MEDICINE USAGE ANALYSIS OF THE CITY

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Abstract: Drug use is a complicated and widespread problem that has an impact on people and communities all around the world. It is essential to examine drug use patterns, spot high-risk locations, and comprehend the implications for social welfare and public health in order to successfully manage this societal dilemma. This study intends to provide a thorough examination of drug usage data in a particular city, using a variety of analytical tools to produce significant findings. The study makes use of a broad dataset that includes social indicators, criminal justice records, demographic data, and occurrences involving drugs. To guarantee data quality and consistency, the dataset is put through rigorous data preprocessing, cleansing, and integration processes. To locate a target, descriptive statistics, data visualization, and sophisticated analytics methods like clustering and predictive modeling are used.

Keyword:Socialindicators,consistency,visualization,descriptive statistics, societal dilemma.

I. INTRODUCTION

Drug use is a complicated and varied problem that presents serious difficulties for people on their own, in families, in communities, and in society at large. Drug abuse has wide-ranging social, economic, and legal ramifications in addition to affecting people's physical and mental health. Gaining a thorough grasp of drug consumption patterns in a particular city and looking into the underlying causes of its prevalence are crucial for effectively combating this issue.

Finding insights and trends in vast and varied datasets depends heavily on data analysis. We can discover high-risk areas, susceptible people, and temporal trends by evaluating data on drug use. By using this data, tailored treatments, policies, and programs that aim to effectively address the problems caused by drug misuse can be developed.

This study's goal is to undertake a thorough and in-depth analysis of drug usage statistics in a certain city. the types of drugs used, the demographics of drug users, and the geographic distribution of drug users will all be examined as part of the investigation.

The distribution of drug-related incidents and the relationship between drug use and factors affecting social status like work.

II. RELATED WORKS

According to the Ministry of Public Health's (MOPH) road map for the National Health Information Center (NHIC), the research intends to examine the current hospital information system (HIS) and its resources in the eighth health area. Health provider levels from the primary care unit (first-level hospital) up to the provincial hospital (advance-level hospital) were evaluated by P. Soontornpipit, C. Taratep, and W. Teerawat in order to ascertain the functions and flows between each system module for data interconnect and exchange.[1]

According to NoemieElhadad, social networks are a significant source of customer reviews for almost all goods and services. Instead of visiting social communication channels, users frequently trust social networks to disclose rare real-incidents[2].

Prediction of the future is the single best method for boosting business performance. JaringanSyarafTiruan (JST) can use this method, which was developed by F. Pakaja, A. Naba, and Purwanto, to compare the differences between the present and future in terms of needsNumerous foreign visitors have traveled to Bali, which serves as the epitome of Indonesian tourism. Bali is one of the provinces that gives Indonesia a significant amount of foreign currency[3].

The implementation of the ASEAN Economic Community, which leads to more intense competition among ASEAN nations, notably in the tourism sector, could jeopardize this potential, according to W. O. Vihikan, I. K. G. Darma Putra, and I. P. A. Dharmaadi[4].

Both traditional and contemporary deep learning models are covered in this book. The theory and algorithms of deep learning are the main topics of discussion. The theory and algorithms of neural networks are very crucial for comprehending crucial ideas, so that one can comprehend the crucial design ideas of neural architectures in various applications, as stated in C. C.

Aggarwal's textbook Neural Networks and Deep Learning. 2018 Springer [5].

Machine learning deals with the issue of how to create computers that develop automatically with use. The convergence of computer science and statistics, as well as the foundation of artificial intelligence and data science, make it one of the technical domains with the fastest growth rates today. Machine learning has advanced recently as a result of the creation of new learning theories and algorithms as well as the continual explosion in the accessibility of online data and low-cost processing. According to Jordan MI and Mitchell TM, the adoption of data-intensive machine-learning techniques has spread throughout science, technology, and business, promoting more evidence-based decision-making in a variety of fields such as healthcare, manufacturing, education, financial modeling, law enforcement, and marketing. [6].

Popular temporal-difference reinforcement learning algorithm Q-learning frequently uses lookup tables to explicitly record state variables. Although it has been demonstrated that using this approach will lead to the best outcome, it is frequently advantageous to estimate state values using a function-approximation system like deep neural networks. Q-learning has been found to be unstable in the past by Y. LeCun, Y. Bengio, and G. Hinton[7].

when utilizing value function approximation or when working in a stochastic environment.Artificial neural networks (ANNs) are comparatively new computational techniques that have been widely used to address a wide range of challenging real-world issues. The extraordinary information processing qualities of ANNs, including nonlinearity, high parallelism, fault and noise tolerance, and learning and generalization skills, are what make them so appealing. M. Hajmeer and Basheer[8].

The majority of machine learning models are still black boxes despite their broad deployment. However, judging trust, which is essential if one expects to act on a forecast, or deciding whether to deploy a new model, requires an understanding of the motivations underlying predictions. A trustworthy model or forecast can be created using these insights into the model, which can also be utilized to change an unreliable model or prediction. Jaakkola T., Barzilay R., and Lei T.[9].

Google Flu Trends (GFT) generated headlines in February 2013, but not for the reasons that Google executives or the system's developers had hoped. Vespignani A., Kennedy R., Lazer D., and King G. [10].

III. EXISTING SYSTEM

Studies on pharmacovigilance, smoking cessation patterns, finding client groups of friends with regular interactions (such pharmaceutical abuse), analyzing malpractice, recognizing inexorable disease propagation, and other topics have all recently been published in this subject. We now lack tools to measure, analyze, and forecast drug usage in the city over time and across numerous metrics, as well as programs that manage actual sales data of pharmaceuticals dispensed around the city.

IV. PROPOSED WORKS

In this paper, It contains a machine learning-based system model for handling medical datasets. This conference was organized with the aim of bringing together experts who have investigated automated methods for collecting, extracting, presenting, analyzing, and approving web-based life data for epidemiological and social research projects as well as general welfare reconnaissance and surveillance. It offers a unique environment for examining cutting-edge data processing techniques and information mining procedures that are tailored to the specific requirements of online living and can be essential for general health research. This technology examines actual sales data from medications sold throughout the city and performs additional analysis while projecting drug usage in the city over time.

V.DATA SET AND TOOLS USED

Tools Used
Anaconda Navigator

Boa constrictor Navigator is a work area graphical UI (GUI) remembered for Anaconda® dispersion that permits you to dispatch applications and effectively oversee conda bundles, conditions, and channels without utilizing order line orders.

Tkinter
Tkinter is a Python authoritative to the Tk GUI toolbox. It is the standard Python interface to the Tk GUI toolkit and is Python's true standard GUI.

Data set

The data set is created by own,This data set cantains patient name, medicine name,diseasename,gender,address.

Fig 1 :Data set for drug usage data anaylsis

VI.METHODOLOGY

Figure 1 depicts the stages taken in this assignment, starting with the creation of the dataset and ending with the acquisition of findings.
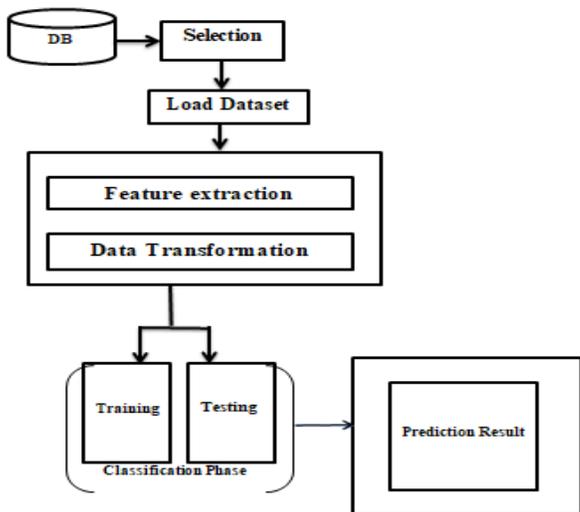

Fig 2 : System Architecture of Drug Usage

VII. IMPLEMENTATION

KNN(K-NearestNeighbor);

KNNisanon-parametric algorithmthatcanbeusedforclassificationorregressiontasks.Itis a lazy learning algorithm, which means it does not have a specific training phase, but rather memorizes the training dataset.

The K-NN working can be explained on the basis of the below algorithm:

Step-1: Select the number K of the neighbors.

Step-2: Calculate the Euclidean distance of K number of neighbors

Step-3: Take the K nearest neighbors as per the calculated Euclidean distance.

Step-4: Among these k neighbors, count the number of the data points in each category.

Step-5: Assign the new data points to that category for which the number of the neighbor is maximum.

Step-6: Our model is ready.

DecisionTree:

ADecisionTreeisasupervisedlearningalgorithmusedforclassificationandregressiontasks.Itcreatesatreelikemodelofdecisionsandtheirpossibleconsequences.Thealgorithmdivides the data set into smaller subsets based on the attributes, which results in a tree-like structure.

The complete process can be better understood using the below algorithm:

Step-1: Begin the tree with the root node, says S, which contains the complete dataset.
Step-2: Find the best attribute in the dataset using Attribute Selection Measure (ASM).
Step-3: Divide the S into subsets that contains possible values for the best attributes.
Step-4: Generate the decision tree node, which contains the best attribute.
Step-5: Recursively make new decision trees using the subsets of the dataset created in step-3. Continue this process until a stage is reached where you cannot further classify the

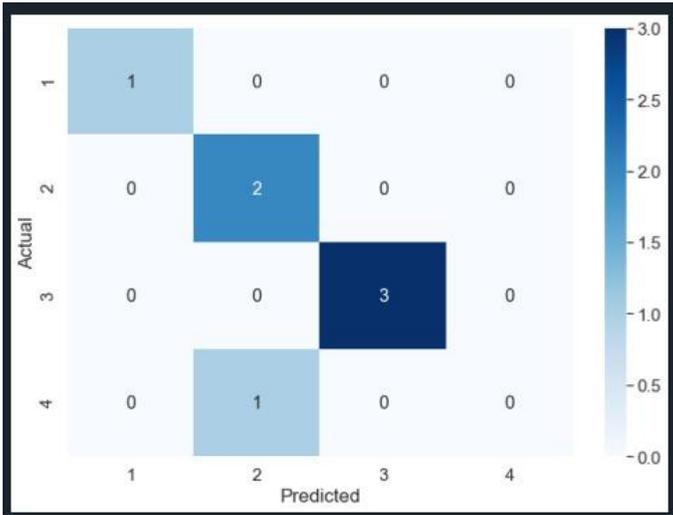nodes and called the final node as a leaf node.

Fig 3 : Confiusion Matrix of Drug Usage

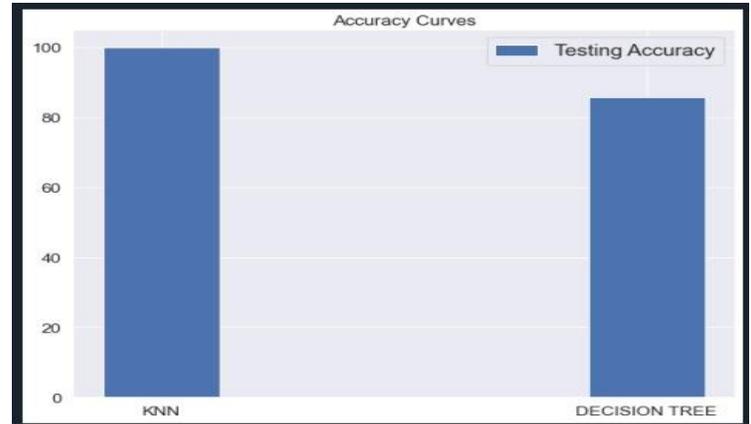**Fig 4 : Accuracy of KNN and Decision Tree**

Fig 5 :Testing accuracy using KNN and Decision Tree Alogorithm
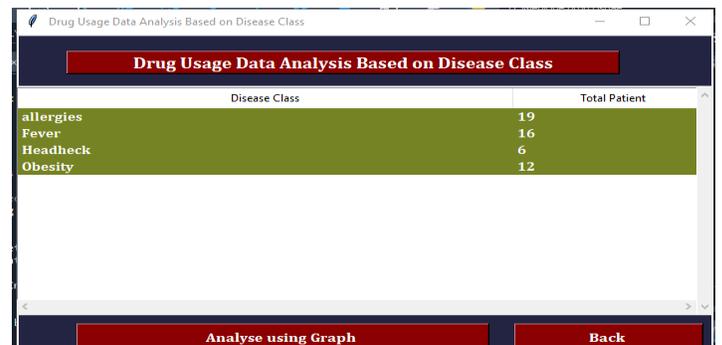
VIII. RESULTS

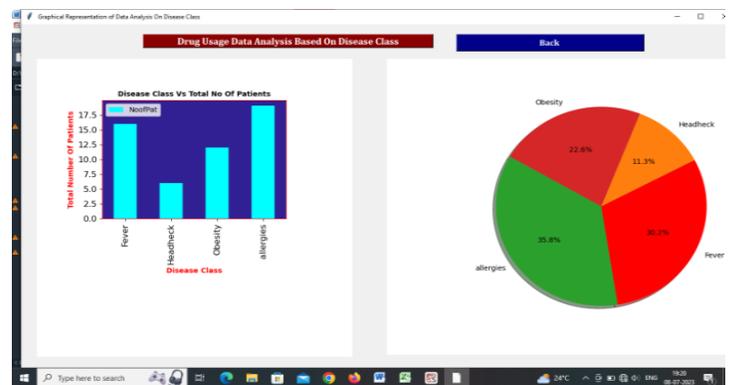**Fig 6 : Drug Usage Data Analysis Based on Disease Class**

Fig 7 : Disease Class Analyse Using Graph

IX. CONCLUSION AND FUTURE SCOPE

Studies on pharmacovigilance, smoking cessation patterns, finding client groups of friends with regular interactions (such pharmaceutical abuse), analyzing malpractice, recognizing inexorable disease propagation, and other topics have all recently been published in this subject. We now lack tools to measure, analyze, and forecast drug usage in the city over time and across numerous metrics, as well as programs that manage actual sales data of pharmaceuticals dispensed around the city. The findings of this study aid in our understanding of the city's drug use landscape by identifying high-risk areas, at-risk populations, and significant risk factors. The evaluation has shed light on the complex linkages between socioeconomic variables, including income, education, and employment, and drug use patterns, highlighting the need for targeted therapies that address social determinants. Iterative Analysis: carrying out extensive study to track changes in drug use trends over time and identify emerging trends.

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