IMAGE RECOGNITION

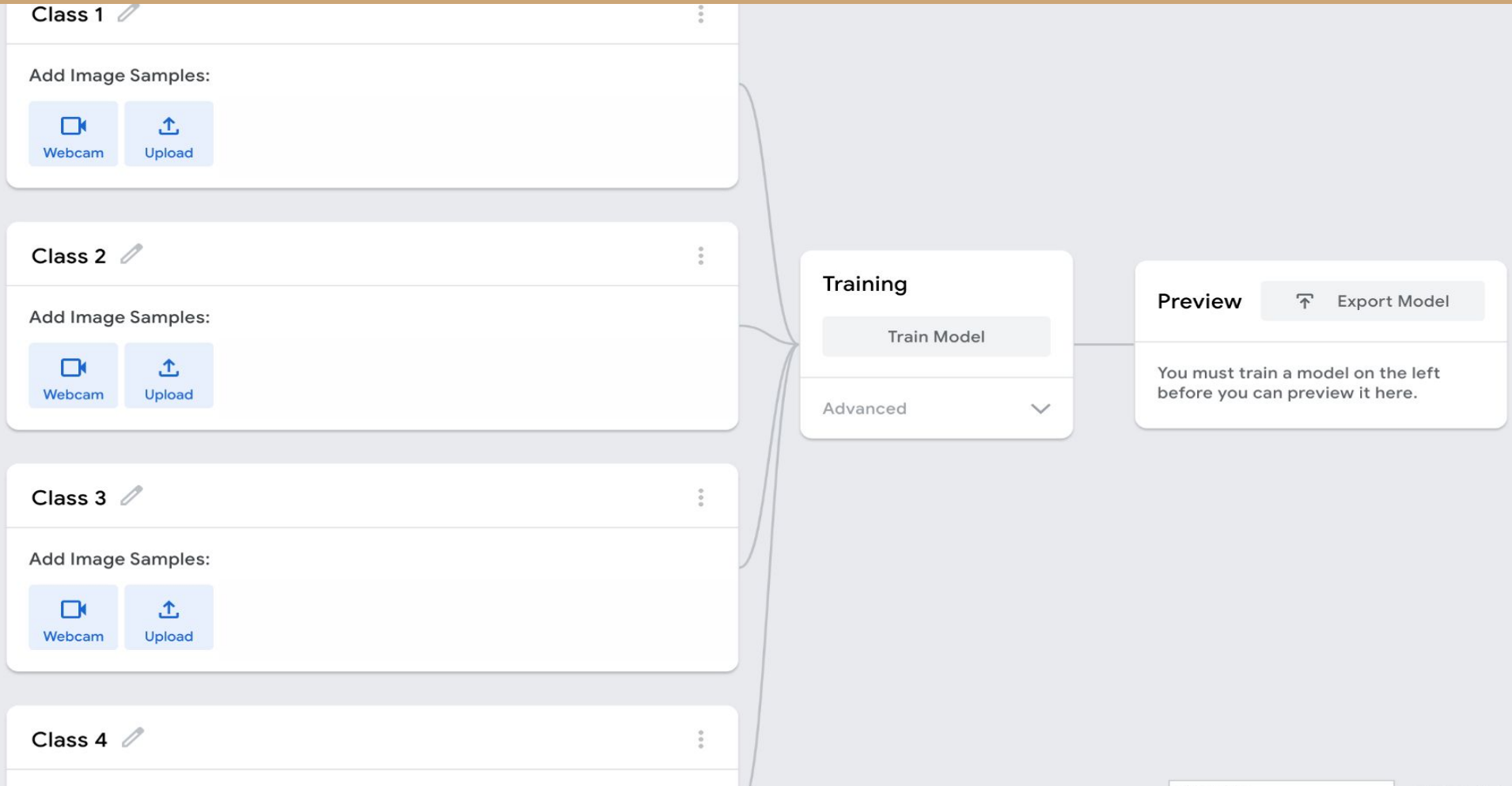
using a machine learning model to identify different images

OUR PROJECT

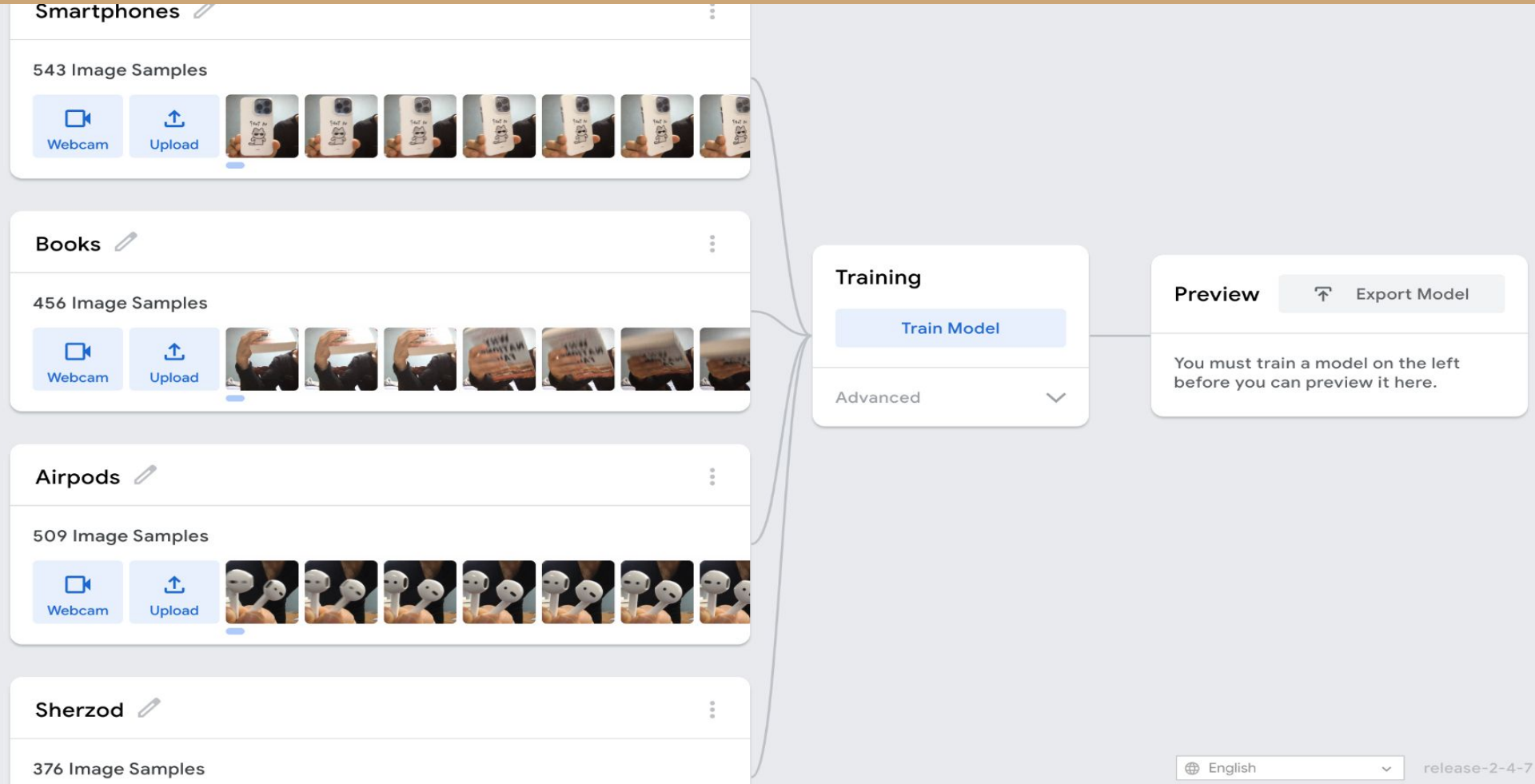
- TRAINING MODEL
  - How does it work?

- IMAGE PROJECT
  - Training a model
  - Testing a model
  - Evaluation
  - Coding part
  - Results
  - Launching server

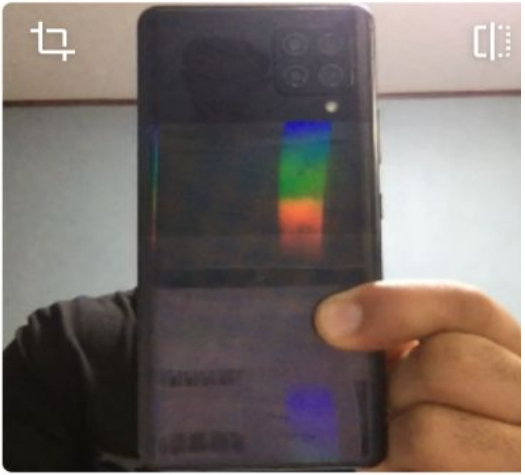
HOW DOES IT WORK?



TRAINING A MODEL



TESTING THE MODEL



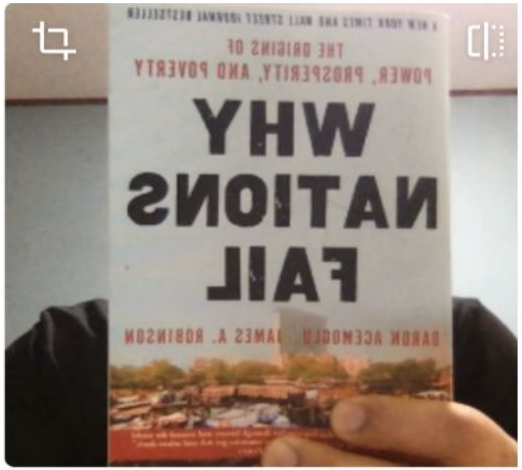
Output

Smart... 100%

Books

Airpo...

Sherz...



Output

Smart...

Books 100%

Airpo...

Sherz...

Output

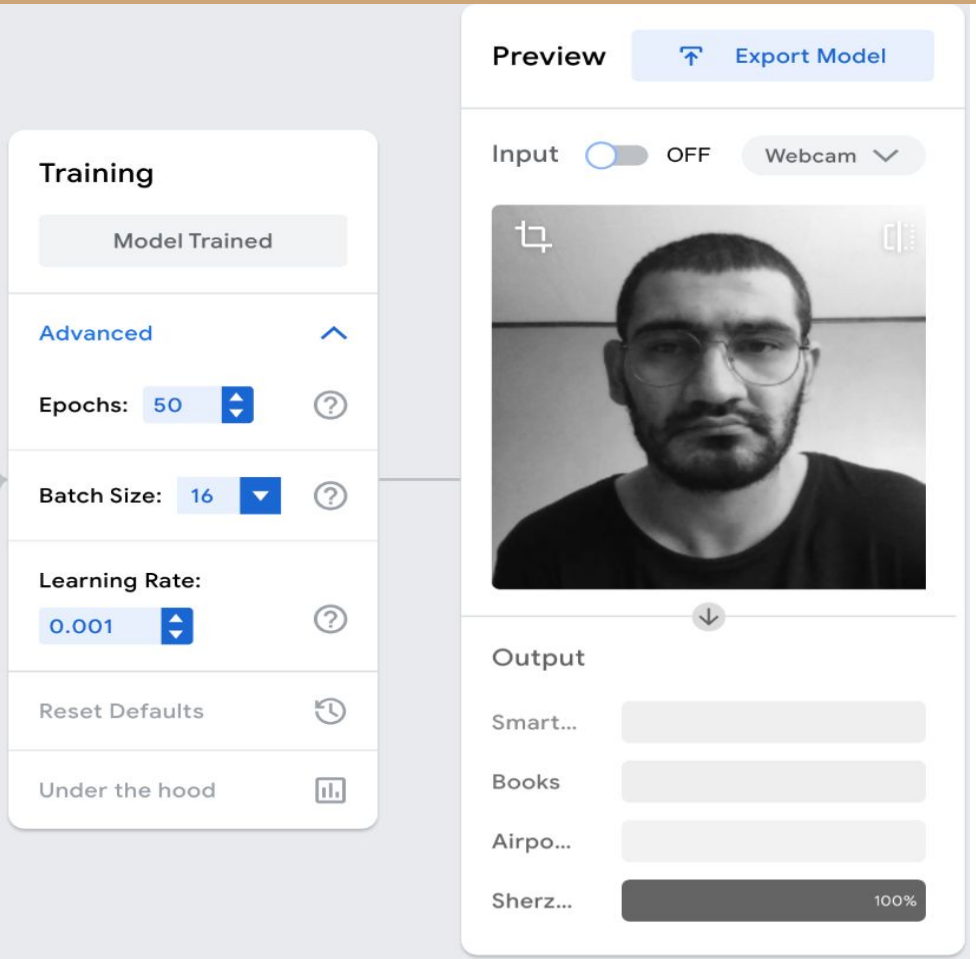
Smart...

Books

Airpo... 100%

Sherz...

EVALUATION



Epochs: 50

Batch Size: 16

Learning Rate: 0.001

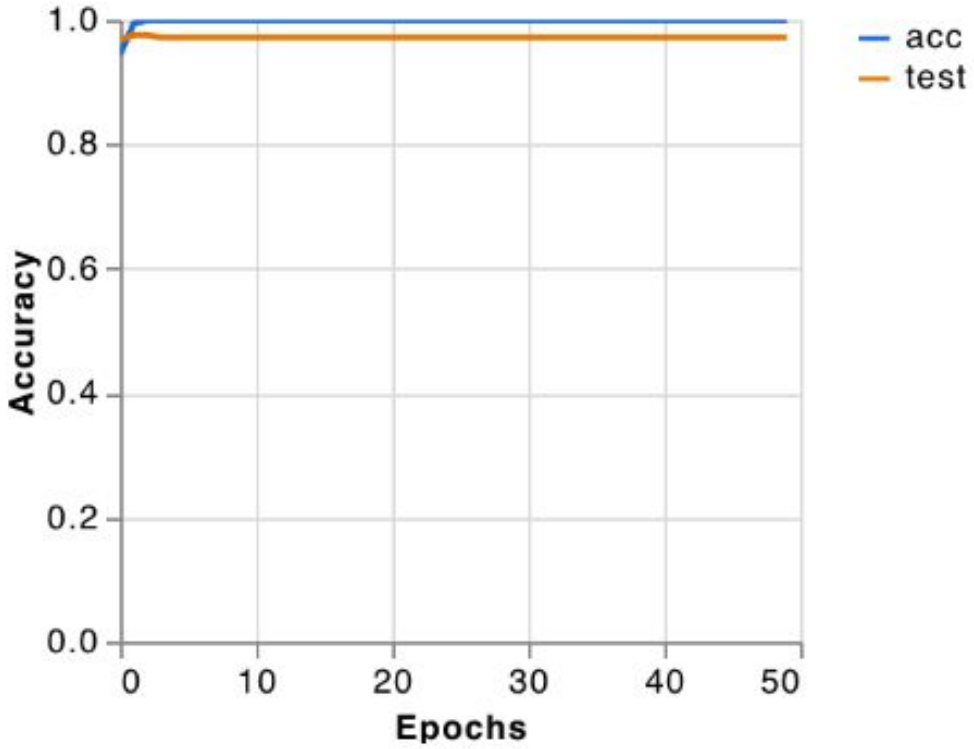
One epoch - model has been fed at least once

EVALUATION

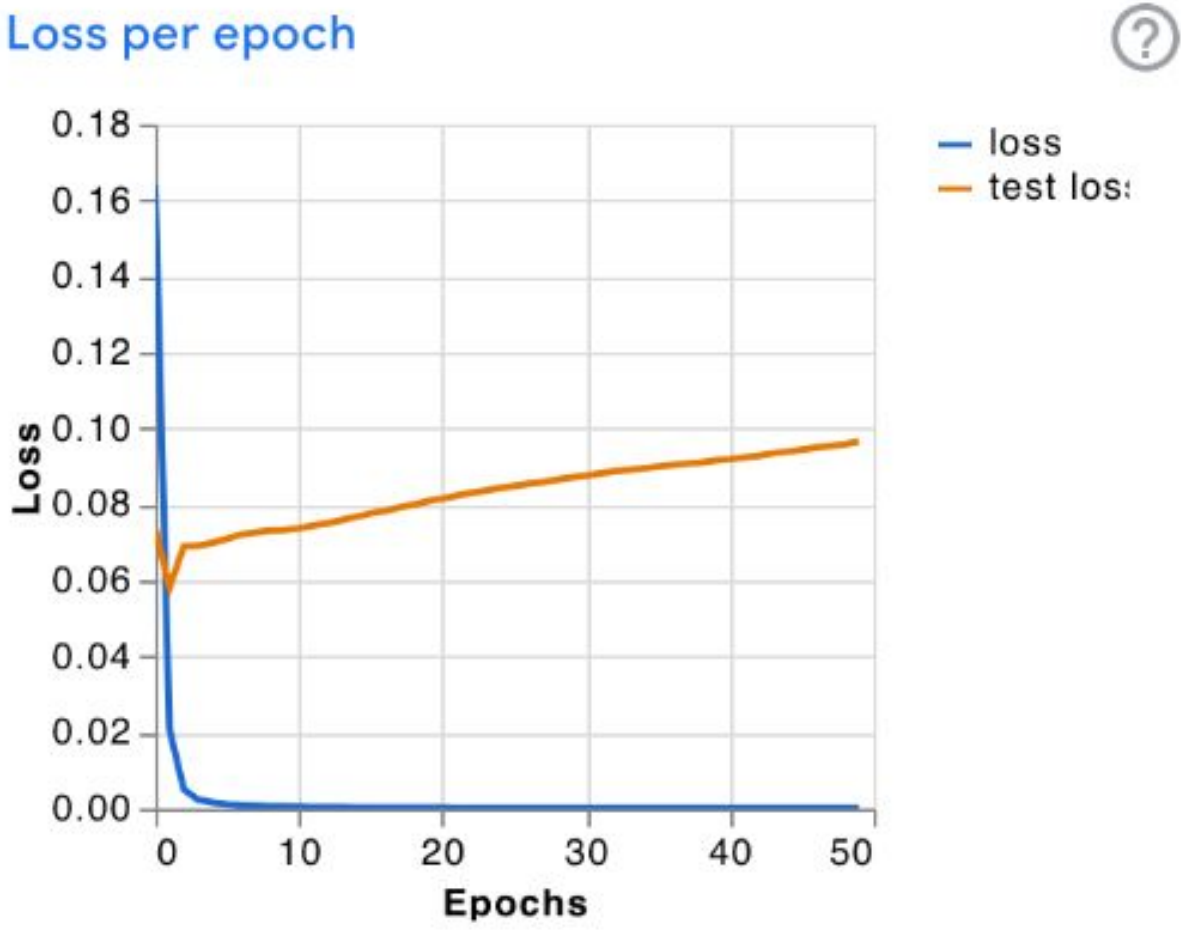
Accuracy per class

CLASS	ACCURACY	# SAMPLES
Smartphones	0.96	82
Books	0.96	69
Airpods	0.97	77
Sherzod	1.00	57

Accuracy per epoch



EVALUATION

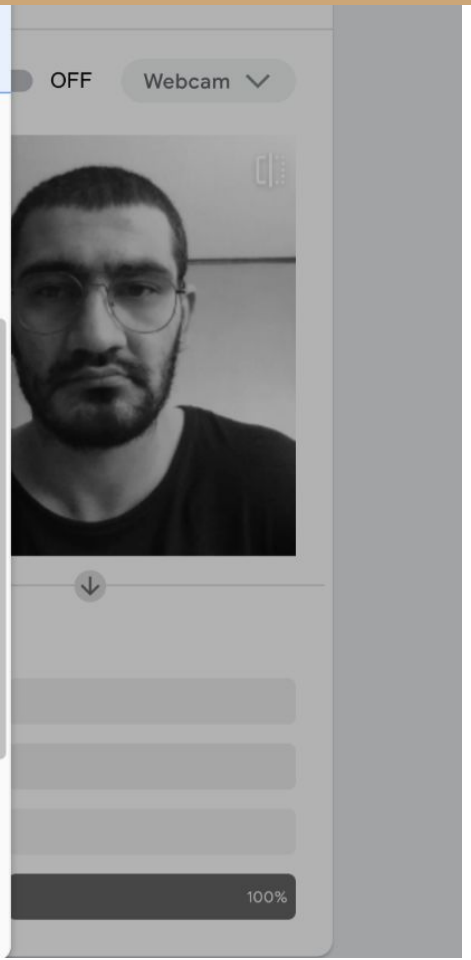

Loss per epoch
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
Loss
0
10
20
30
40
50
Epochs
loss
test los

CODING PART

Tensorflow.js | Tensorflow | Tensorflow Lite

Copy

```
from keras.models import load_model  # TensorFlow is required for Keras to work
from PIL import Image, ImageOps  # Install pillow instead of PIL
import numpy as np

# Disable scientific notation for clarity
np.set_printoptions(suppress=True)

# Load the model
model = load_model("keras_Model.h5", compile=False)

# Load the labels
class_names = open("labels.txt", "r").readlines()

# Create the array of the right shape to feed into the keras model
# The 'length' or number of images you can put into the array is
# determined by the first position in the shape tuple, in this case 1
data = np.ndarray(shape=(1, 224, 224, 3), dtype=np.float32)

# Replace this with the path to your image
image = Image.open("<IMAGE_PATH>").convert("RGB")

# resizing the image to be at least 224x224 and then cropping from the center
size = (224, 224)
image = ImageOps.fit(image, size, Image.Resampling.LANCZOS)

# turn the image into a numpy array
image_array = np.asarray(image)

# Normalize the image
normalized_image_array = (image_array.astype(np.float32) / 127.5) - 1

# Load the image into the array
data[0] = normalized_image_array
```



RESULTS

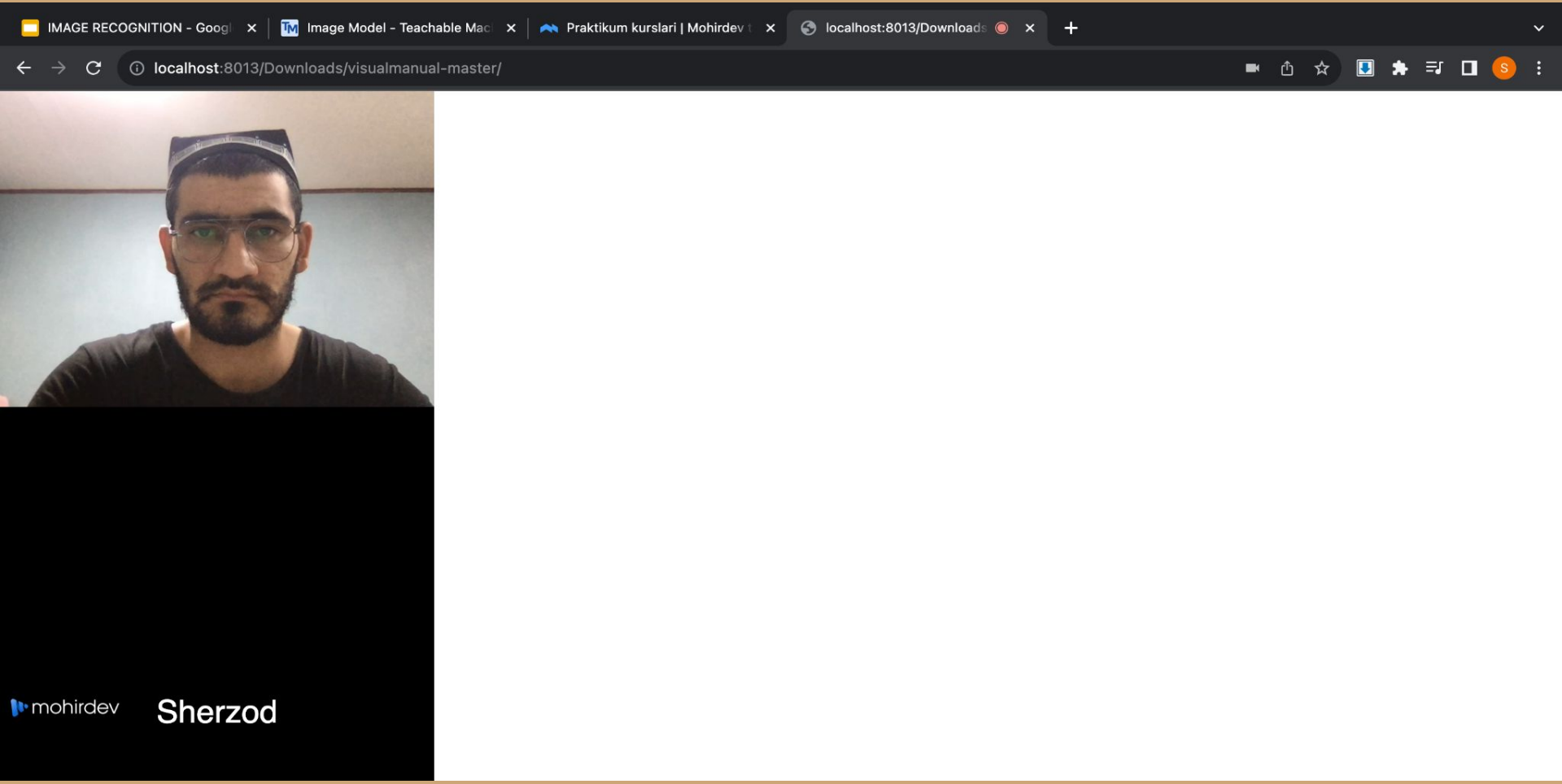


IMAGE RECOGNITION - Googl
Image Model - Teachable Mac
Praktikum kurslari | Mohirdev
localhost:8013/Downloads
localhost:8013/Downloads/visualmanual-master/
mohirdev
Sherzod

RESULTS

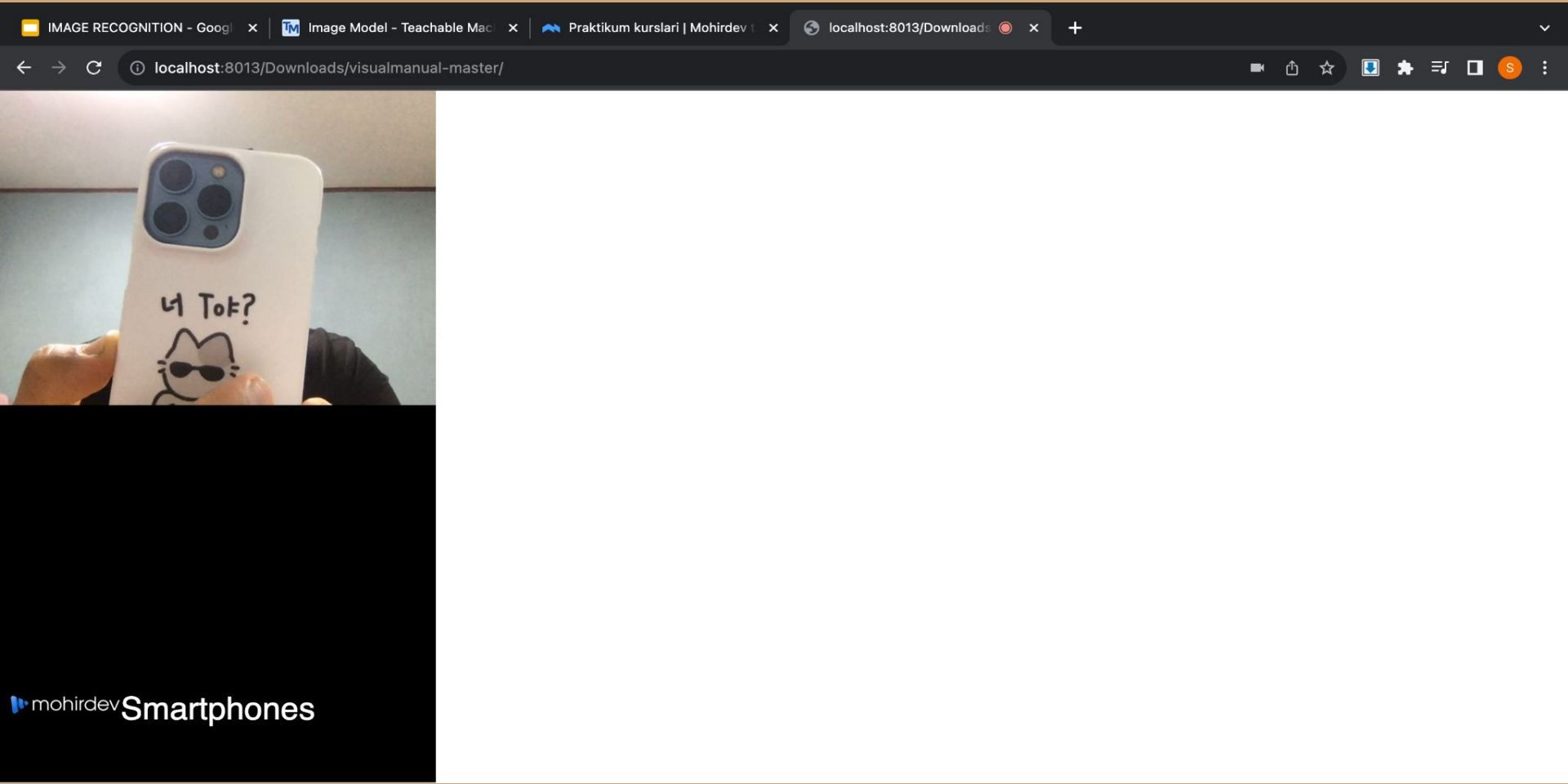


IMAGE RECOGNITION - Googl
Image Model - Teachable Mac
Praktikum kurslari | Mohirdev
localhost:8013/Downloads
localhost:8013/Downloads/visualmanual-master/
mohirdev Smartphones

RESULTS

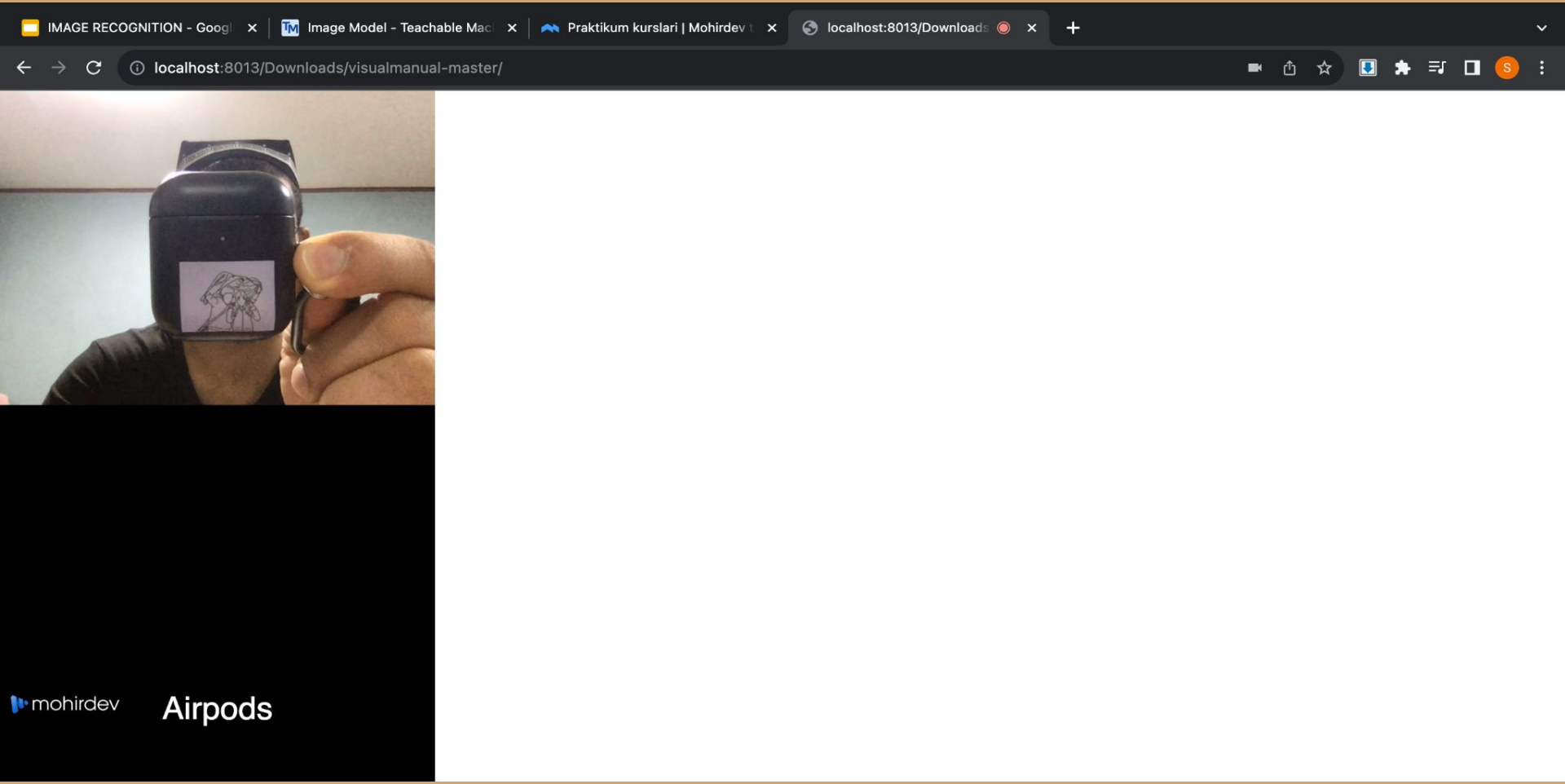


IMAGE RECOGNITION - Goog
Image Model - Teachable Mac
Praktikum kurslari | Mohirdev
localhost:8013/Downloads
localhost:8013/Downloads/visualmanual-master/
mohirdev
Airpods

RESULTS

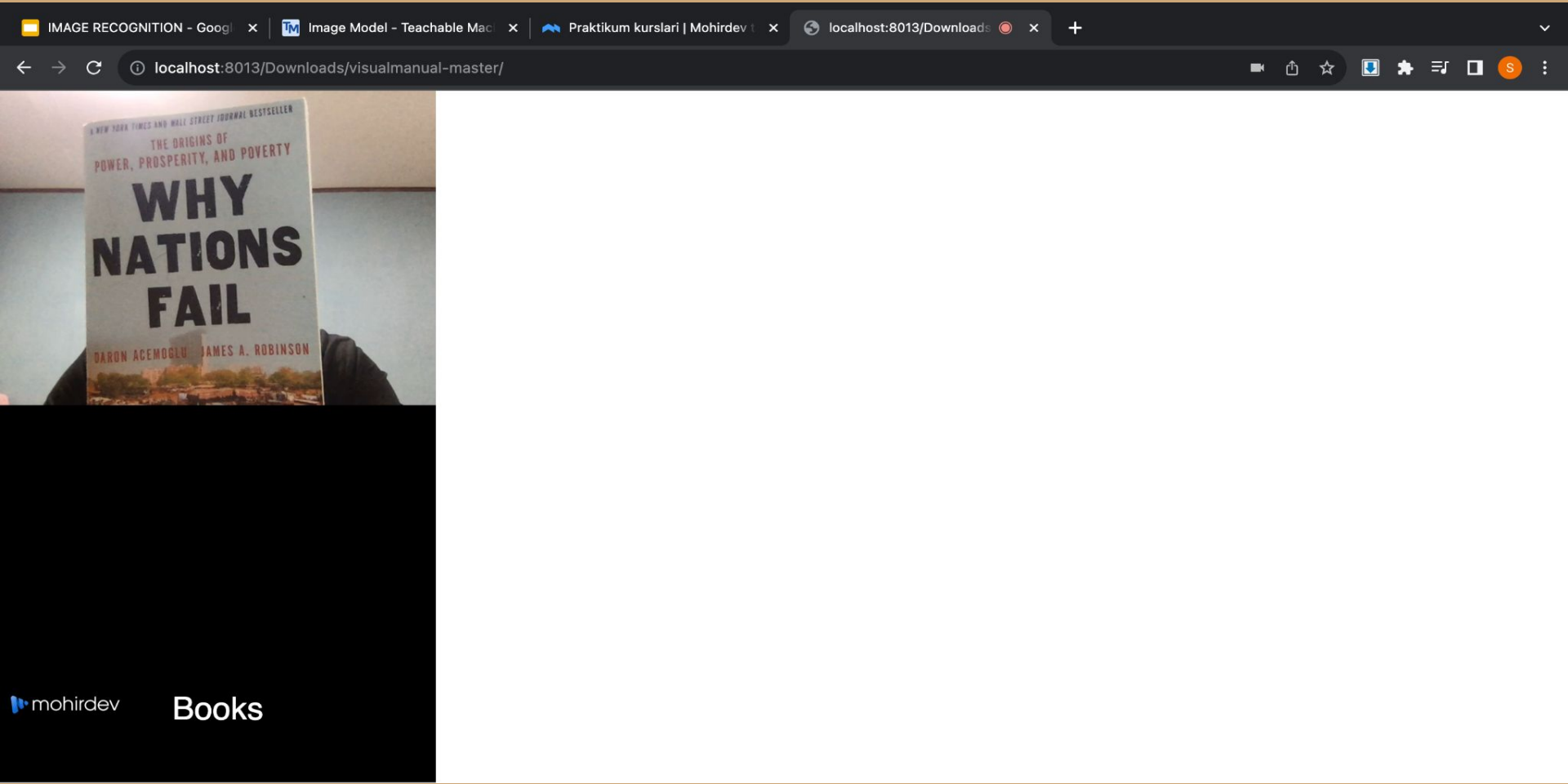


IMAGE RECOGNITION - Googl
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Praktikum kurslari | Mohirdev
localhost:8013/Downloads
localhost:8013/Downloads/visualmanual-master/
A NEW YORK TIMES AND WALL STREET JOURNAL BESTSELLER
THE ORIGINS OF
POWER, PROSPERITY, AND POVERTY
WHY
NATIONS
FAIL
DARON ACEMOGLU
JAMES A. ROBINSON
mohirdev
Books

LAUNCHING SERVER

```
Last login: Wed Dec 13 09:20:07 on console
(base) asadulloh@Sanatovui-MacBookPro ~ % cd /Users/asadulloh/Downloads/visualmanual-master/app.js
cd: not a directory: /Users/asadulloh/Downloads/visualmanual-master/app.js
(base) asadulloh@Sanatovui-MacBookPro ~ % ls
Desktop                 Downloads               Movies                  Pictures                __pycache__             avto_info_mod.py
Documents               Library                 Music                   Public                  anaconda3               main.py
(base) asadulloh@Sanatovui-MacBookPro ~ % python -m http.server 8013
Serving HTTP on :: port 8013 (http://[::]:8013/) ...
::1 - - [13/Dec/2023 19:54:14] "GET / HTTP/1.1" 200 -
::1 - - [13/Dec/2023 19:54:14] code 404, message File not found
::1 - - [13/Dec/2023 19:54:14] "GET /favicon.ico HTTP/1.1" 404 -
::1 - - [13/Dec/2023 19:54:17] "GET /Downloads/ HTTP/1.1" 200 -
::1 - - [13/Dec/2023 19:54:19] "GET /Downloads/visualmanual-master/app.js HTTP/1.1" 200 -
```

THANK YOU

THE END