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COUNTERING TERRORISM ONLINE USING WEB DATA MINING

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Abstract:

In several places of the world recently, terrorism has increased dramatically. The use of the Internet by terrorists is an issue that is escalating quickly. Due to the massive increase in terrorist activities, it is critical to put an end to terrorism and stop its growth before it harms people, organizations, or nations. People need to take safety precautions to keep themselves secure both offline and online, and they should report any suspicious behaviour they see.Technology advancements have made the internet a vehicle for the propagation of terrorism via websites and social networking platforms that aid terrorist groups in enlisting new members and supporters who commit atrocities on their behalf. Here, we present an effective system called OTDS that allows people to search any website for any indication of terrorist activity and report it.

Keywords : Terrorism, Terrorist organizations, online spread, OTDS (Online Terror Detecting System), data mining, web mining, python modules.

I. INTRODUCTION

Terrorism in all of its manifestations affects us all. Terrorist groups are increasingly using the Internet to privately communicate with their followers, plan and organise activities, broadcast information, raise money, and enlist new supporters. The potential impact on victims is increased when the Internet is used to serve terrorist objectives since it ignores national boundaries. The identification of terrorist activity online is seen to have the potential to stop subsequent terrorist strikes.

Since there are numerous websites that the general public routinely visits that serve to entice them to terrorism, many researchers and scientists have attempted to tackle this problem. The national security board has also applied the best strategies to be aware of all terrorist actions. Terrorists find it simple to terrorize people and to spread fear throughout a group or a nation. Therefore, we're going to provide our suggested method for identifying terrorist-related online activity below, along with how such activity can be identified and reported so that people are made aware of potential threats in the future.

We suggested a system called OTDS (Online Terror Detecting System) to minimize the online presence of such hazardous websites. If the system finds certain keywords on a particular website, that page would be reported as unsuitable, and users can also report the website to the authorities.

Here, web mining and data mining are utilized in tandem to create an effective solution. Web mining algorithms are helpful in mining and extracting from unstructured web pages and text data that is available throughout the web. Data mining techniques are used to manage organized data collections. The anti-terrorism and cyber security response agencies should benefit from this method. The police should be able to use this system to

monitor terrorists' communications and to find websites created on various platforms.

II. LITERATURE SURVEY

The preceding research on Web Data Mining For Terrorism Detection demonstrates that access to the current systems is restricted to law enforcement and security agencies, and that it is challenging for law enforcement to identify them. In order to allow the general public to scan websites for signs of terrorism and report them to the police department, we have created a system that is a little different from other existing alternatives. We do this by including the REPORT option.With the use of this software, identifying and analyzing files and webpages that encourage terrorism is made simple for both the police and the user, eliminating the need for the user to wait for the police to confirm a certain webpage. In order to help the police take the appropriate action, we can verify those pages in addition to a single person like the police.

III. METHODOLOGY

To build a website where visitors may look up any page or website for any evidence of terrorist activity, we proposed a method called OTDS (Online Terror Detecting System). This tool allows for the tracking of websites developed on many platforms. To uncover patterns, keywords, and important information in unstructured texts on a certain webpage, OTDS uses data mining and web mining techniques. Data mining and web mining are sometimes integrated to provide successful results. We harvest textual data from web pages using web mining algorithms to find its relevance to terrorism.Data mining is a technique for sorting through huge amounts of data to find patterns of important information and maximize the use of the findings. The way this system operates is by appropriately sorting and categorizing web pages into different groups.

Use Case Diagram:

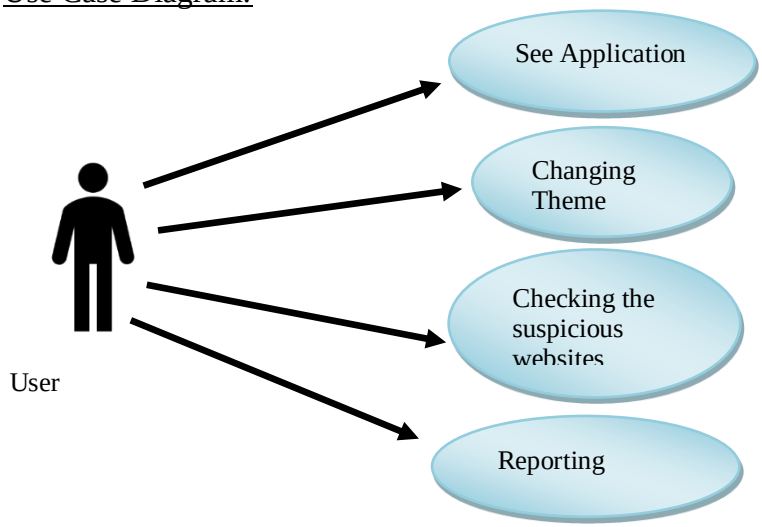

Figure-1: Use case diagram of the model

Flow Diagram:

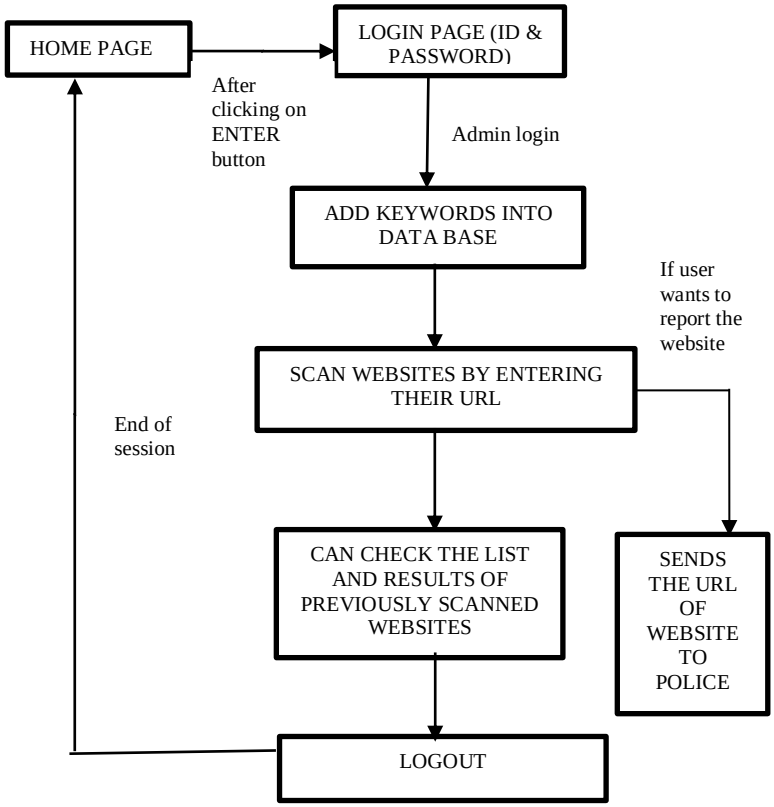

Figure-2: Architecture of model.

To create OTDS, the subsequent actions are taken:

1. Import each of the necessary modules.
2. A login and registration page was created with a link to the home page.
3. Developed the class that contains all of the frames.
4. Using the frames, made a home page with a class that has buttons for about, detection, and an image. Selecting the detection button advances the process to step 5, and clicking the about button displays the OTDS's specifics.
5. Using a class, I made a detection page that features a scan button and a text label for the website's URL.
    i. After entering the website's URL in the text box provided, we will click on "Scan" to begin the process of finding the website.
    ii. For each website that is checked, the scores and rank are determined using OTDS's word-by-word analysis and comparison of those terms with those already existent in the database.
    iii. There is a report option at the bottom of the page that allows users to alert the authorities if they discover any terrorist-related behavior on a specific website. This option includes sending the URL of the offending website to the cops.

All of this is made possible by constructing a straightforward Python program that uses Tkinter to build GUI interfaces, a module to search a website's entire content, BeautifulSoup4 to access the website's text, and PIL to open and load an image.

IV. IMPLEMENTATION

We implemented it with various modules like Tkinter, Requests, BeautifulSoup4, Pillow, and ttkthemes.

```
import json
import tkinter as tk
import tkinter.scrolledtext as scrolledtext
import tkinter.ttk as ttk
from tkinter.filedialog import askopenfile
import requests
from bs4 import BeautifulSoup
from PIL import Image, ImageTk
from ttkthemes import ThemedStyle
```

Tkinter:

GUI apps are made using the built-in Python module known as TKinter. Due to its simplicity and ease of usage, it is one of the most often used Python modules for developing GUI applications. The Tk GUI toolkit has an object-oriented interface thanks to it. The components of a GUI application known as "widgets" in Tkinter are controls (such as Labels, Buttons, ComboBoxes, CheckBoxes, MenuBars, RadioButtons, etc.) that allow users to interact with the application.

Requests:

One of the Python libraries for sending HTTP requests to a given URL is the requests library. Whether using Web scraping or REST APIs, requests must be learned in order to advance with these technologies. The URL will return a response when we request it.Both request and response are managed as they are inbuilt functionalities provided in python-requests.

BeautifulSoup4:

A Python library called Beautiful Soup is used to parse undesirable material, format jumbled web data, and present it in straightforward XML structures. It does this by correcting the worst possible HTML pages, extracting data merely from XML and HTML files This library is named after the poem "Alice's Adventures in Wonderland" by Lewis Carroll.

Ttkthemes:

A group of themes for ttk extensions for Tkinter was generated together by RedFantom and created by various other authors.

Pillow:

PIL, or the Python Imaging Library, gives the Python interpreter the ability to modify images.This library provides so many features for working on images and image processing using Python.

V. RESULTS

The OTDS functionality allows the user to enter the URL of the website they wish to scan. After entering the URL, OTDS searches the entire page for words and compares them to those in the database. A score will be given to each term that we maintain in our database. Our system will get the scores for each word that occurs on the user's web page from our database in order to determine the overall rating of the website. The user's website will be checked by this rank to see if it contains any proof of terrorism or not, and the user can report any websites that have been identified as supporting terrorism using the OTDS report option. This will directly send the URL of the websites to the security departments, making it easier for them to find such websites.

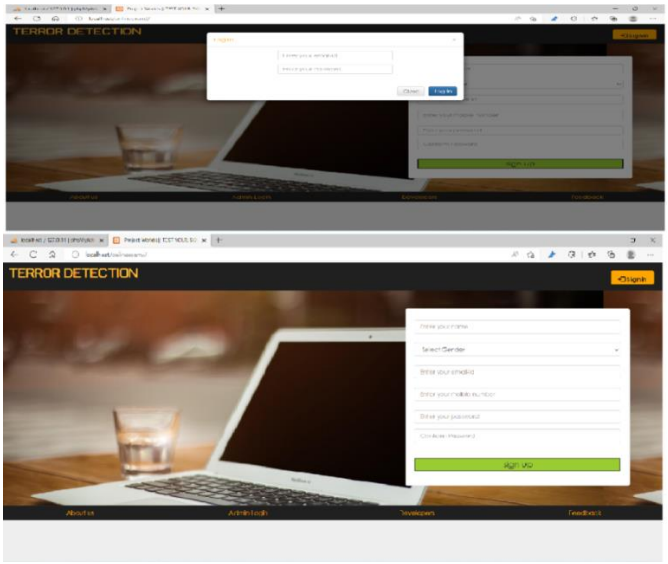

Figure-3: Registration and login page

Figure-4: Provision of URL of the website

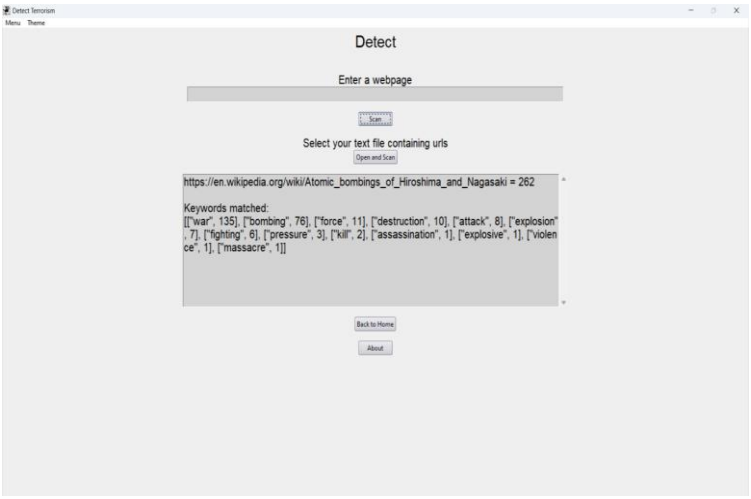

Figure-5: Results

VI. CONCLUSION

We require a system that can identify websites that support terrorism in order to contain the threat of terrorism and eliminate the internet presence of such dangerous websites. This system would serve as a warning to people to avoid falling victim to terrorist organizations.

However, because this system is accessible to law enforcement, the security department, and the general public, anybody can use it to immediately identify websites that support

terrorism and can report those websites to the police without the assistance of security agencies. Additionally, OTDS makes it simpler for security agencies to complete their job. Additionally, it aids in lowering government spending on hiring special forces for online terrorist analysis.

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