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LAMPIRAN

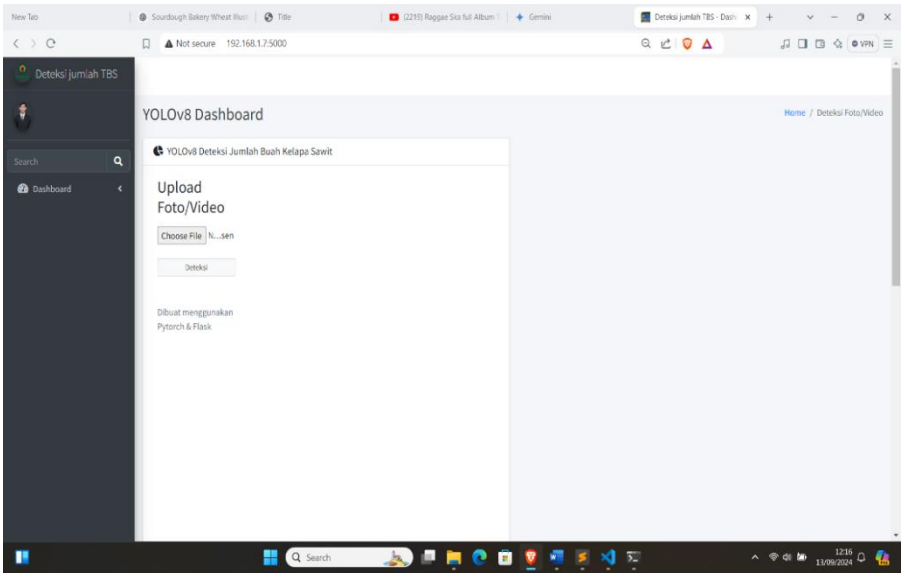
Lampiran 1.1 Berikut adalah syintax file webapp.py yang digunakan untuk mengkonvigurasi tampilan halaman web yang digunakan untuk mendeteksi jumlah TBS di TPH menggunakan pelatihan algoritma YOLOv8 :

```
import argparse
import io
from PIL import Image
import datetime

import torch
import cv2
import numpy as np
import tensorflow as tf
from re import DEBUG, sub
from flask import Flask, render_template, request, redirect, send_file, url_for, Response
from werkzeug.utils import secure_filename, send_from_directory
import os
import subprocess
from subprocess import Popen
import re
import requests
import shutil
import time
import glob

from ultralytics import YOLO

app = Flask(__name__)

@app.route("/")
def hello_world():
    return render_template('index.html')


@app.route("/", methods=["GET", "POST"])
def predict_img():
    if request.method == "POST":
        if 'file' in request.files:
            f = request.files['file']
            basepath = os.path.dirname(__file__)
            filepath = os.path.join(basepath,'uploads',f.filename)
            print("upload folder is ", filepath)
            f.save(filepath)
            global imgpath
            predict_img.imgpath = f.filename
            print("printing predict_img :::::: ", predict_img)
```

```
        file_extension = f.filename.rsplit('.', 1)[1].lower()

        if file_extension == 'jpg':
            img = cv2.imread(filepath)

            model = YOLO('yolov8m_custom.pt')
            detections =  model(img, save=True)
            return display(f.filename)

        elif file_extension == 'mp4':
            video_path = filepath
            cap = cv2.VideoCapture(video_path)

            frame_width = int(cap.get(cv2.CAP_PROP_FRAME_WIDTH))
            frame_height = int(cap.get(cv2.CAP_PROP_FRAME_HEIGHT))

            fourcc = cv2.VideoWriter_fourcc(*'mp4v')
                    out = cv2.VideoWriter('output.mp4', fourcc, 30.0, (frame_width,
frame_height))

            model = YOLO('yolov8m_custom.pt')

            while cap.isOpened():
                ret, frame = cap.read()
                if not ret:
                    break

                results = model(frame, save=True)
                print(results)
                cv2.waitKey(1)

                res_plotted = results[0].plot()
                cv2.imshow("result", res_plotted)

                out.write(res_plotted)

                if cv2.waitKey(1) == ord('q'):
                    break

            return video_feed()


    folder_path = 'runs/detect'
    subfolders = [f for f in os.listdir(folder_path) if os.path.isdir(os.path.join(folder_path,
f))]
                latest_subfolder = max(subfolders, key=lambda x:
os.path.getctime(os.path.join(folder_path, x)))
    image_path = folder_path+'/'+latest_subfolder+'/'+f.filename
    return render_template('index.html', image_path=image_path)
```

```
@app.route('/<path:filename>')
def display(filename):
    folder_path = 'runs/detect'
    subfolders = [f for f in os.listdir(folder_path) if os.path.isdir(os.path.join(folder_path,
f))]
                latest_subfolder = max(subfolders, key=lambda x:
os.path.getctime(os.path.join(folder_path, x)))
    directory = folder_path+'/'+latest_subfolder
    print("printing directory: ",directory)
    files = os.listdir(directory)
    latest_file = files[0]

    print(latest_file)

    filename = os.path.join(folder_path, latest_subfolder, latest_file)

    file_extension = filename.rsplit('.', 1)[1].lower()

    environ = request.environ
    if file_extension == 'jpg':
        return send_from_directory(directory,latest_file,environ)

    else:
        return "Invalid file format"




def get_frame():
    folder_path = os.getcwd()
    mp4_files = 'output.mp4'
    video = cv2.VideoCapture(mp4_files)
    while True:
        success, image = video.read()
        if not success:
            break
        ret, jpeg = cv2.imencode('.jpg', image)

        yield (b'--frame\r\n'
               b'Content-Type: image/jpeg\r\n\r\n' + jpeg.tobytes() + b'\r\n\r\n')
        time.sleep(0.1)


@app.route("/video_feed")
def video_feed():
    print("function called")

    return Response(get_frame(),
```

```
    mimetype='multipart/x-mixed-replace; boundary=frame')


if __name__ == "__main__":
    parser = argparse.ArgumentParser(description="Flask app exposing yolov8 models")
    parser.add_argument("--port", default=5000, type=int, help="port number")
    args = parser.parse_args()
    model = YOLO('yolov8m_custom.pt')
    app.run(host="0.0.0.0", port=args.port)
```



Gambar tampilan web Penghitung jumlah TBS

Lampiran 1.2 Syintax berikut digunakan untuk membuat judul halaman web

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="utf-8">
  <meta name="viewport" content="width=device-width, initial-scale=1">
<!--   <link rel="icon" href="/static/assets/favicon.ico" type="image/x-icon"> -->


  <title>
    Flask - {% block title %}{% endblock %} | Aarohi
  </title>

  {% block stylesheets %}{% endblock stylesheets %}

</head>
<body class="hold-transition {% block body_class %}{% endblock body_class %}">
<div class="wrapper">

    {% include 'navigation.html' %}

    {% include 'sidebar.html' %}

    {% block content %}{% endblock content %}

    {% include 'footer.html' %}

    <!-- Control Sidebar -->
    <aside class="control-sidebar control-sidebar-dark">
        <!-- Control sidebar content goes here -->
    </aside>
    <!-- /.control-sidebar -->

</div>
<!-- ./wrapper -->

<!-- Specific Page JS goes HERE  -->
{% block javascripts %}{% endblock javascripts %}

</body>
</html>
```

1.3 syintax berikut digunakan untuk mengedit tampilan halaman web

```
{% extends "base.html" %}

{% block title %} Dashboard {% endblock %}

<!-- Element injected in the BODY element -->
{% block body_class %} sidebar-mini {% endblock body_class %}

<!-- Specific Page CSS goes HERE  -->
{% block stylesheets %}

  <!-- Google Font: Source Sans Pro -->
  <link rel="stylesheet"
href="https://fonts.googleapis.com/css?family=Source+Sans+Pro:300,400,400i,700&displ
ay=fallback">
  <!-- Font Awesome -->
  <link rel="stylesheet" href="/static/assets/plugins/fontawesome-free/css/all.min.css">
  <!-- Ionicons -->
  <link rel="stylesheet"
href="https://code.ionicframework.com/ionicons/2.0.1/css/ionicons.min.css">
  <!-- Tempusdominus Bootstrap 4 -->
  <link rel="stylesheet" href="/static/assets/plugins/tempusdominus-bootstrap-
4/css/tempusdominus-bootstrap-4.min.css">
  <!-- iCheck -->
  <link rel="stylesheet" href="/static/assets/plugins/icheck-bootstrap/icheck-
bootstrap.min.css">
  <!-- JQVMap -->
  <link rel="stylesheet" href="/static/assets/plugins/jqvmap/jqvmap.min.css">
  <!-- Theme style -->
  <link rel="stylesheet" href="/static/assets/css/adminlte.min.css">
  <!-- overlayScrollbars -->
  <link rel="stylesheet"
href="/static/assets/plugins/overlayScrollbars/css/OverlayScrollbars.min.css">
  <!-- Daterange picker -->
  <link rel="stylesheet" href="/static/assets/plugins/daterangepicker/daterangepicker.css">
  <!-- summernote -->
  <link rel="stylesheet" href="/static/assets/plugins/summernote/summernote-
bs4.min.css">

{% endblock stylesheets %}

{% block content %}

  <div class="content-wrapper">

    <!-- Content Header (Page header) -->
    <div class="content-header">
      <div class="container-fluid">
        <div class="row mb-2">
```

```
        <div class="col-sm-6">
          <h1 class="m-0 text-dark">YOLOv8 Dashboard</h1>
        </div><!-- /.col -->
        <div class="col-sm-6">
          <ol class="breadcrumb float-sm-right">
            <li class="breadcrumb-item"><a href="index.html">Home</a></li>
            <li class="breadcrumb-item active">Deteksi Foto/Video</li>
          </ol>
        </div><!-- /.col -->
      </div><!-- /.row -->
    </div><!-- /.container-fluid -->
  </div>
  <!-- /.content-header -->

  <!-- Main content -->
  <section class="content">
    <div class="container-fluid">
      <!-- Small boxes (Stat box) -->
       <div class="row">

        <!-- ./col -->
      </div>

  <!-- /.row -->
      <!-- Main row -->
      <div class="row">
        <!-- Left col -->
        <section class="col-lg-6 connectedSortable">
          <!-- Custom tabs (Charts with tabs)-->
          <div class="card">
            <div class="card-header">
              <h3 class="card-title">
                <i class="fas fa-chart-pie mr-1"></i>
                YOLOv8 Deteksi Jumlah Buah Kelapa Sawit
              </h3>


            </div><!-- /.card-header -->
            <div class="card-body">
              <div class="tab-content p-0">
                <!-- Morris chart - Sales -->
                <div class="chart tab-pane active" id="revenue-chart"
                     style="position: relative; height: 700px;">

    <!-- AI code-->

          <form class="form-signin col-lg-3" method=post enctype=multipart/form-data
name="form1">

       <h1 class="h3 mb-3 font-weight-normal">Upload Foto/Video</h1>
```

```
    <input type="file" name="file" class="form-control-file" id="inputfile" >

      <br/>

      <button class="btn btn-block btn-default btn-sm " type="submit">Deteksi</button>
  <p class="mt-5 mb-3 text-muted">Dibuat menggunakan Pytorch & Flask</p>
   </form>




            </div><!-- /.card-header -->
            <div class="card-body">
              <div class="tab-content p-0">
                <!-- Morris chart - Sales -->
                <div class="chart tab-pane active" id="revenue-chart"
                     style="position: relative; height: 700px;">

     <!-- AI code-->


<!-- detected image display -->
<img id="my-image"  src="{{ url_for('predict_img', filename=image_path) }}"
style="height:640; width:640px; display: none;"/>

<script>
document.getElementById("my-image").onload = function() {
  this.style.display = "block";
};
</script>

<!-- detected video display using opencv-->
<img id="my-video-image" src="{{ url_for('video_feed') }}" style="height:640;
width:640px; display: none;" />

<script>
document.getElementById("my-video-image").onload = function() {
  this.style.display = "block";
};
</script>

<!-- AI code ends here-->

                  </div>

                </div>
              </div><!-- /.card-body -->
            </div>
```

```
          <!-- /.card -->



        </section>



        <!-- /.Left col -->
        <!-- right col (We are only adding the ID to make the widgets sortable)-->

        <!-- right col -->
       </div>
       <!-- /.row (main row) -->
     </div><!-- /.container-fluid -->
   </section>
   <!-- /.content -->

  </div>

{% endblock content %}

<!-- Specific Page JS goes HERE  -->
{% block javascripts %}

  <!-- jQuery -->
  <script src="/static/assets/plugins/jquery/jquery.min.js"></script>
  <!-- jQuery UI 1.11.4 -->
  <script src="/static/assets/plugins/jquery-ui/jquery-ui.min.js"></script>
  <!-- Resolve conflict in jQuery UI tooltip with Bootstrap tooltip -->
  <script>
    $.widget.bridge('uibutton', $.ui.button)
  </script>
  <!-- Bootstrap 4 -->
  <script src="/static/assets/plugins/bootstrap/js/bootstrap.bundle.min.js"></script>
  <!-- ChartJS -->
  <script src="/static/assets/plugins/chart.js/Chart.min.js"></script>
  <!-- Sparkline -->
  <script src="/static/assets/plugins/sparklines/sparkline.js"></script>
  <!-- JQVMap -->
  <script src="/static/assets/plugins/jqvmap/jquery.vmap.min.js"></script>
  <script src="/static/assets/plugins/jqvmap/maps/jquery.vmap.usa.js"></script>
  <!-- jQuery Knob Chart -->
  <script src="/static/assets/plugins/jquery-knob/jquery.knob.min.js"></script>
  <!-- daterangepicker -->
  <script src="/static/assets/plugins/moment/moment.min.js"></script>
  <script src="/static/assets/plugins/daterangepicker/daterangepicker.js"></script>
  <!-- Tempusdominus Bootstrap 4 -->
  <script src="/static/assets/plugins/tempusdominus-bootstrap-4/js/tempusdominus-
bootstrap-4.min.js"></script>
```

```
  <!-- Summernote -->
  <script src="/static/assets/plugins/summernote/summernote-bs4.min.js"></script>
  <!-- overlayScrollbars -->
  <script
src="/static/assets/plugins/overlayScrollbars/js/jquery.overlayScrollbars.min.js"></script>
  <!-- AdminLTE App -->
  <script src="/static/assets/js/adminlte.js"></script>
  <!-- AdminLTE dashboard demo (This is only for demo purposes) -->
  <script src="/static/assets/js/pages/dashboard.js"></script>
  <!-- AdminLTE for demo purposes -->
  <script src="/static/assets/js/demo.js"></script>

{% endblock javascripts %}
```

1.4 syintax berikut digunakan untuk mengkonvigurasi halaman sidebaer halaman web seperti logo, profil, dashboard dan lain-lain

```
<!-- Main Sidebar Container -->
<aside class="main-sidebar sidebar-dark-primary elevation-4">
  <!-- Brand Logo -->
  <a href="/" class="brand-link">
    <img src="/static/assets/img/pytorch.png" class="brand-image img-circle elevation-3"
     style="opacity: .8">
    <span class="brand-text font-weight-light">Deteksi jumlah TBS</span>
  </a>

  <!-- Sidebar -->
  <div class="sidebar">
    <!-- Sidebar user panel (optional) -->
    <div class="user-panel mt-3 pb-3 mb-3 d-flex">
      <div class="image">
        <img src="/static/assets/person.png" class="img-circle elevation-2" alt="User
    Image">
      </div>

    </div>

    <!-- SidebarSearch Form -->
    <div class="form-inline">
      <div class="input-group" data-widget="sidebar-search">
        <input class="form-control form-control-sidebar" type="search"
    placeholder="Search" aria-label="Search">
        <div class="input-group-append">
          <button class="btn btn-sidebar">
            <i class="fas fa-search fa-fw"></i>
          </button>
        </div>
      </div>
    </div>

    <!-- Sidebar Menu -->
    <nav class="mt-2">
      <ul class="nav nav-pills nav-sidebar flex-column" data-widget="treeview"
    role="menu" data-accordion="false">
        <!-- Add icons to the links using the .nav-icon class
             with font-awesome or any other icon font library -->
        <li class="nav-item has-treeview {% if 'index' in segment %} menu-open {% endif
    %}">
          <a href="#" class="nav-link {% if 'index' in segment %} active {% endif %}">
            <i class="nav-icon fas fa-tachometer-alt"></i>
            <p>
              Dashboard
              <i class="right fas fa-angle-left"></i>
            </p>
```

```
        </a>
        <ul class="nav nav-treeview">
          <li class="nav-item">
            <a href="index.html" class="nav-link {% if 'index.html' in segment %} active
    {% endif %}">
              <i class="far fa-circle nav-icon"></i>
              <p>Hasil Deteksi Gambar</p>
            </a>
          </li>



      </ul>
    </nav>
    <!-- /.sidebar-menu -->
  </div>
  <!-- /.sidebar -->
</aside>
```

Hasil deteksi

Gambar hasil deteksi jumlah TBS menggunakan web