National College of Ireland

Configuration Manual

MSc Research Project
MSc Cybersecurity

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MSc Project Submission Sheet

School of Computing

Student Name:	Jagadish Maranachakanahalli Dhananjaya
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Programme:	MSc In Cybersecurity **Year:** 2024
Module:	MSc Research Practicum
Lecturer:	Liam McCabe
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Project Title:	Real-Time Detection of Social Engineering Threats in Social Media Posts
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Configuration Manual

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1 Introduction

This configuration manual provides comprehensive instructions of 'Real-Time Detection of Social Engineering Threats in Social Media Posts' for building and running the Flask web application on a Windows system using the PyCharm IDE. This application facilitates image uploading and analysis using YOLO for object detection and includes a system for detecting potential threats based on uploaded content.

2 System Requirements

2.1 Hardware Requirements

- Processor: Minimum Intel Core i5 or equivalent
- RAM: Minimum 8 GB
- Storage: Minimum 1 GB of free space for application and dependencies

2.2 Software Requirements

- Operating System
  Windows: Windows 10 or later (for development environment)
  macOS: macOS 10.14 or later (for development environment)
  Linux: Ubuntu 20.04 or later (for development environment)
- YOLO (You Only Look Once)
  Weights File: yolov3.weights (Kaggle, n.d.)
  Configuration File: yolov3.cfg (Elkhiati, 2018)
  Class Names File: coco.names (Chhibber, 2021)
- Pyton 3.6 or later
- CSS
- HTMl 5
- Bootstrap

3 Setting Up the Development Environment

Step 1: Install Required Software

- Download and install Python from the official website (Python.org, n.d.)
- Download and install Pycharm from the official website (Brains, n.d.)

Step 2: Open PyCharm IDE

- Launch PyCharm and create a new project by selecting **Create New Project** from the welcome screen.

Step 3: Set Up the Project

- Name your project.
- Choose a location to save your project.
- Select New environment using Virtualenv.
- Ensure the Base Interpreter points to your Python executable.

Step 4: Create the Project

- Click Create to set up the new project.

Step 5: Install Dependencies

- Open the **Terminal** tab in PyCharm (located at the bottom of the IDE) and install the python package.
- NumPy: pip install numpy (PyPI, 2024)
- Werkzeug: pip install Werkzeug (PyPI, 2024)
- OpenCV: pip install opencv-python (PyPI, 2024)
- Flask: pip install Flask (PyPI, 2024)

Step 6: Create the directory structure as shown in figure 1.

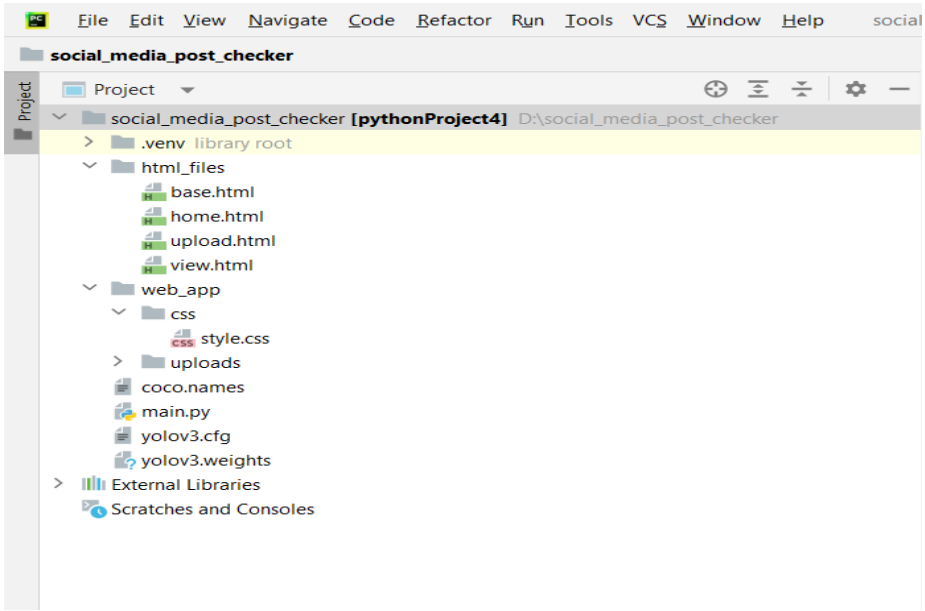

Figure 1: Directory and files structure of project.

- Main.py Main Python script containing Flask application code.
- html_files: Contains HTML templates for rendering web pages.
    - upload.html: This is the page where users can upload an image along with a caption. It includes a form that allows users to submit their posts. If a potential threat is detected in the image or text, a confirmation modal will appear asking the user to confirm their upload.
    - view.html: This page displays a gallery of uploaded images along with their captions. Images with detected threats are highlighted with a red border.

- Web_app: It holds CSS and upload files.
    - style.css: This CSS file provides custom styling for the web pages.
    - uploads: This folder will be used to store uploaded images and captions.
- Move or copy files to the root directory of your project (where main.py is located).

Step 8: Download the project files as a ZIP
Extract the zip file and paste each file and code has structured above.

4 Running the Application

- In the top-right corner of PyCharm, select the configuration you created.
- Click the green Run button

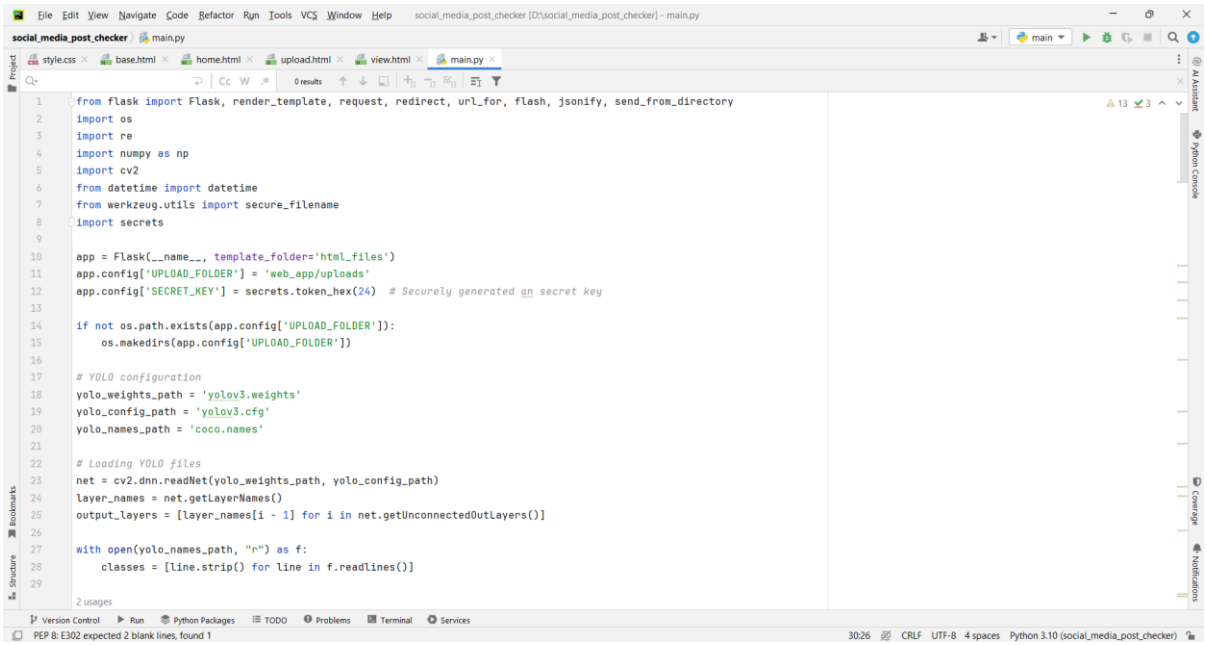

Figure 2: The PyCharm interface shows the green play button used to start the application.

- The application will start and be accessible at http://127.0.0.1:5000/.

Figure 3: shows the http://127.0.0.1:5000/ to access the web application.

5 Accessing the Web application

- Open your web browser and navigate to http://127.0.0.1:5000/ to access the web application.
- On the upload page you will see the upload page where you can submit your posts with an image and caption.

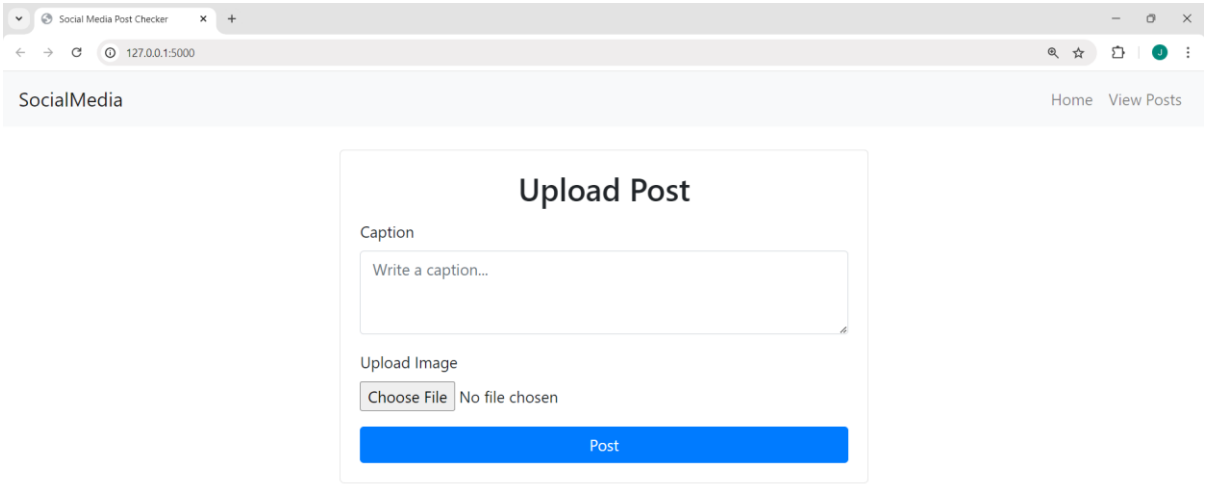

Figure 4: The upload page of web application.

- On the view posts page after uploading, you can view your posts on the view page.

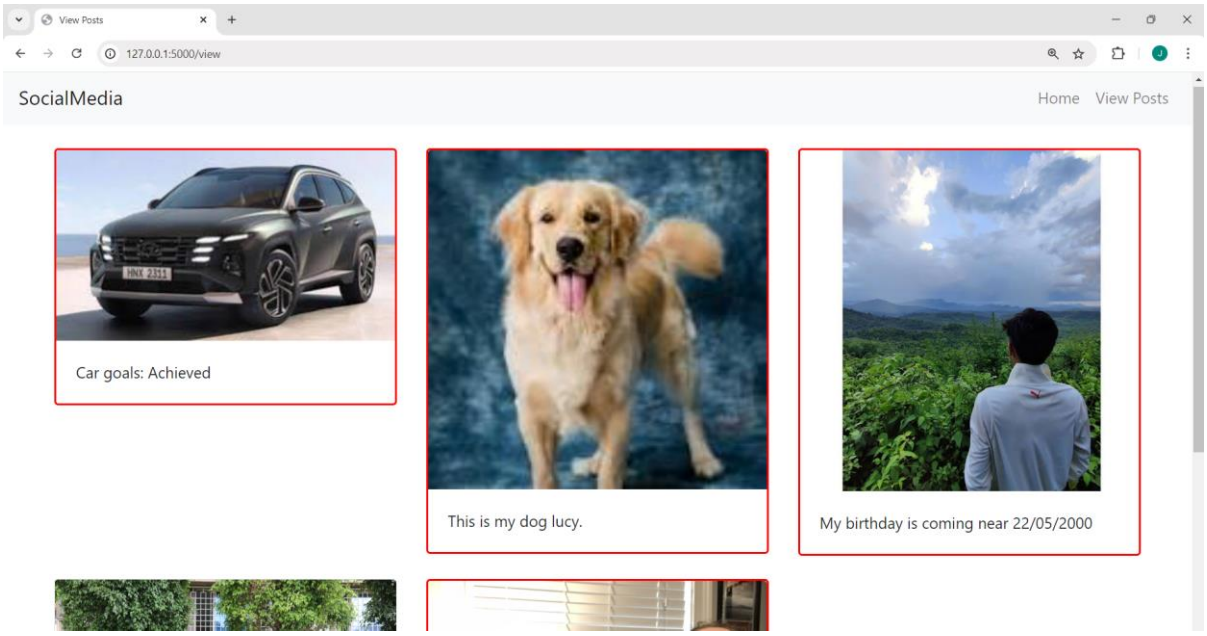

Figure 5: The view posts page displays your uploaded posts.

6 References

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