Color Classifier

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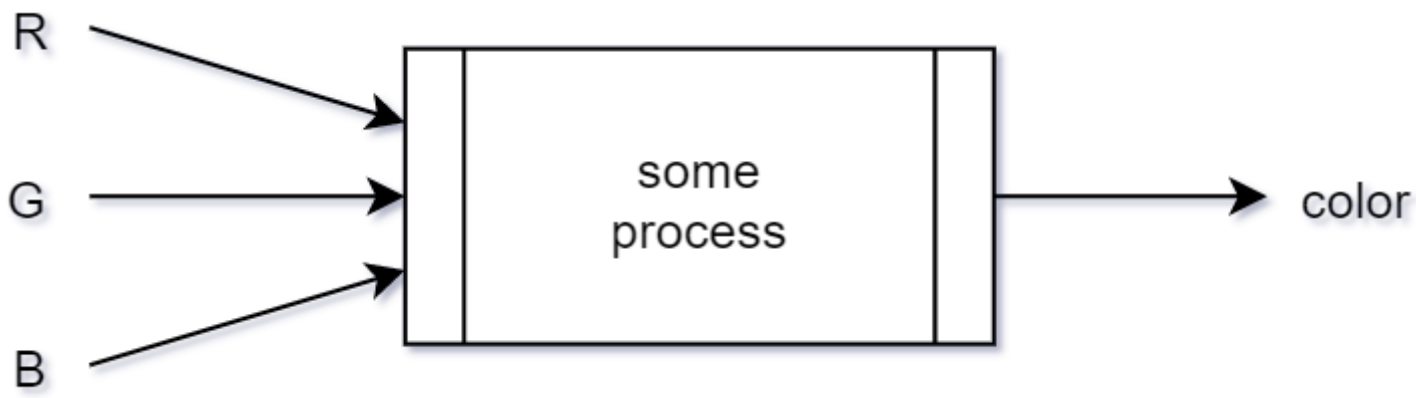
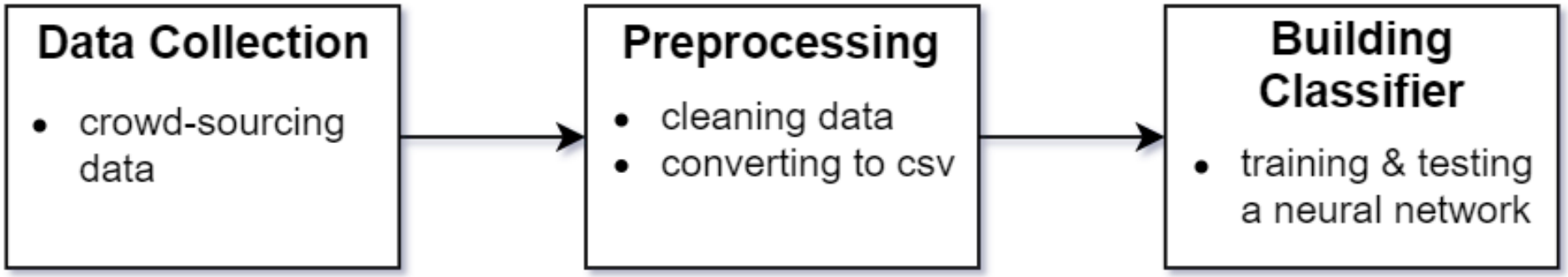
The Problem

- Around 16 million colors in RGB space
- Difficult to classify each RGB value manually
- Need of a classifier



The Solution

- 3 steps



Data Collection

- Crowd-sourcing data
  - RGB value + color label
- GitHub (hosting) + Firebase (database)
- sahnbk.github.com
- 5000+ entries
- 3 features
- 9 classes
- Format of one data entry:

```
{r:79, g: 238, b:82, label: “green-ish”}
```

data collection

https://sahnbk.github.io

Incognito

sahnbk | notadilnaqvi | lms | cms | lichess | github | reddit | youtube | songs | netflix | todaytvseries | yesmovies | facebook | photos | drive | ml-ass2

[instructions]

push the button that best describes the color of the rectangle

the next color will automatically show (refresh page if it doesn't)

go through as many colors as you can!

every **3rd button** push displays a wholesome meme at the very bottom (to make things not-boring)

please avoid spamming buttons or pushing the wrong buttons intentionally! thanks very much!

[instructions for dummies]

see color

push button

3 pushes = 1 meme

no wrong pushes plis

[v wholesome meme]

0

red-ish | green-ish | blue-ish | yellow-ish

purple-ish | pink-ish | orange-ish

brown-ish | grey-ish

[what this]

i'm crowdsourcing data for an academic project

what data - what rgb value corresponds to what color

i need 5000-ish data points

plis halp ಥ_ಥ

[about the project]

name - color classifier

what it does - takes an rgb value and predicts the color

how - machine learning

Preprocessing

- Cleaning (done manually)

(unclean red-ish entries)

(clean red-ish entries)

(incorrect red-ish entries)

- Approx. 4800 entries after cleaning
- Converted to .csv file

Building a classifier

- Neural network classifier (sklearn)
- 1 input layer (3 nodes)
- 1 hidden layer (6* nodes)
- 1 output nodes (9 nodes)
- Learning rate = 0.01
- Activation = sigmoid func.

*Jeff Heaton, Introduction to Neural Network in Java
*https://stats.stackexchange.com/questions/181/how-to-choose-the-number-of-hidden-layers-and-nodes-in-a-feedforward-neural-netw

Results

- Efficiency measures
  - Accuracy (83.1%)
  - F1 scores
    - blue-ish = 0.88
    - brown-ish = 0.74
    - green-ish = 0.93
    - grey-ish = 0.68
    - orange-ish = 0.71
    - pink-ish = 0.75
    - purple-ish = 0.86
    - red-ish = 0.82
    - yellow-ish = 0.80