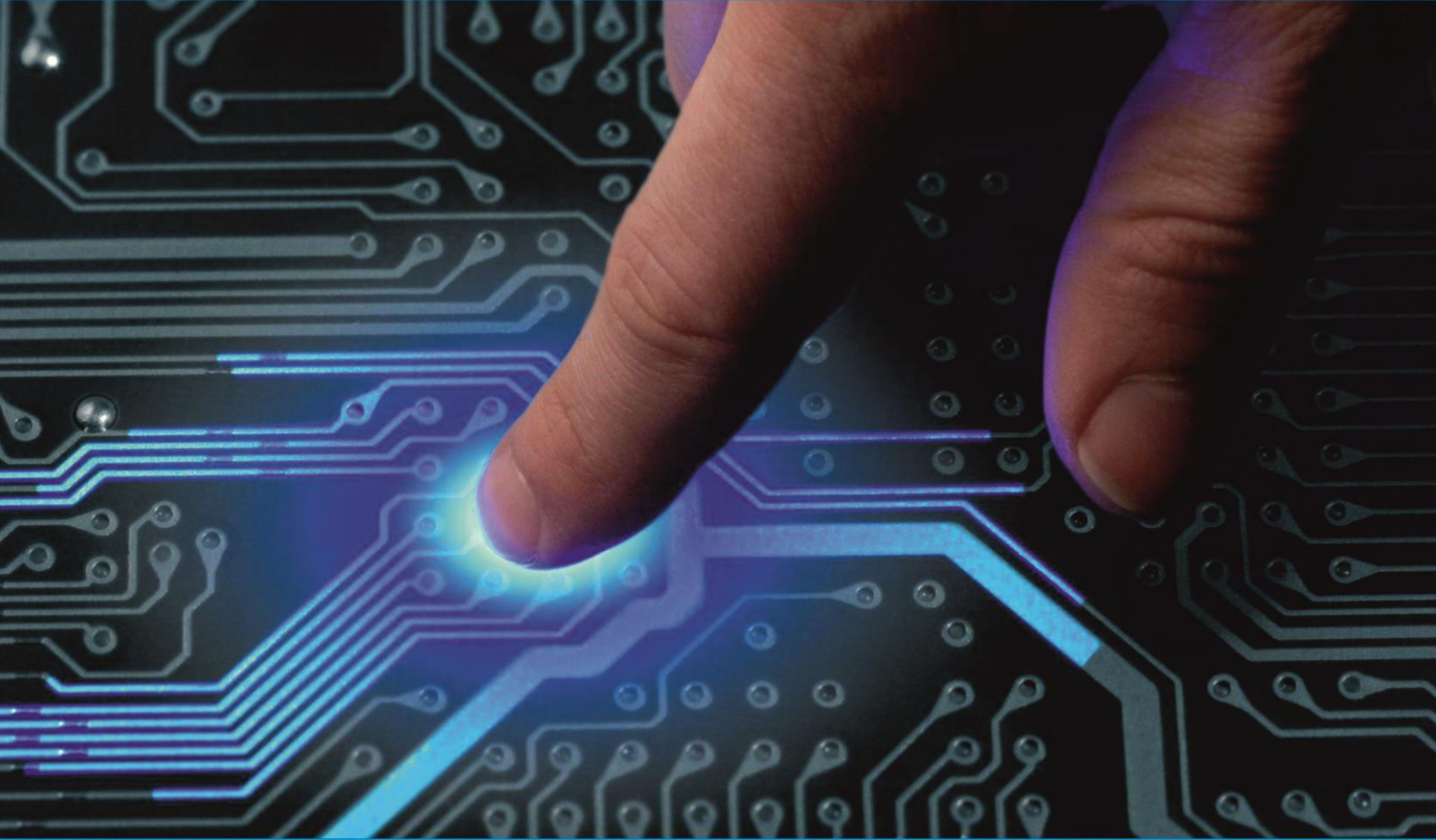




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# Classification of Terrorism Commotion Using Machine Learning Technique

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**ABSTRACT:** Terrorism throughout the world is called as global terrorism, is probably the worst crime that ever exists. Terrorism affects human beings individually whether it aimed directly to them or people around them. As a result, people lose their lives, family and livelihood. The government has stepped up security to try and stop these disasters, but it has been difficult. The purpose of the work is to predict the success rate of the terrorist attack given a set of input features. Tried to look for the data sources for all the issues and found readily available data for global terrorism that would supplement this analysis. In this system Spyder is the tool used, some libraries are used called NumPy, Pandas, and Seaborn etc. The methodology of the work consists of collection of data, data pre-processing, and implementation of algorithm, data classification and data visualization. More than 100 variables which are structured will characterize each attack's location, tactics and weapons, targets, perpetrators, casualties and consequences, and general information such as definitional criteria and links between coordinated attacks. The main aim is the avoid damages caused by future terrorist attacks. Gaussian Naïve bays Algorithm is used here for the classification of success rate of the terrorist attacks which gives the 97.46 percentage of accuracy rate.

**KEYWORDS:** GTD: Global Terrorism Database, Data Visualisation, Terrorism pattern, Success rate  
This paper is divided into Introduction, literature survey, proposed model and results.

## I. INTRODUCTION

One of the important evil for today's civilization is terrorism. Terrorism not only disturbs the law and order situations in a society but also affects the quality of lives of human beings, Terrorism that occurs throughout the world is known as global terrorism, is probably the worst type of crime that ever exists. Terrorism will affect the people individually whether aimed directly to them or people around them. As a result, people lose their lives, family and their livelihood.

The government stepped up much security to try and stop these disasters, but it has been difficult. The purpose of the work is to predict the success of the terrorist attack given a set of input features. Tried to look for data sources for all the issues and found readily available detailed data for global terrorism that would supplement this analysis. This model can be incorporated using Machine learning concepts with which the success rate of the global terrorism can be analysed, through this classification model the future terrorist attacks can be controlled and the damages caused in countries can be avoided. The analysis is done using Machine learning algorithms.

The purpose of this work is to predict the success of the terrorist attack given a set of input features. With details on much dimensions of each attack, the GTD (Global Terrorism Database) familiarizes analysts, policymakers, journalists and scholars with terrorism pattern. The database sourced by unclassified media articles contains information on multiple dimensions of each event. More than 100 variables which is structured will characterize each attack's location, tactics and weapons, targets, perpetrators, casualties and consequences, and general information such as definitional criteria and links between coordinated attacks, by the usage of these things the success rate of the terrorism can be analysed

## II. LITERATURE SURVEY

M. Luan, D. Sun, Z. Li [1] discussed about, with the development of global counter-terrorism, the structure of terrorist organizations has gradually changed from the traditional hierarchy to the covert network.

M. Luan, D. Sun and Z. Li in this [2]"Terrorism Risk Prediction Model Based on Support Vector Machine Optimized by Whale Algorithm," Explained, To realize the short-term prediction of regional terrorism risk index, this paper proposes a terrorism risk prediction model based on support vector machine (SVM)

A. Saad and A. Alhumaid, [3] explains how terrorist groups use social networking media to attract and recruit new members and also tells about Social Networking Media (SNM) which has crucial role to play as communication technology to disseminate terrorism across the world.

Herman et al in this paper [4] tells about Current technological developments spur the application of pattern recognition in various fields, such as the introduction of signature patterns, fingerprints, faces, and handwriting.

J. Wang, S. Hazarika, C. Li and H. Shen, in [5] tells about the lack of reflections on essential commonalities and systematic overview of those types of works prevents visualization researchers from identifying new or unsolved problems and planning further developments.

M. J. Samonte, H. J. Bacer, R. P. Ramirez and J. J. Tuballa [6] tells about Data Visualization designed to help for digesting information very easier with graphical images instead of plain text, numbers and also there is descriptive analysis corresponds on each data presented on visualization tool.

K. Bhatia, B. Chhabra and M. Kumar, in [7] tells about Data Analysis of Various Terrorism Activities Using Big Data Approaches on Global Terrorism Database and the field of data science is getting wide day by day and more areas are using this concept.

Abadie, Alberto in "Global Terrorism" [8] tells Terrorism is an escalating global agitation over the years despite the development. Attacks of 9/11, discipline of terrorism, seen tremendous extension and also acquired attention from world-wide divergent communities.

Erin Miller in [9]"Terrorist Attacks against Religious Targets in the United States" The National Consortium for the Study of Terrorism and Responses to Terrorism between 1970 and 2017, 150 terrorist attacks took place in the United States targeted the religious figures and institutions. In these fifteen attacks were lethal.

Abrahms, Max's "Why Terrorism Does Not Work. International Security 31" [10] this is the first article to analyse a large sample of terrorist groups in terms of their policy effectiveness. This includes foreign terrorist organization (FTO) which is designated by U.S. Department of State since 2001

From [1-10], the various technical details to build the system is understood and the important modules that can be developed is studied.

The next section gives the details of the proposed model.

## III. PROPOSED MODEL

The purpose of this work is to predict the success rate of the terrorist attack given a set of input features. The Global Terrorism Database contains more than 190,000 international terrorist attacks that occurred worldwide since 1970. With details on much dimensions of each attack, the GTD familiarizes policymakers, analysts, scholars, and journalists with the terrorism pattern.

This model can be incorporated using Machine learning concepts with which the success rate of the global terrorism can be analysed using Gaussian naïve bays algorithm, every analysis are represented through graphical representation using python plotting library 'matplotlib' through this classification model the future terrorist attacks can be controlled and the damages caused in countries can be avoided. The work includes four modules for Development of a prediction system for terrorism. The modules are Datacollection and preprocessing, implementation of algorithm, analysis of the implementation, visual representation of the prediction result.

**WORK FLOW**

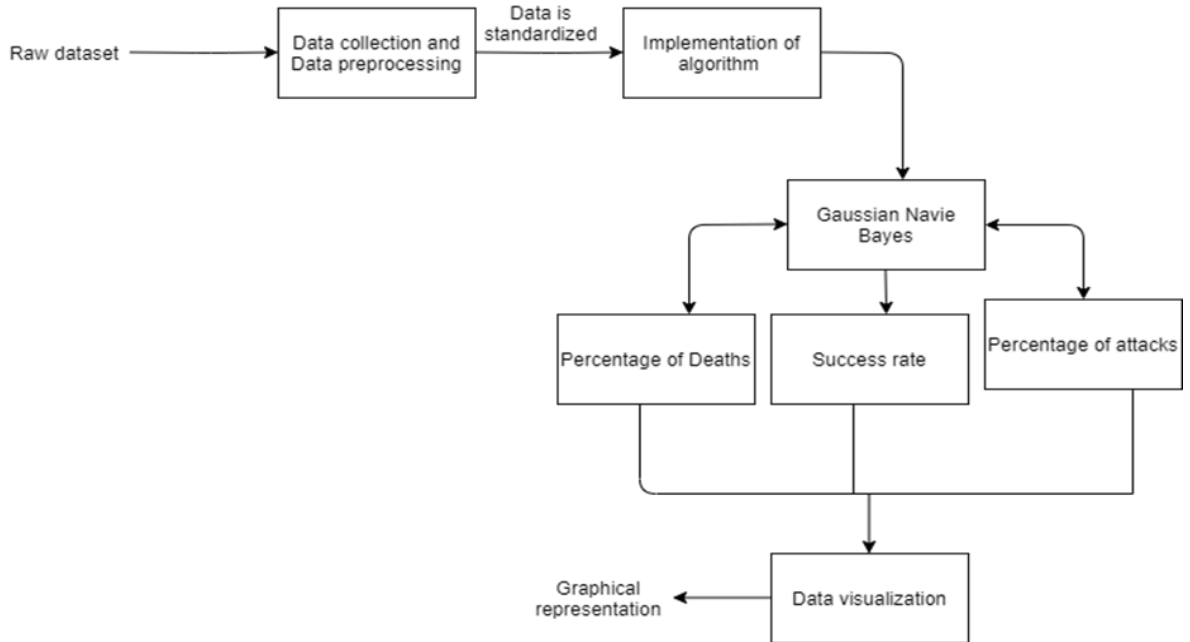
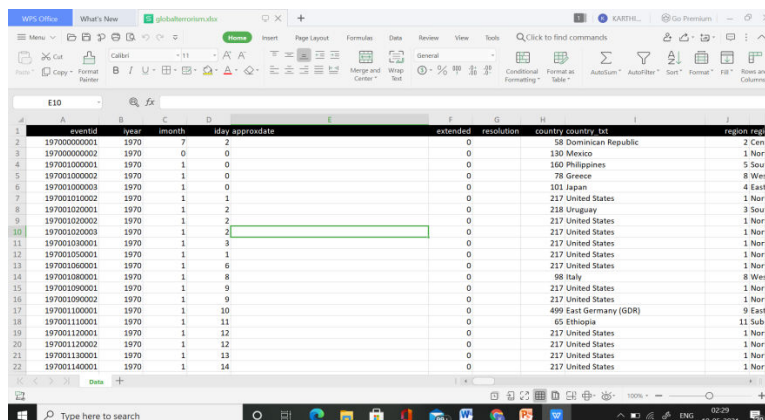


Figure: 1 Block diagram

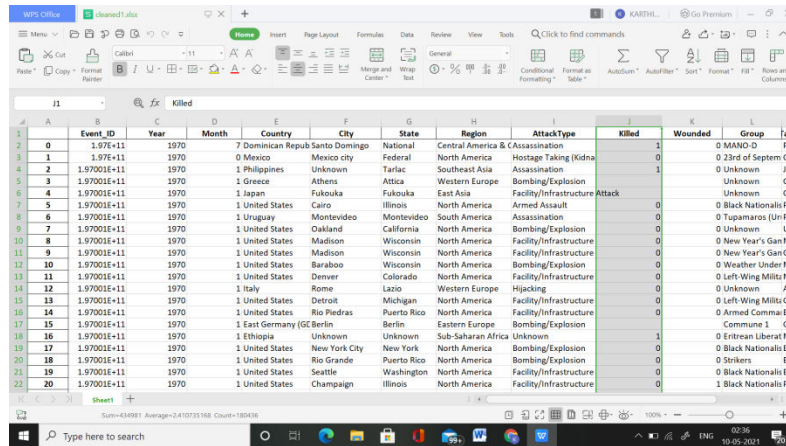
**PHASE 1:** Data structuring and Data pre-processing is mainly of handling null values and standardization of data like arranging the fields of data set in an ordered way here the input will be Raw dataset and the output will be preprocessed, the main function is preparing the raw data and making it most suitable for a machine learning model. It is the first, crucial step while creating a machine learning model



eventid	year	month	day	approxdate	extended	resolution	country	country_ext	region	reg2
19700000001	1970	7	2	0	0	0	22	Dominican Republic	2	Cent
19700000002	1970	0	0	0	0	0	130	Mexico	1	Nor
197001000001	1970	1	0	0	0	0	160	Philippines	5	Sou
197001000002	1970	1	0	0	0	0	78	Greece	8	Wes
197001000003	1970	1	0	0	0	0	101	Japan	4	East
197001010002	1970	1	1	1	0	0	217	United States	1	Nor
197001020001	1970	1	2	2	0	0	218	Uruguay	3	Sou
197001020002	1970	1	2	2	0	0	217	United States	1	Nor
197001020003	1970	1	2	2	0	0	217	United States	1	Nor
197001030001	1970	1	3	3	0	0	217	United States	1	Nor
197001050001	1970	1	5	5	0	0	217	United States	1	Nor
197001060001	1970	1	6	6	0	0	217	United States	1	Nor
197001080001	1970	1	8	8	0	0	98	Italy	8	Wes
197001090001	1970	1	9	9	0	0	217	United States	1	Nor
197001090002	1970	1	9	9	0	0	217	United States	1	Nor
197001100001	1970	1	10	10	0	0	499	East Germany (GDR)	9	East
197001110001	1970	1	11	11	0	0	65	Ethiopia	11	Sub
197001120001	1970	1	12	12	0	0	217	United States	1	Nor
197001120002	1970	1	12	12	0	0	217	United States	1	Nor
197001130001	1970	1	13	13	0	0	217	United States	1	Nor
197001140001	1970	1	14	14	0	0	217	United States	1	Nor

Figure 2: Raw Data set

Collected from a Global terrorism Database, This documents more than 190,000 international terrorist attacks occurred worldwide since 1970. With details on much dimensions of each attack, the GTD familiarizes analysts, policymakers, scholars, and journalists with terrorism pattern.



Event_ID	Year	Month	Country	City	State	Region	AttackType	Killed	Wounded
0	1.97E+11	1970	Dominican Repub	Santo Domingo	National	Central America &	Assassination	1	0
1	1.97E+11	1970	Mexico	Mexico city	Federal	North America	Hostage Taking (Kidna	0	23rd of Septem
2	1.97001E+11	1970	Philippines	Unknown	Tarlac	Southeast Asia	Assassination	1	0
3	1.97001E+11	1970	Greece	Athens	Attica	Western Europe	Bombing/Explosion	0	Unknown
4	1.97001E+11	1970	Japan	Fukouka	Fukouka	East Asia	Facility/Infrastructure	Attack	0
5	1.97001E+11	1970	United States	Caro	Illinois	North America	Armed Assault	0	0
6	1.97001E+11	1970	Uruguay	Montevideo	Montevideo	South America	Assassination	0	0
7	1.97001E+11	1970	United States	Oakland	California	North America	Bombing/Explosion	0	0
8	1.97001E+11	1970	United States	Madison	Wisconsin	North America	Facility/Infrastructure	0	0
9	1.97001E+11	1970	United States	Madison	Wisconsin	North America	Facility/Infrastructure	0	0
10	1.97001E+11	1970	United States	Baraboo	Wisconsin	North America	Bombing/Explosion	0	0
11	1.97001E+11	1970	United States	Denver	Colorado	North America	Facility/Infrastructure	0	0
12	1.97001E+11	1970	Italy	Rome	Lazio	Western Europe	Hijacking	0	0
13	1.97001E+11	1970	United States	Detroit	Michigan	North America	Facility/Infrastructure	0	0
14	1.97001E+11	1970	United States	Rio Piedras	Puerto Rico	North America	Facility/Infrastructure	0	0
15	1.97001E+11	1970	East Germany	GC Berlin	Berlin	Eastern Europe	Bombing/Explosion	0	0
16	1.97001E+11	1970	Ethiopia	Unknown	Unknown	Sub-Saharan Africa	Unknown	1	0
17	1.97001E+11	1970	United States	New York City	New York	North America	Bombing/Explosion	0	0
18	1.97001E+11	1970	United States	Rio Grande	Puerto Rico	North America	Bombing/Explosion	0	0
19	1.97001E+11	1970	United States	Seattle	Washington	North America	Facility/Infrastructure	0	0
20	1.97001E+11	1970	United States	Champaign	Illinois	North America	Facility/Infrastructure	0	0

Figure 3: Preprocessed data set.

Figure 2 depicts the raw data set which was collected from the Global terrorism database ,It is been preprocessed by handling null values and arranging attributes in a proper way by using pandas library Figure 3 is a preprocessed data set

**PHASE 2:** Implementation of algorithm is done to get the analysis of percentage of deaths, percentage of Terrorist attacks in each countries and prediction of success rate,the input willStandardized data set and the output will be prediction of success rate the function of this Module will be likelearning target function (f) that maps input variables (X) to an output variable (Y).

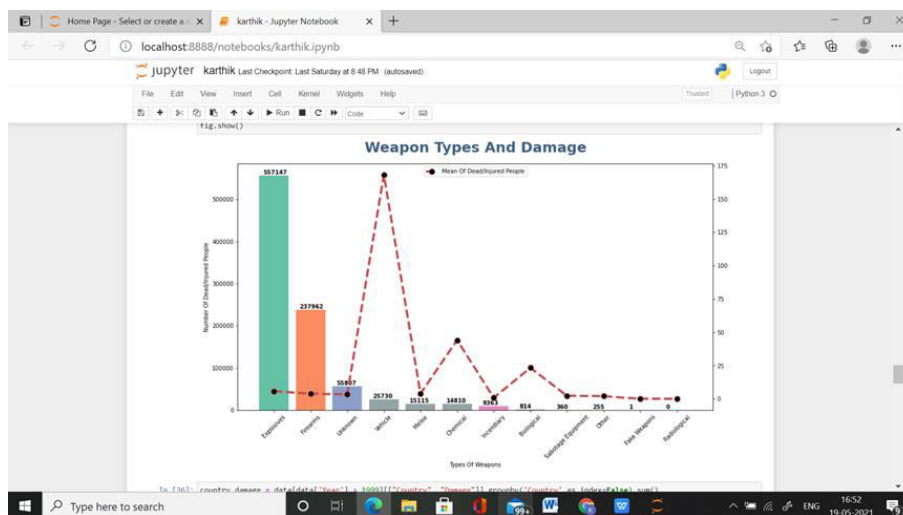


Figure 4: Weapon Types and Damage.

Figure4 represents the analysis of weapon types used for attacks and the damages and deaths caused by those weapons.

**PHASE 3:**Data Classification and Data visualizationis done to get the analysis of percentage of deaths, percentage of Terrorist attacks in each countries and prediction of success rate and represent it with the graphical representation the input will be classified data set and the output will be graphical representation

the function will berepresentation of data or information in a graph, chart, or other visual format. It communicates relationships of the data with images.

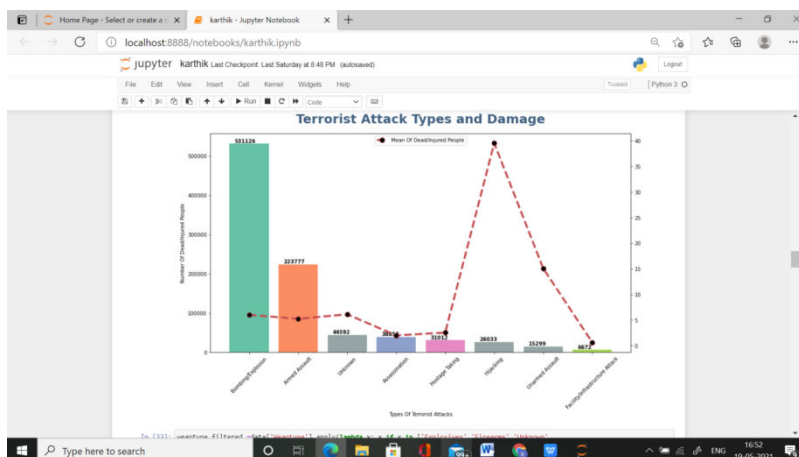


Figure 5: Terrorist attack type and damage

Figure5 represents the analysis of the terrorist attack types like bombing explosion and armed assault etc, has happened and the damages, deaths caused by those attacks.

#### IV. CONCLUSION

This paper shows the implementation of machine learning technique for prediction of success rate of terrorist attacks using Global terrorism Data Base which consists of 190,000 international terrorist attacks that occurred worldwide since 1970 to control damages that could be happen in future and to avoid the future terrorist attacks The predictions in this work are done mainly for familiarizing the analysts, policy makers, scholars and journalists with patterns of terrorism. The main aim is to control the future terrorist attacks and try to avoid the damages that could be caused by attacks in future

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