

Configuration Manual

MSc Research Project
Msc in Data Analytics

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National College of Ireland

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National College of Ireland
MSc Project Submission Sheet
School of Computing



Student Name: Rajesh Chowdhary Swarna
Student ID: X23405473
Programme: Msc in Data Analytics **Year:** 2024-2025
Module: Msc Research Practicum
Lecturer: Furqan Rustum
Submission Due Date: 11-08-2025
Project Title: Integrated Multimodal AI Framework for Enhanced Misinformation Detection: Combining LSTM Text Classification, GPT-4o Vision Analysis, and Professional Fact-Checking

Word Count:

Page Count:

I hereby certify that the information contained in this (my submission) is information pertaining to research I conducted for this project. All information other than my own contribution will be fully referenced and listed in the relevant bibliography section at the rear of the project.

ALL internet material must be referenced in the bibliography section. Students are required to use the Referencing Standard specified in the report template. To use other author's written or electronic work is illegal (plagiarism) and may result in disciplinary action.

Signature: Rajesh Chowdhary Swarna

Date: 11-08-2025

PLEASE READ THE FOLLOWING INSTRUCTIONS AND CHECKLIST

Attach a completed copy of this sheet to each project (including multiple copies)	☐
Attach a Moodle submission receipt of the online project submission, to each project (including multiple copies).	☐
You must ensure that you retain a HARD COPY of the project, both for your own reference and in case a project is lost or mislaid. It is not sufficient to keep a copy on computer.	☐

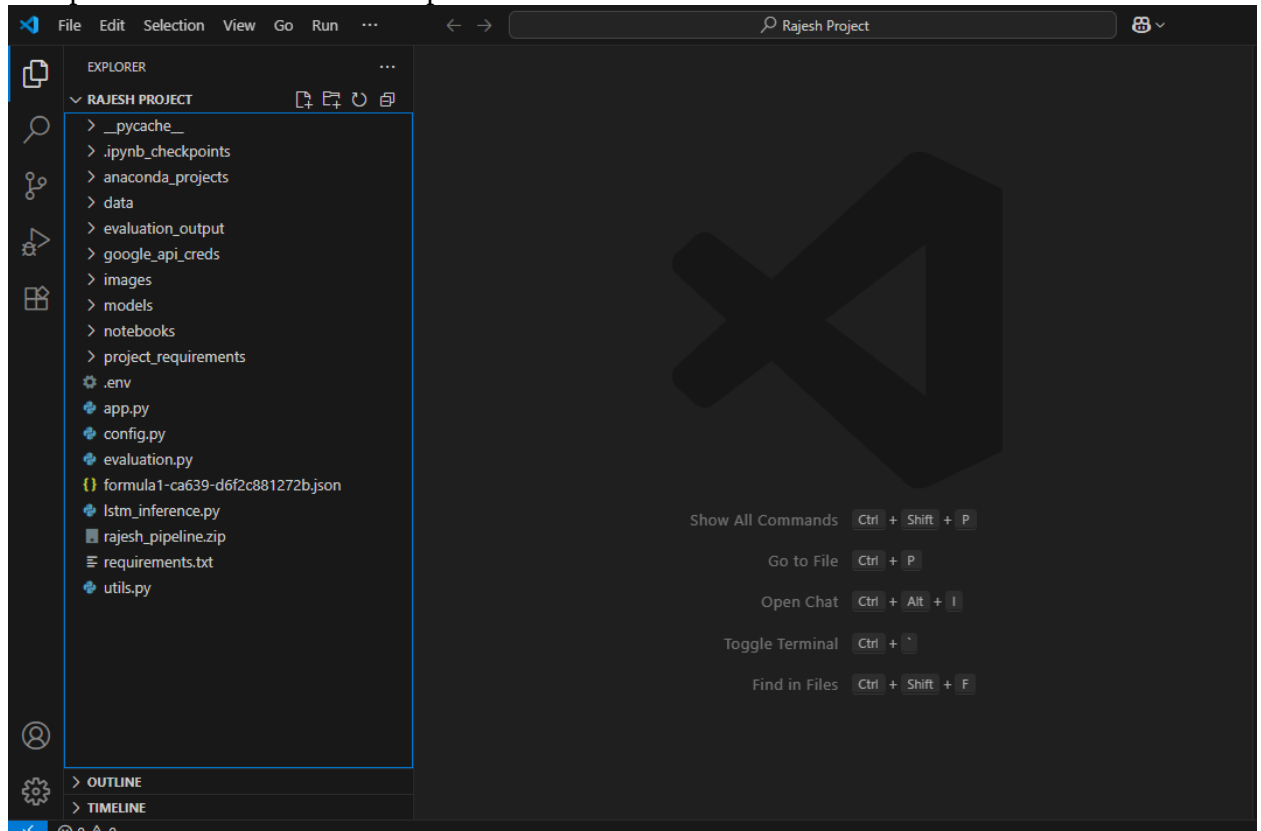
Assignments that are submitted to the Programme Coordinator Office must be placed into the assignment box located outside the office.

Office Use Only	
Signature:	
Date:	
Penalty Applied (if applicable):	

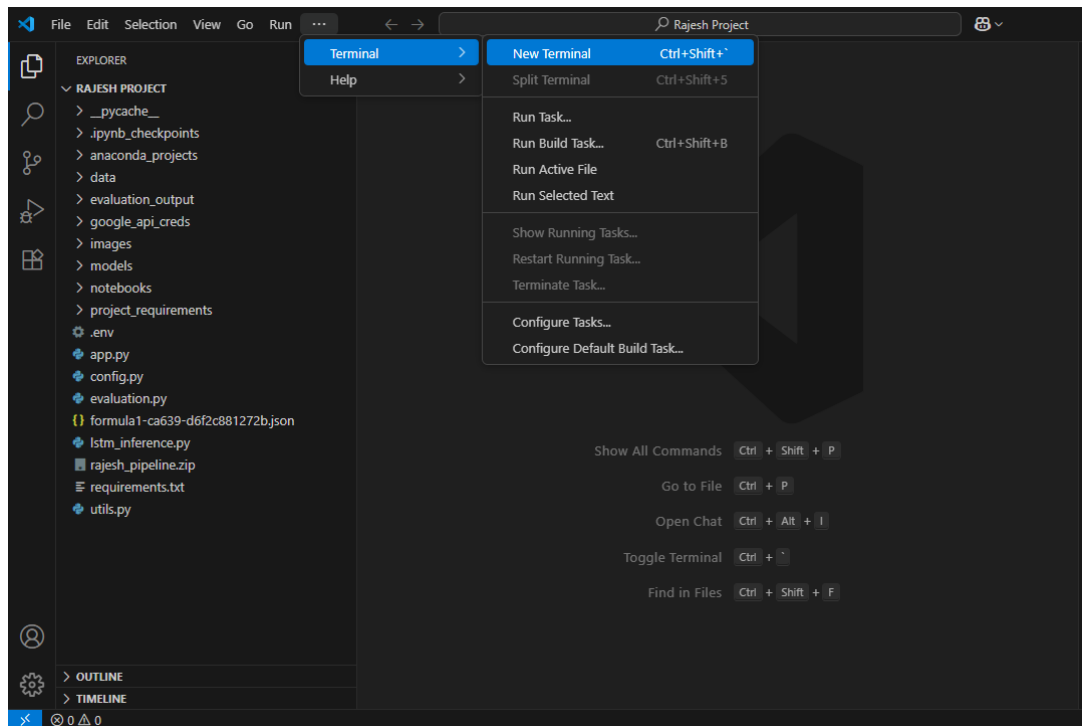
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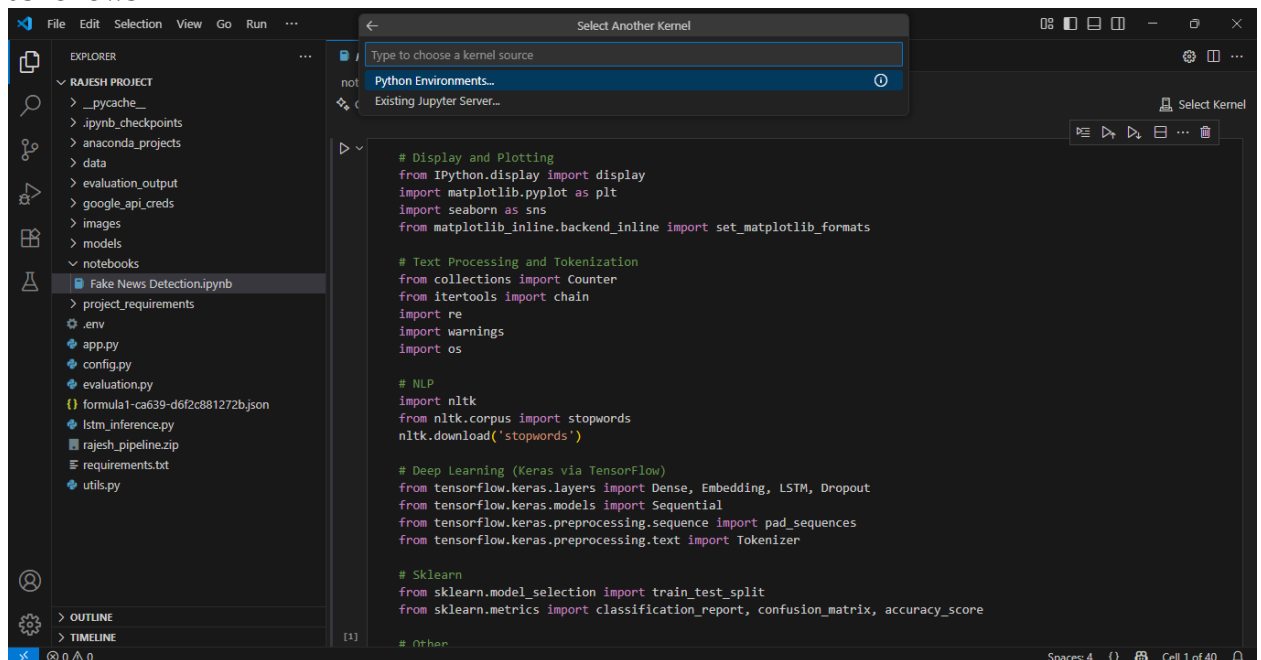
1. Unzip the downloaded file and open in VSCode



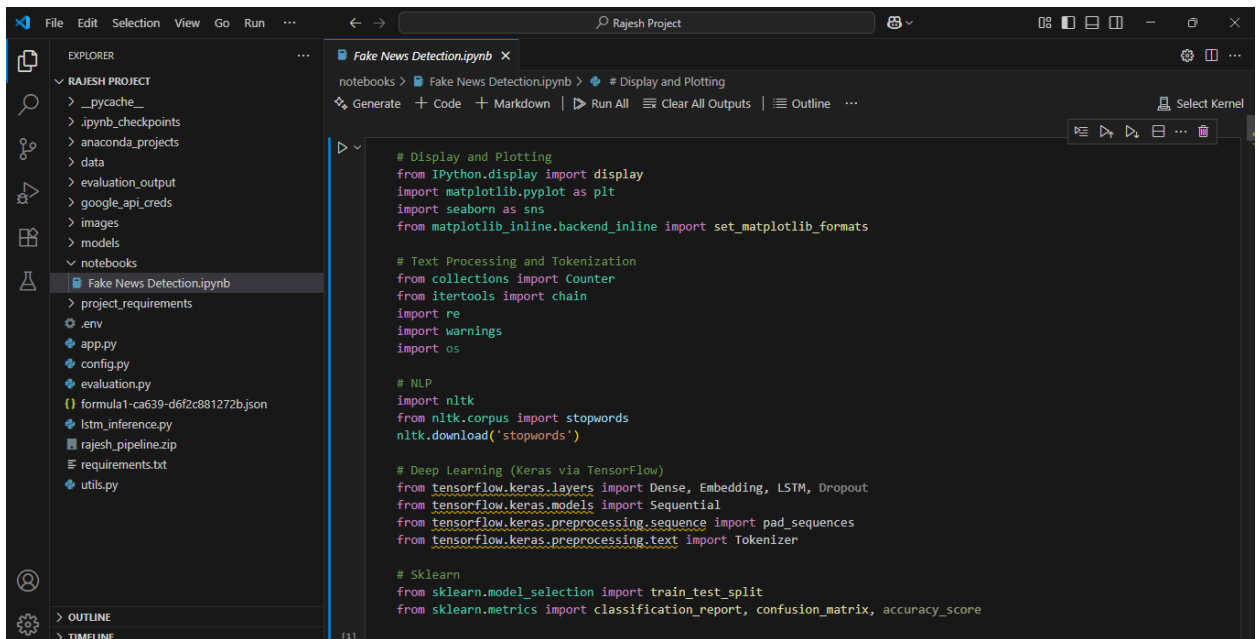
2. Open new terminal as follows



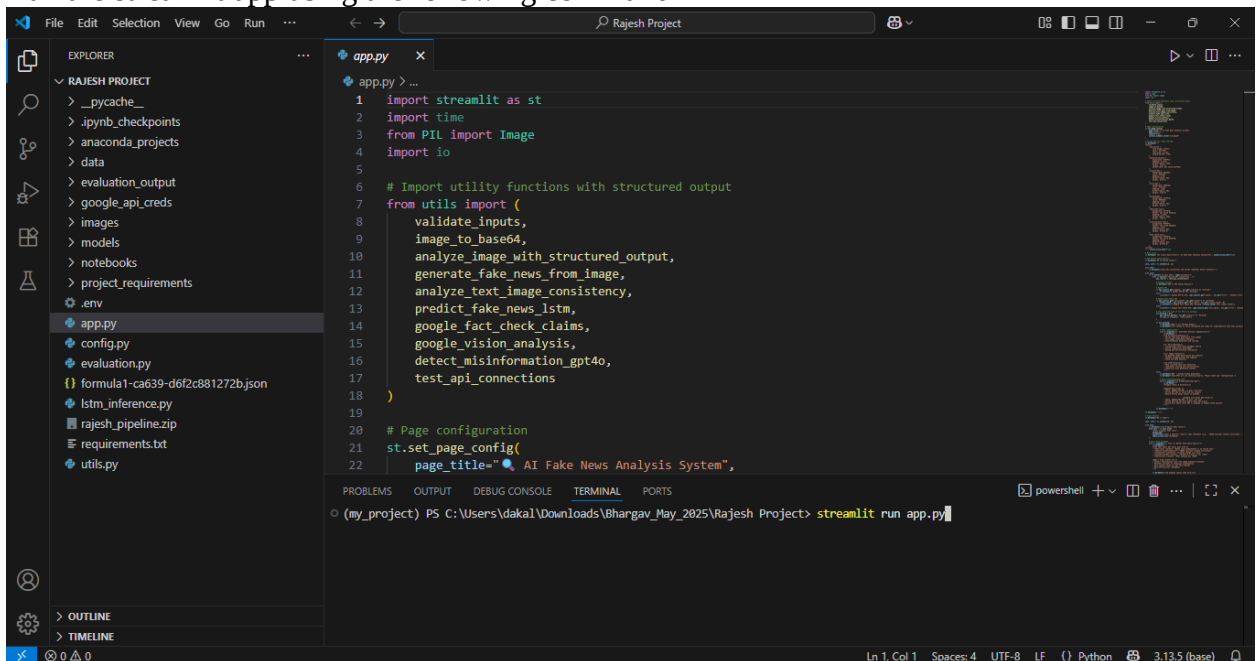
3. Run the following commands
 - a. `conda create --name my_project python=3.10 -y`
 - b. `conda activate my_project`
4. Open notebooks folder and select Fake News Detection.ipynb. Then select the kernel as follows



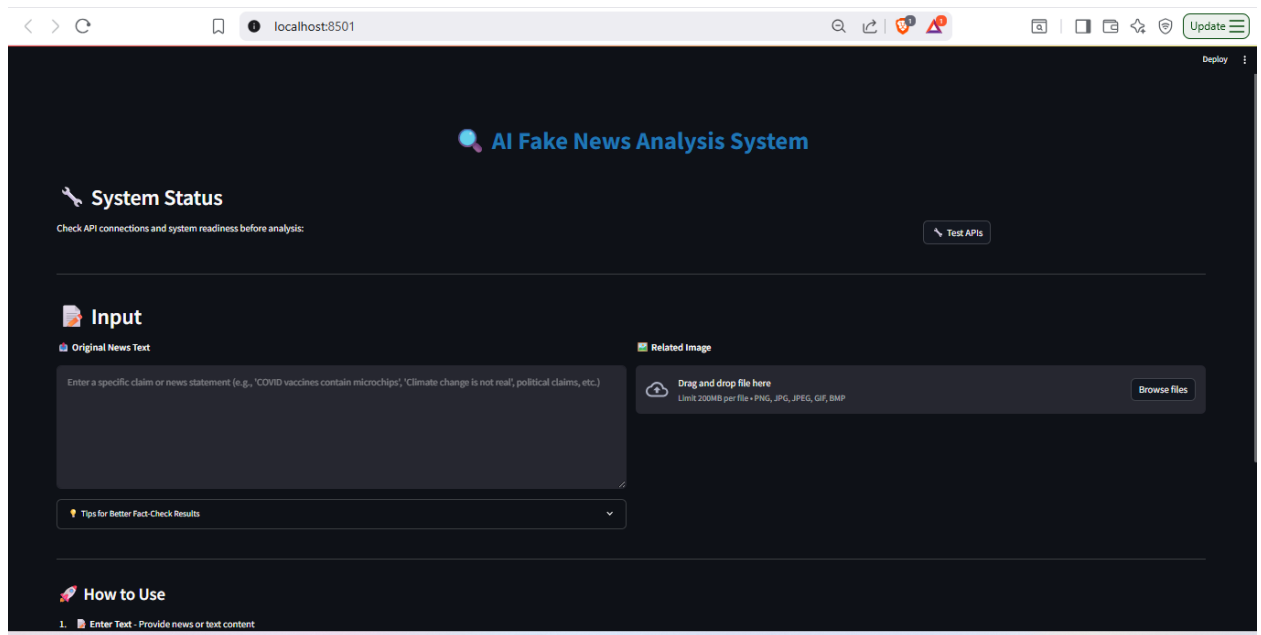
5. Click on Run All button



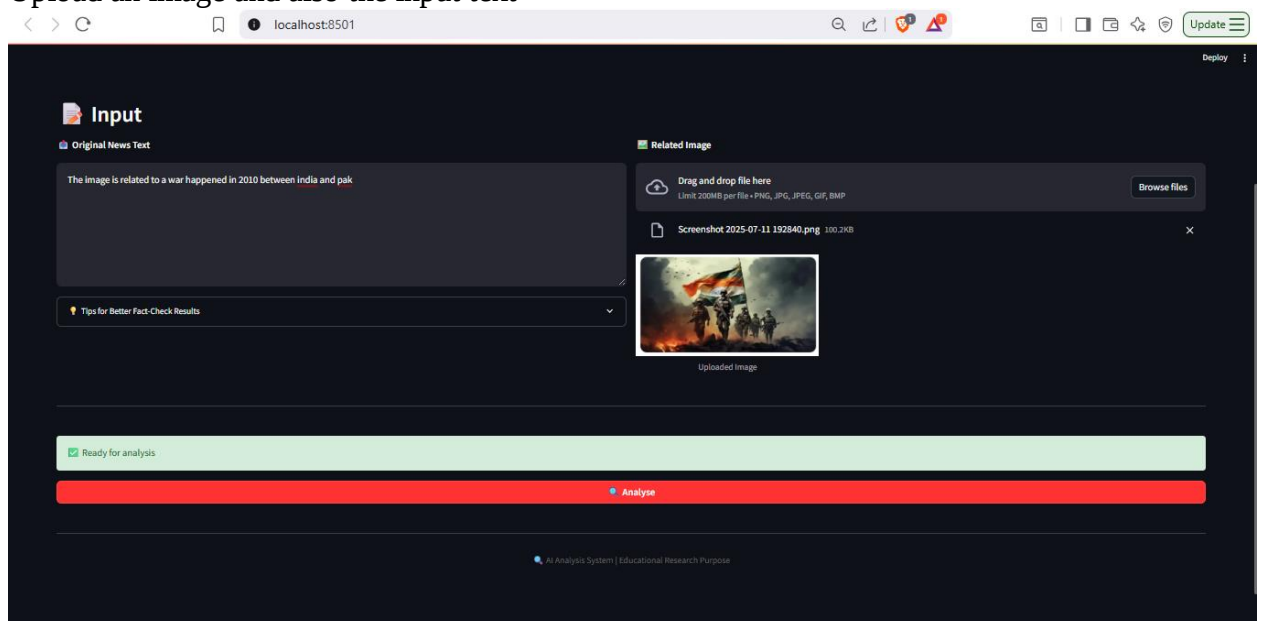
6. Run the streamlit app using the following command



7. You'll get to see an UI like below



8. Upload an image and also the input text



9. Click on Analyse button to see the results

localhost:8501

Update

Deploy

Analysis Results

AI-Generated Fake News

Secret Mission Revealed: Indian Soldiers Discover Hidden City Beneath the Himalayas!

In a groundbreaking revelation that has sent shockwaves across the globe, a covert team of Indian soldiers has reportedly uncovered a hidden city beneath the majestic Himalayas. This astonishing discovery was made during a classified mission that was initially intended to be a routine training exercise. Sources close to the operation have disclosed that the city, believed to be thousands of years old, is filled with advanced technology and artifacts that could rewrite history as we know it. The soldiers, who were sworn to secrecy, stumbled upon this subterranean marvel after following a series of mysterious energy readings. Upon entering the hidden city, they were greeted by towering structures and intricate machinery that appeared to be far ahead of our current technological capabilities. Experts speculate that this could be evidence of an ancient civilization with knowledge far surpassing our own.

The Indian government has yet to officially comment on these revelations, but insiders suggest that international powers are already vying for access to the site. The potential implications of this discovery are immense, with possibilities ranging from new energy sources to revolutionary advancements in technology.

As the world waits with bated breath for more information, conspiracy theories are running rampant. Some claim this is evidence of extraterrestrial contact, while others believe it could be the key to unlocking the secrets of human evolution. Whatever the truth may be, one thing is certain: the discovery of this hidden city is set to change the course of history forever.

Key Claims:

- Indian soldiers discovered a hidden city beneath the Himalayas.
- The city contains advanced technology and artifacts.
- The discovery could rewrite history and change the course of human evolution.

LSTM Analysis

Original Text

Classification: Real

Confidence: 0.839

Generated Fake News

Classification: Real

Confidence: 0.999

LSTM Analysis

Original Text

Classification: Real

Confidence: 0.839

Score: 0.9196

Generated Fake News

Classification: Real

Confidence: 0.999

Score: 0.9995

Enhanced Image Analysis

AI Description:

The image depicts a group of soldiers walking forward in a dramatic scene. They are carrying weapons and wearing military gear. One soldier is prominently holding a large Indian flag, which is waving in the wind. The background is filled with smoke and clouds, suggesting a battlefield environment. The ground appears charred, with visible flames and embers, enhancing the intensity of the scene.

Note: Google Vision API not available
Using AI-powered image analysis instead

AI Tags:

soldiers

military

Indian flag

battlefield

smoke

fire

periscope

Scene Info:

Type: outdoor

Mood: dramatic

Consistency Score:

Medium: 50/100

- 'Vaccines cause autism'
- 'The Earth is flat'
- '5G causes coronavirus'

- 'This image shows diseases'
- 'Medical information is helpful'
- 'Health is important'

AI Misinformation Analysis

Misinformation Assessment: HIGH RISK

Confidence Score: 95/100

Analysis: The text claims an image is related to a war between India and Pakistan in 2010, but there is no record of a war between these countries in that year. The image appears to be digitally manipulated or a staged representation, not an authentic photograph from a conflict. The use of the Indian flag in a dramatic setting suggests a sensationalized portrayal rather than a factual depiction.

Red Flags Detected:

- Unsupported claims
- Misleading association between text and image
- Signs of manipulation or staging

Credibility Indicators: None found

Final Verdict & Overall Assessment

MEDIUM RISK - REQUIRES VERIFICATION

Overall Risk Score: 41.2/100

5

localhost:8501

Deploy

Update

📄

Detailed Analysis Summary

🔍 LSTM Analysis:

- Original Text: Real (0.839)
- Generated Fake: Real (0.999)

📊 Consistency Analysis:

- Text-Image Consistency: 50/100

🔍 Fact Check:

- No fact-check sources found

🚨 Misinformation Assessment:

- Risk Level: MEDIUM RISK
- Confidence: 95/100

🖼️ Image Analysis:

- Content: soldiers, military, Indian flag
- Scene: outdoor
- Mood: dramatic

📊 Performance:

- Total Analysis Time: 10.58s
- Fact Check: 0.60s
- AI Analysis: 5.31s

🔍 SIFT Method Analysis

🔗 STOP - Key Alerts

- LSTM Model: Flagged original text as Real with 0.839 confidence
- Consistency: Text-image consistency score of 50/100
- AI Analysis: Assessed as MEDIUM RISK - REQUIRES VERIFICATION with 41.2/100 risk score

🔍 INVESTIGATE - What's Suspicious