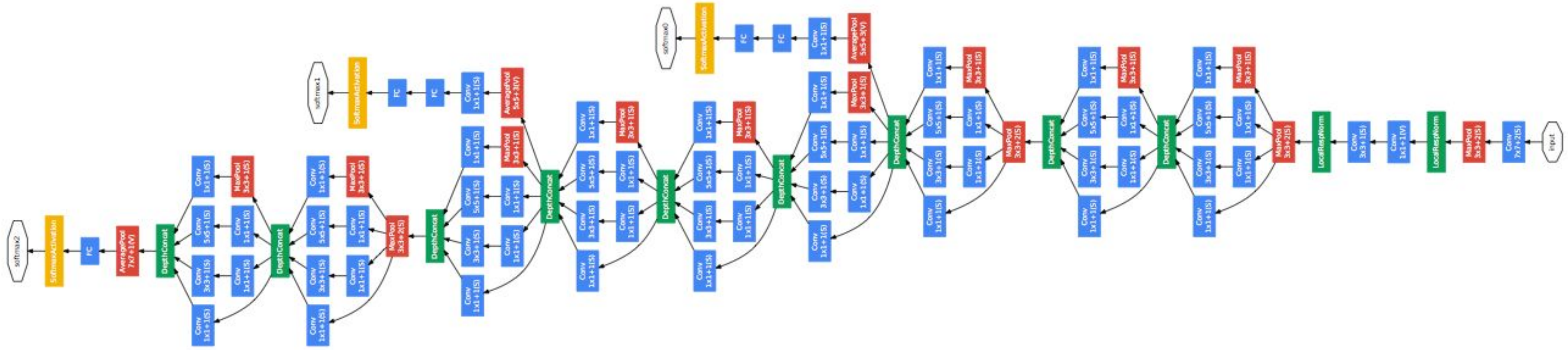
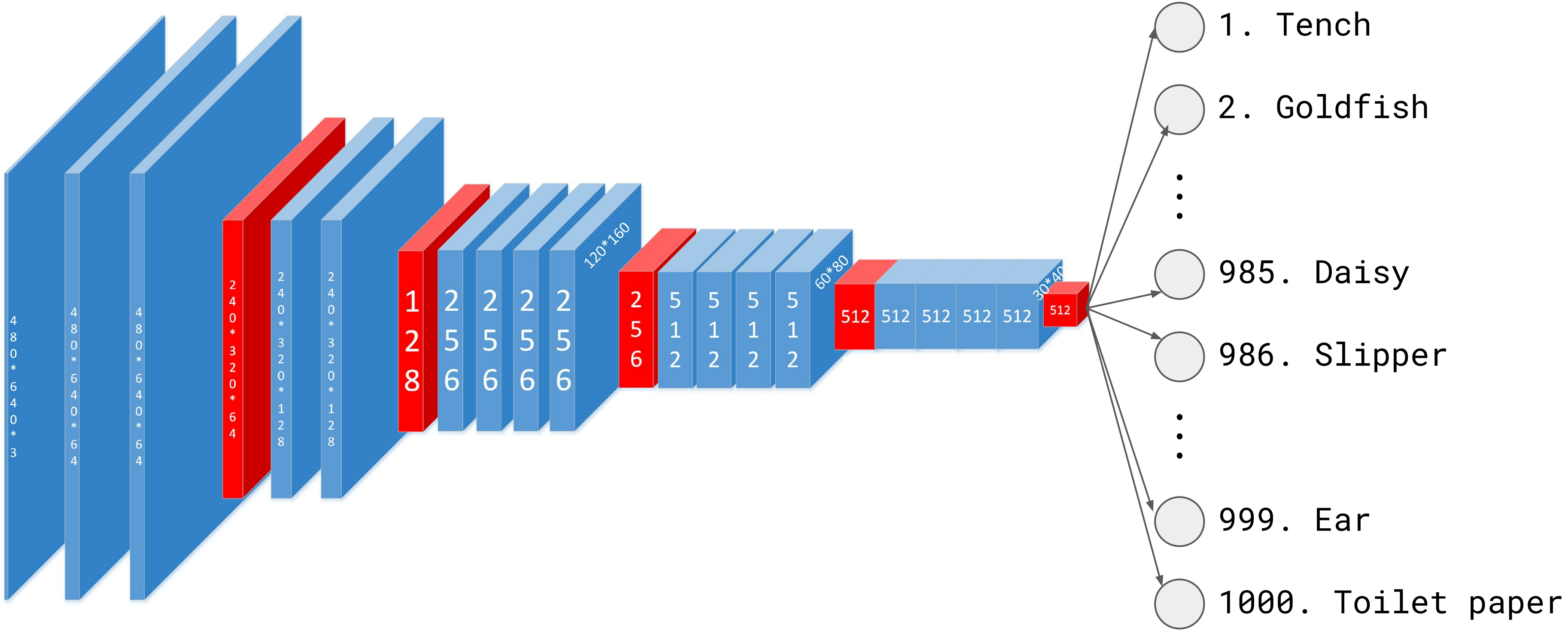


06. Transfer learning



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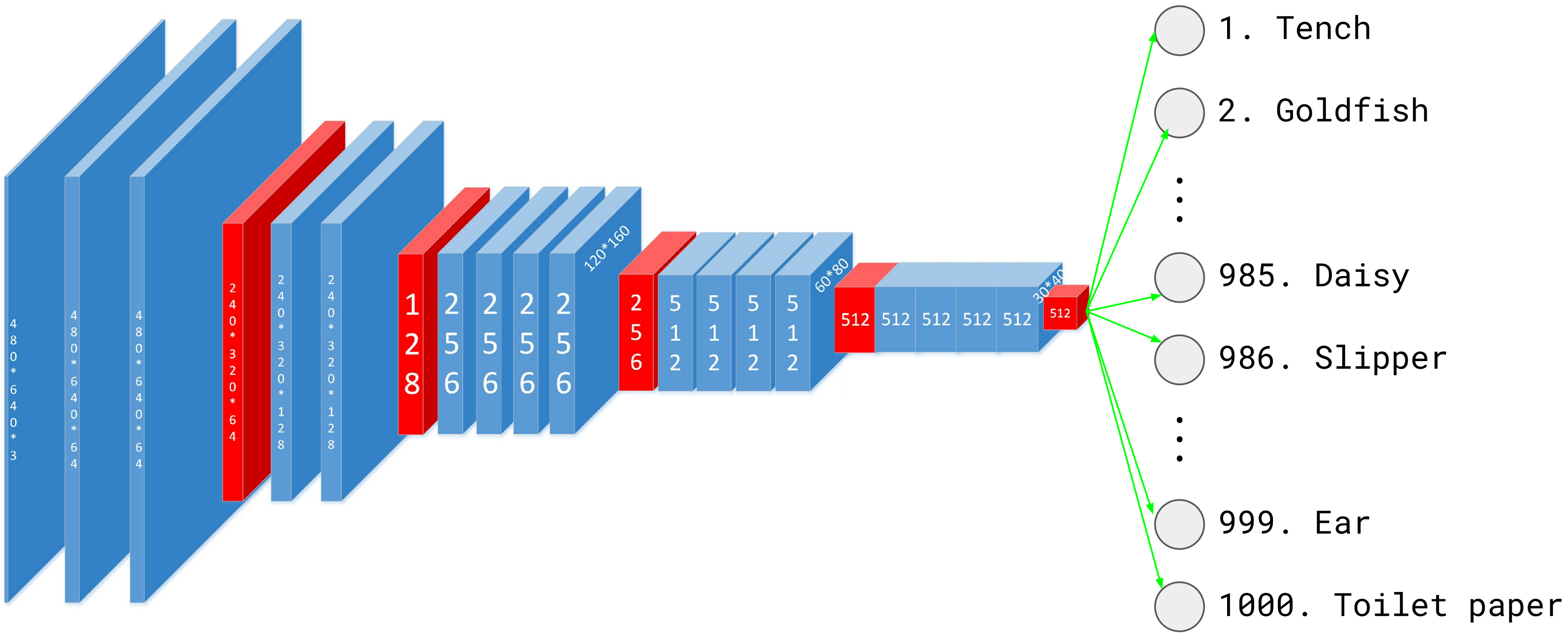


1. Tench

2. Goldfish

⋮

985. Daisy

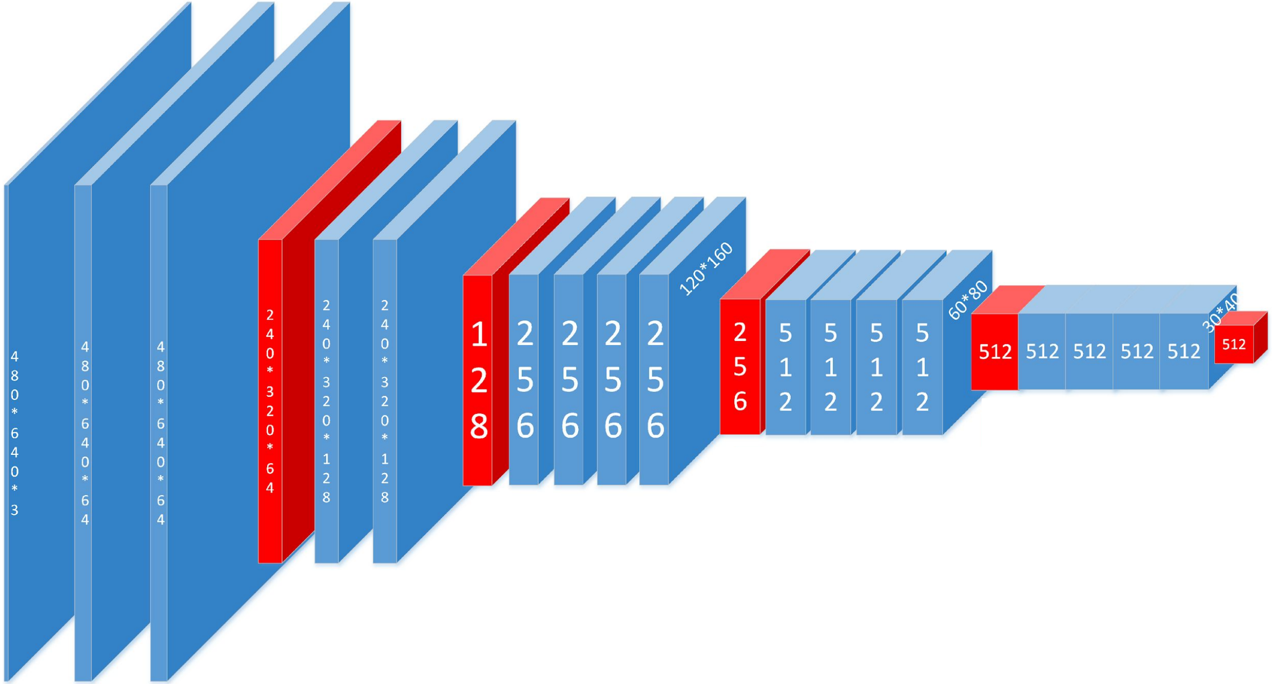
986. Slipper

⋮

999. Ear

1000. Toilet paper

06. Transfer learning



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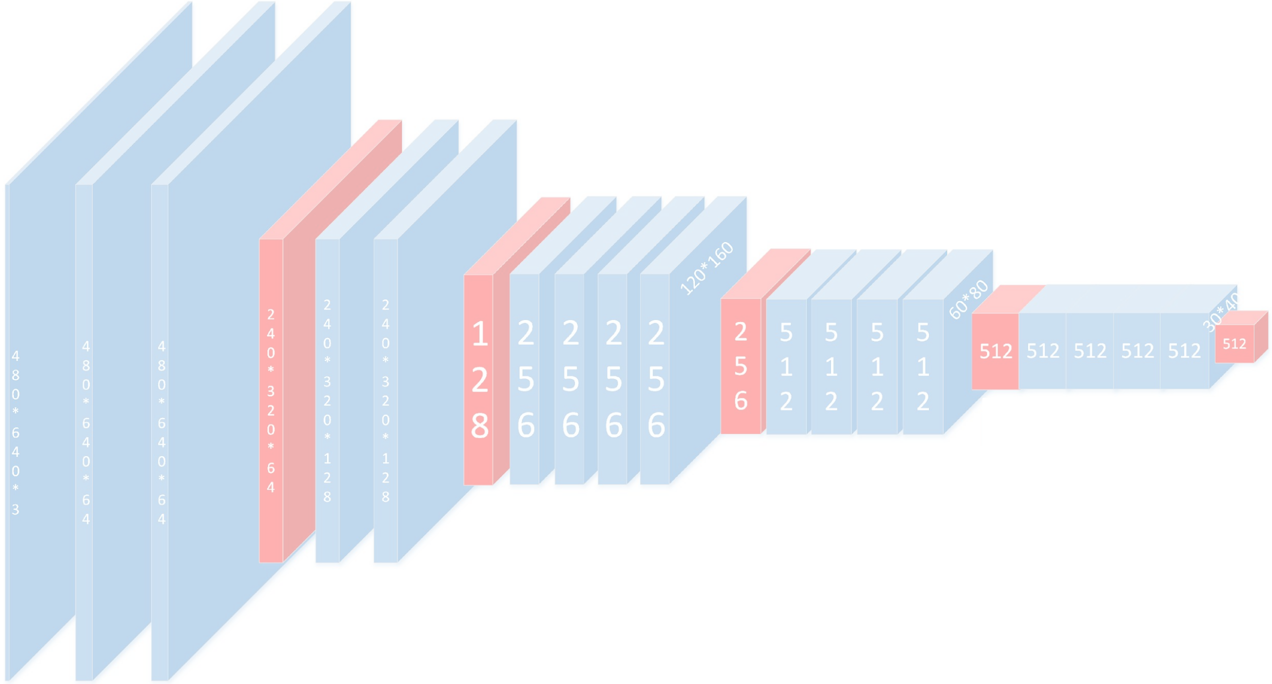

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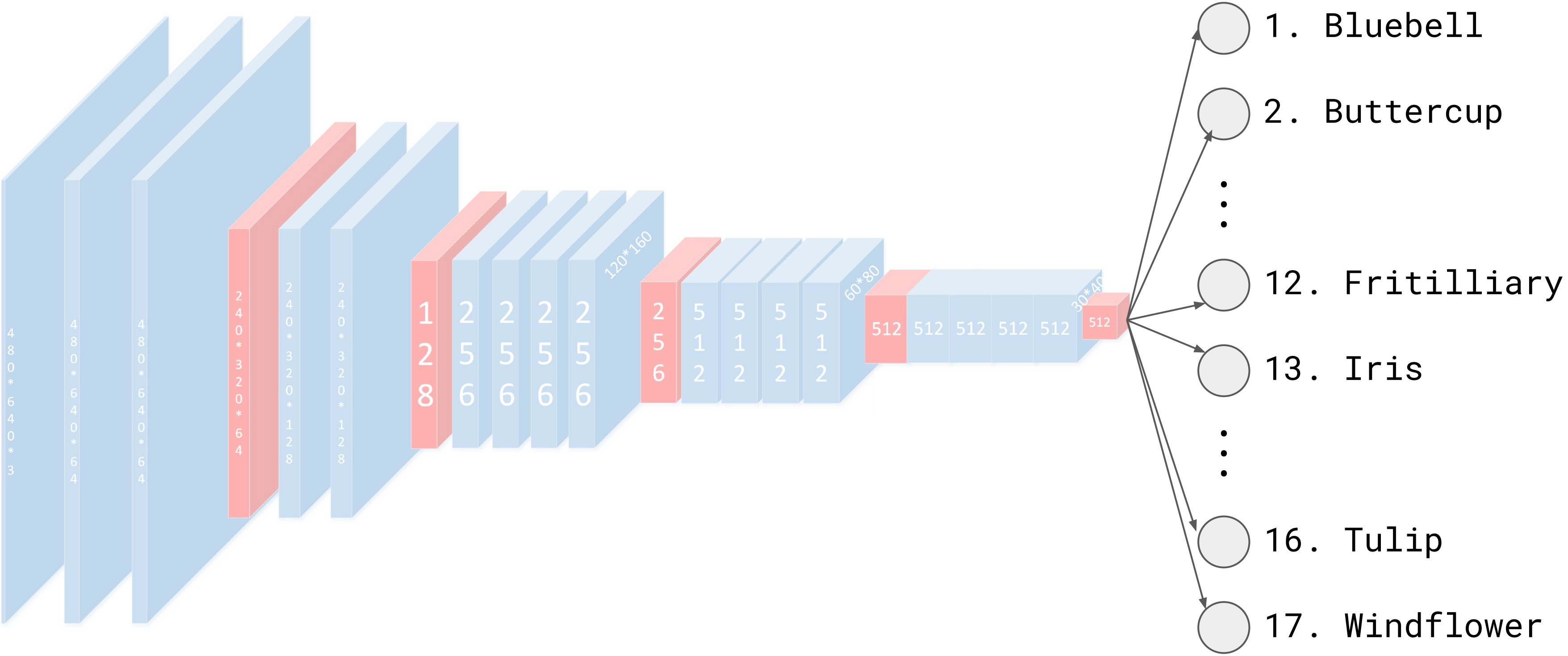


1. Bluebell

2. Buttercup

⋮

12. Fritilliary

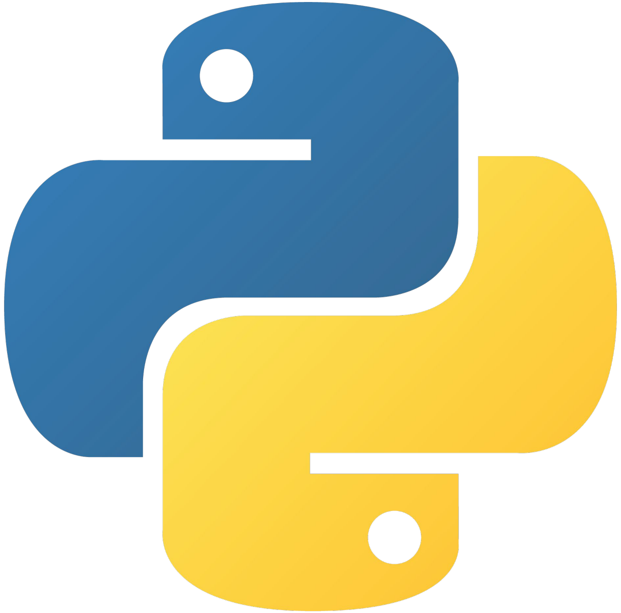
13. Iris

⋮

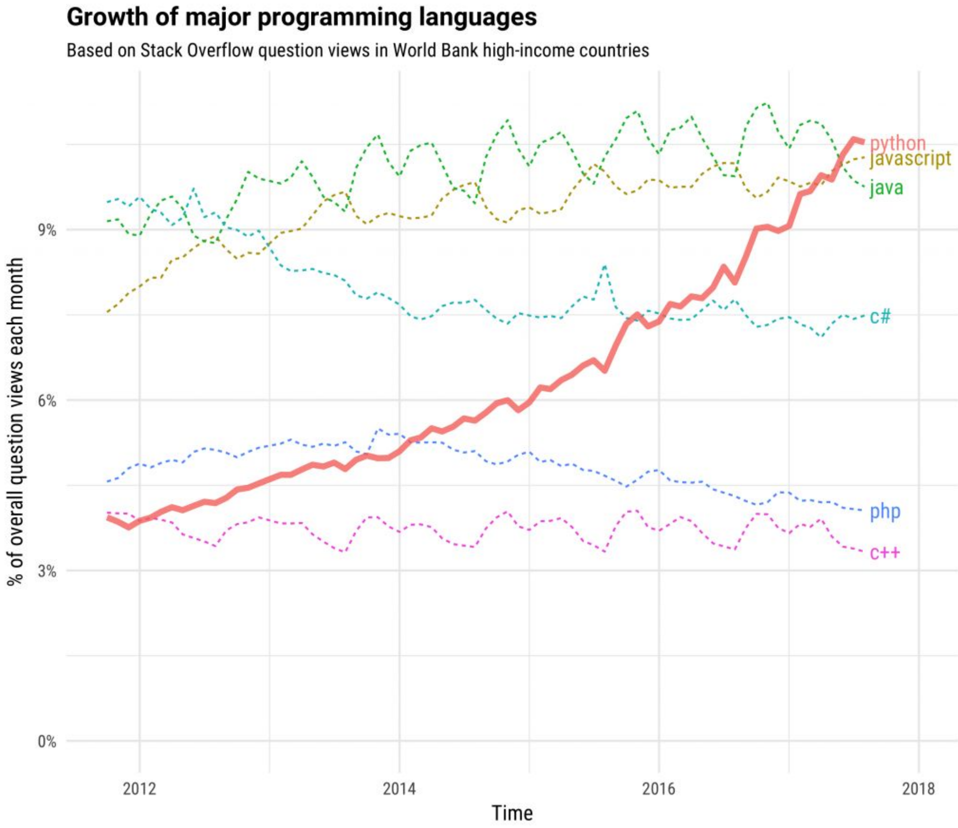
16. Tulip

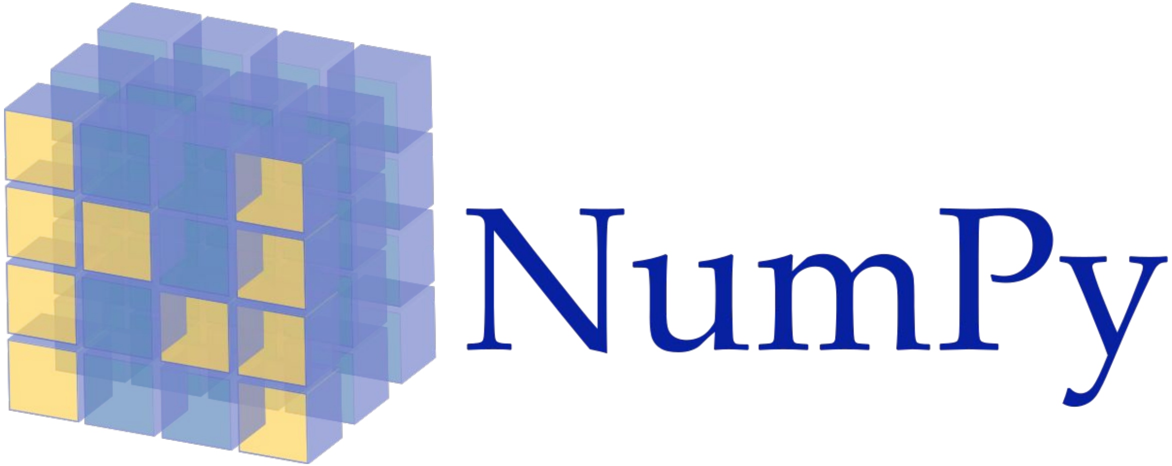
17. Windflower

07. Python

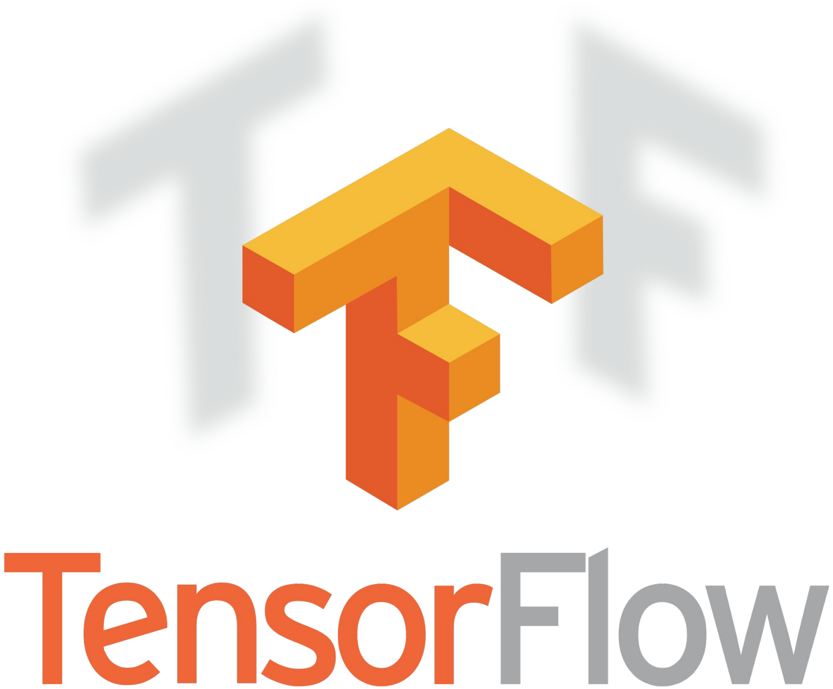


07. Python


Growth of major programming languages
Based on Stack Overflow question views in World Bank high-income countries
% of overall question views each month
0%
3%
6%
9%
2012
2014
2016
2018
Time
python
javascript
java
c#
php
c++


NumPy

07. Python

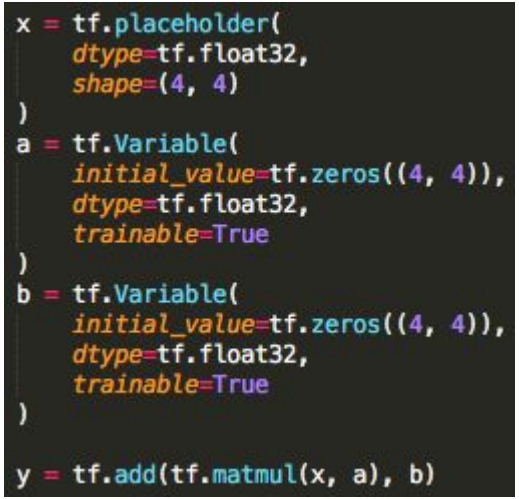


07. Python

1	0	5	0	3	4
9	0	12	4	6	19
2	1	27	4	2	0
8	3	8	5	11	1
13	8	4	6	7	3
1	0	2	12	0	4

07. Python

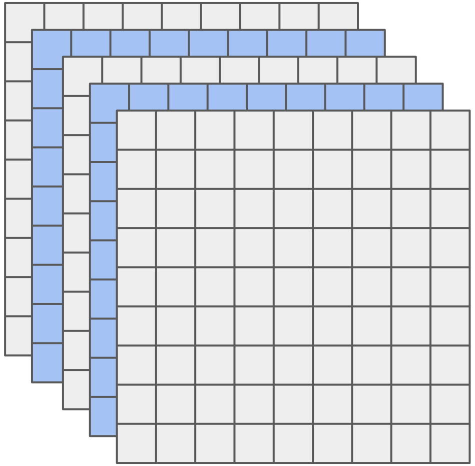
y = ax + b



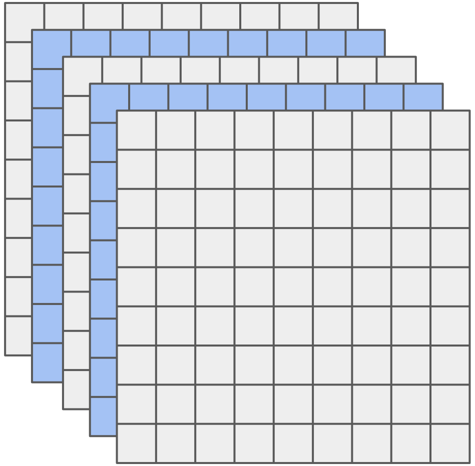
```python
x = tf.placeholder(
    dtype=tf.float32,
    shape=(4, 4)
)
a = tf.Variable(
    initial_value=tf.zeros((4, 4)),
    dtype=tf.float32,
    trainable=True
)
b = tf.Variable(
    initial_value=tf.zeros((4, 4)),
    dtype=tf.float32,
    trainable=True
)

y = tf.add(tf.matmul(x, a), b)
```

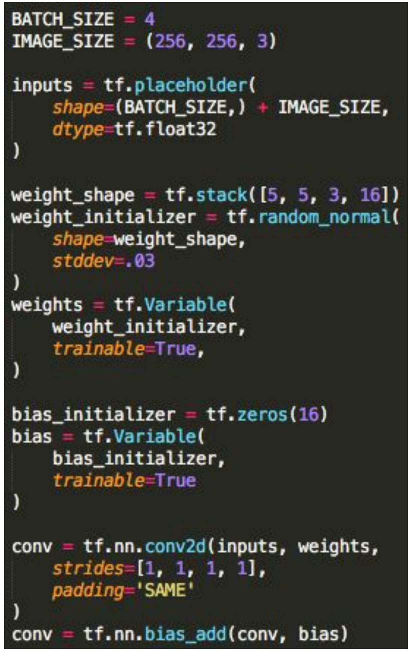
K
Keras

07. Python



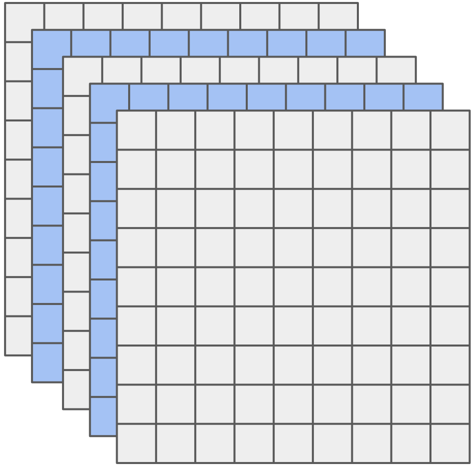
07. Python

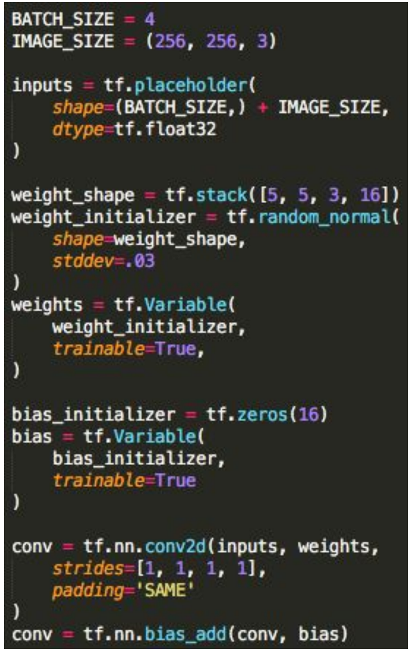




```
BATCH_SIZE = 4
IMAGE_SIZE = (256, 256, 3)

inputs = tf.placeholder(
    shape=(BATCH_SIZE,) + IMAGE_SIZE,
    dtype=tf.float32
)

weight_shape = tf.stack([5, 5, 3, 16])
weight_initializer = tf.random_normal(
    shape=weight_shape,
    stddev=.03
)
weights = tf.Variable(
    weight_initializer,
    trainable=True,
)

bias_initializer = tf.zeros(16)
bias = tf.Variable(
    bias_initializer,
    trainable=True
)

conv = tf.nn.conv2d(inputs, weights,
    strides=[1, 1, 1, 1],
    padding='SAME'
)
conv = tf.nn.bias_add(conv, bias)
```

07. Python





```python
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    padding='SAME'
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```
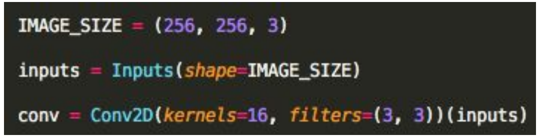
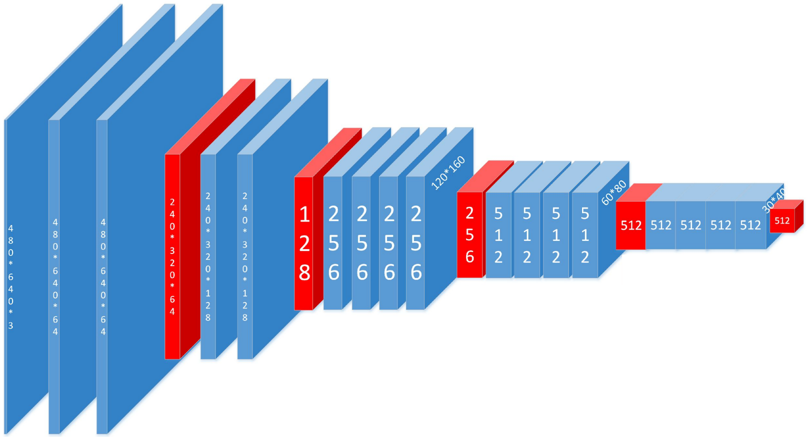
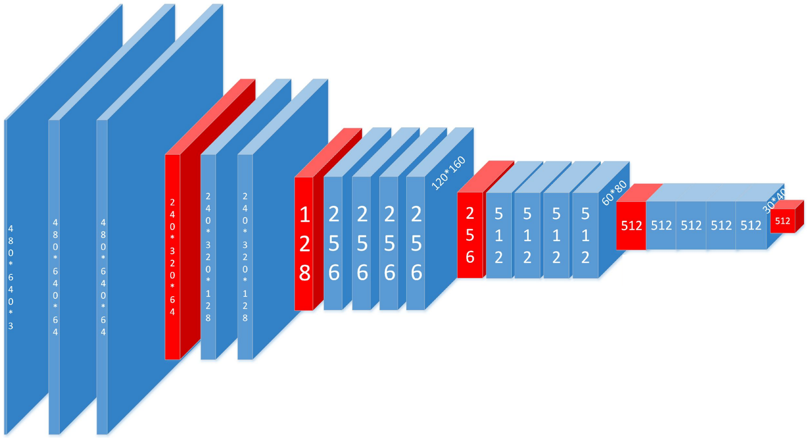



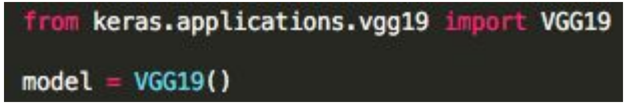
```python
IMAGE_SIZE = (256, 256, 3)

inputs = Inputs(shape=IMAGE_SIZE)

conv = Conv2D(kernels=16, filters=(3, 3))(inputs)
```

07. Python


480*640*3
480*640*64
480*640*64
240*320*64
240*320*128
240*320*128
128
256
256
256
256
120*160
256
512
512
512
512
60*80
512
512
512
512
512
30*40
512

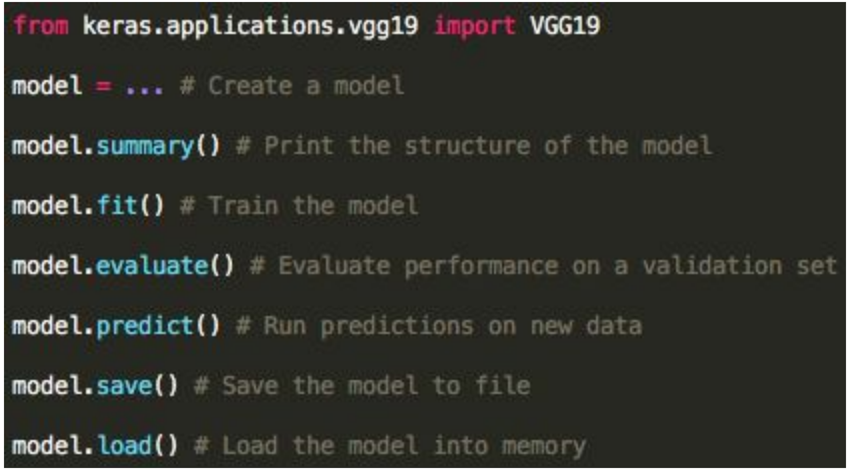
07. Python





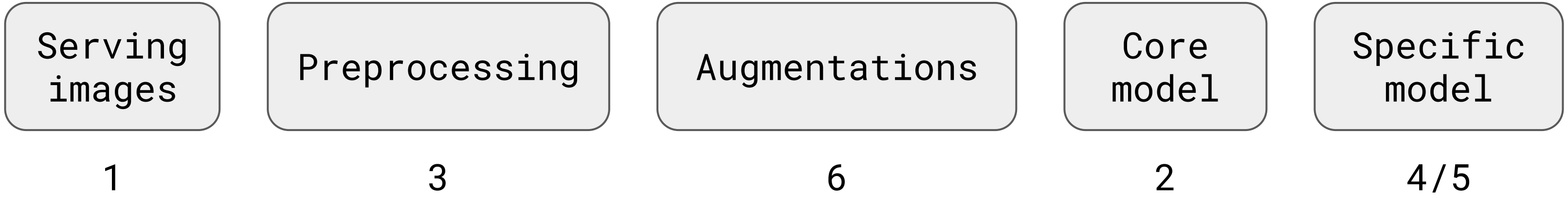
```python
from keras.applications.vgg19 import VGG19

model = VGG19()
```

07. Python



```python
from keras.applications.vgg19 import VGG19

model = ... # Create a model

model.summary() # Print the structure of the model

model.fit() # Train the model

model.evaluate() # Evaluate performance on a validation set

model.predict() # Run predictions on new data

model.save() # Save the model to file

model.load() # Load the model into memory
```

07. Python

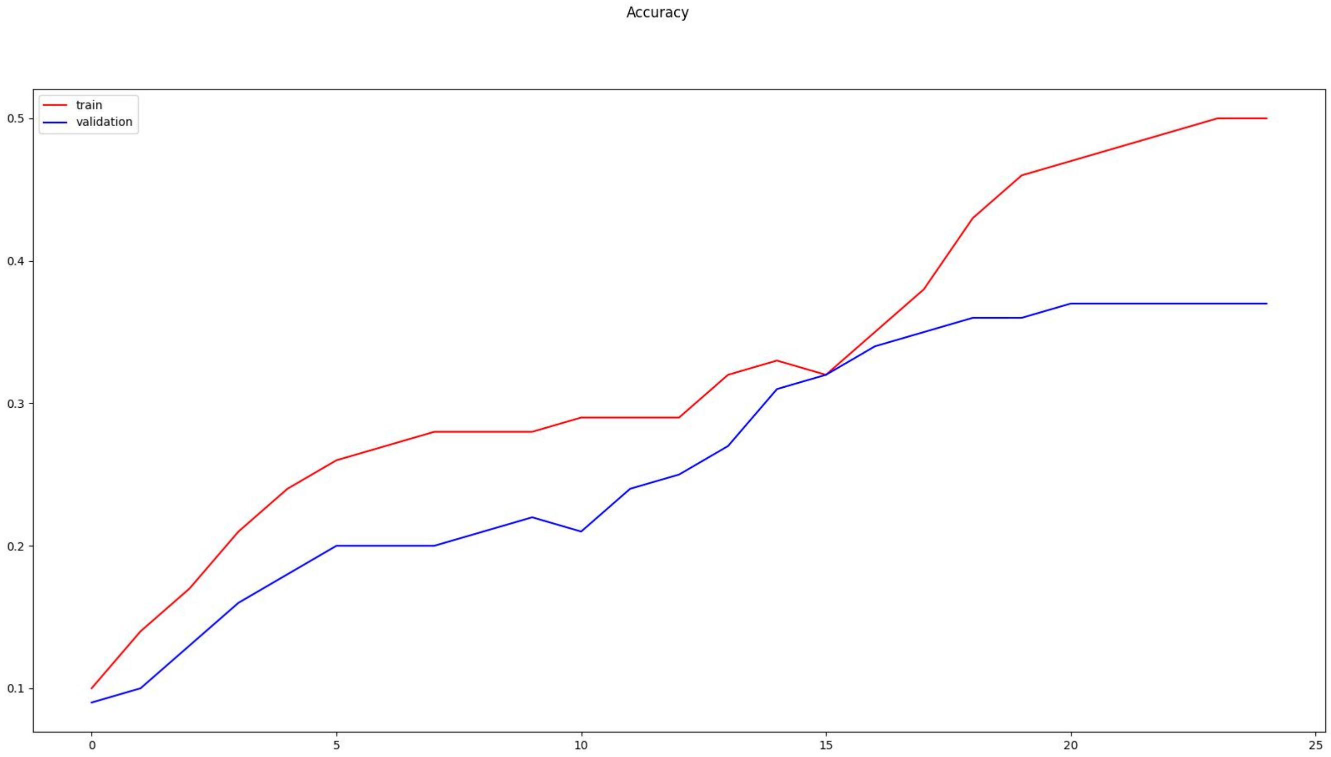


Serving images	Preprocessing	Augmentations	Core model	Specific model
1	3	6	2	4/5

07. Python

'bluebell'	0	[1, 0, 0, 0, 0, 0]
'buttercup'	1	[0, 1, 0, 0, 0, 0]
'colts_foot’	2	[0, 0, 1, 0, 0, 0]
'cowslip’	3	[0, 0, 0, 1, 0, 0]
'crocus'	4	[0, 0, 0, 0, 1, 0]
'daffodil'	5	[0, 0, 0, 0, 0, 1]

07. Python


Accuracy
train
validation