Identification Of Drug Addiction By Implementation Of An Expert System Using Machine Learning Algorithm

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ABSTRACT: The key enabler of all the diseases is drug addiction. The individual who uses drugs is dependent upon different ailments. Only fewpeople refuse to take drugs, while many of the teens are curious about using drugs. The reason is to build up a specialist framework (Expert system) that can anticipate whether the individual is dependent on drugs or not. In Artificialintelligence, an expert system is a specialist in logic, development and management, capable of advising, instructing man in the prize of the decision, of the demonstration, of the explanation, of the results and of the conclusion. It uses reasoning procedures to solve difficult problems by using a set of complex mathematical equations.Expert systems are understandable and highly sensitive.

The Expert system is utilized in numerous fields, for example, finance, agriculture, education, computer design, and so on. But medicine is the most mainstream field that assists specialists with forestalling and fix of powerless sicknesses early, for example, heart diseases, skin cancer, lung disease, diabetes and some more. Here an Expert system is created utilizing the decision treealgorithm ID3, which is a psychological test that contains in excess of 65,000 guidelines, which separates the low, moderate and extremecondition of the client dependent on the test in which to react.

INTRODUCTION:

Drugs are one of the leading social eaters, trapping adults to school children in today's world. A drug is a chemical that affects a person's body. When it is introduced into the body, it modifies the function of the body, physically or psychologically. Sometimes, it can even cause a permanent disorder. People take drugs to change something in their life. Some of the reasons that encourage drug users are to feel good, to feel better at work or school, to relax, to alleviate boredom, to experiment, to flee from problems, to integrate themselves out of curiosity. The latter is common among teenagers. People think that drugsare the only solution to their problems. But eventually, the drug becomes the problem. Theydo not solve the problems, but they cause other problems that the person was facing up to that moment.

Someone who uses drugs becomes dependent on them, or addicted. The body of the person becomes so habituated that he cannot live without having it. The urge is too strong to control, you want to stop taking it, but you can't. Addiction is a perplexing malady that influences your mind and conduct. It is one of the interminable mental issues that outcomes in a habitual conduct to look for and devour sedate. Asindicated by recent statistics, around 15 percent of the world is dependent with some kind of drug. Problems at home, mental health problems, problems at school or at work, around drug addicts are some of the reasons that make people more likely to become addicted. The use of drugs for a long time can harm your judgment, decisionmaking, memory and learning ability. Individuals of any age endure the unfavorable results of drug use. Teens that use drugs may perform poorly in school or drop out. In teens where the adolescent brain is not fully developed, is affected by the use of drugs which increases the probability of neurological failure. The brain will be still developing so using drugs may cause changes inbrain and puts user at risk.

The use of drugs in adults deteriorates social behavior, job performance and increases conflicts in personal relationships. The utilization of drugs by guardians means homes loaded with worry, just as misuse and disregard of youngsters. Such conditions can influence the prosperity and improvement of youngsters in the home. Infants presented to drugs in the womb might be conceived prematurely and with low birth weight. This exposure can diminish the child's ability to learn and influence their behavior later in life.

LITERATURE SURVEY:

The use of drugs and the consequences for health are more serious among the youngest. Overviews on drug use show that the degree of drug use among youngsters is more noteworthy than that of old grown-ups. Most extreme degrees of drug use are seen in individuals matured 18 to 25 years. Cannabis is a drug of choice for youngsters. As indicated by WHO, in 2015, around 4,50,000 individuals died because of drug use. Of these deaths, 1,67,750 were legitimately connected with drug overdose. As indicated by the2016 World Drug Report, there were 192 million cannabis users, 34 million narcotic users, 18 million cocaine users around the globe. In England and Wales, the yearly commonness of drug use was

higher among the youngsters matured 20-24 years for all types of drugs between 2016 and 2017. For individuals matured 45 years or more, the yearly prevalence of drug use was low. Cannabis use is higher among individuals under 35 years old. The solid increment in handicaps, mental issue and deaths are because of the nearness of drugs in the body.In 2016, 63,632 individuals died because of drug overdose in the United States. Total overdose deaths increased by 21 percent from 2015 to 2016 in the United States. This increase was mostly dueto the involvement of opioids. There was a 73 percent increase in overdose deaths in British Columbia, Canada in which fentanyl was detected from 2016-2017.
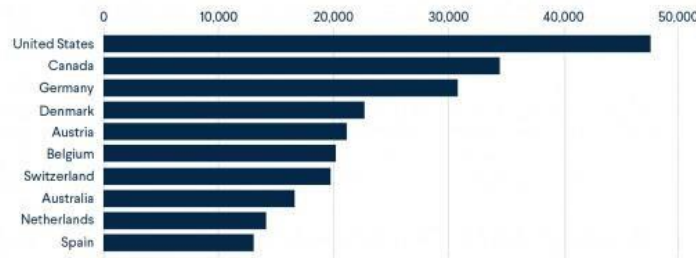

Fig. 1. Countries consuming the most Opioids (permillion people 2015)

Around the world, 11 million individuals infused drugs in 2017, of whom 1.4 million live with HIV and 5.6 million with hepatitis C. Opioids are answerable for 66 percent of the 585,000 individuals who died because of drug use in 2017.

The 2018/19 Crime Survey of England andWales (CSEW) shows that around 1 of every 11 (9.4 percent) grown-ups matured 16 to 59 hadtaken a drug in the most recent year, which compares to around 3.2 million individuals. The example in the degree of 16 to 59 old's taking a drug in the latest year was tolerably level some place in the scope of 1996 and 2003/04, trailed by little year-on year reduces until 2007/08. Since the2009/10 audit, the degree of taking a drug in the latest year has remained commonly level, with the regularity check staying some place in the scope of 8.2 and 9.4 percent. The 2018/19 measure resembles 10 years, harking back to the 2008/09 CSEW (9.9 percent) and the 2007/08 CSEW (9.4 percent), yet it is lower than all investigation quitea while before 2007/08 [6] as shown in Fig. 1.
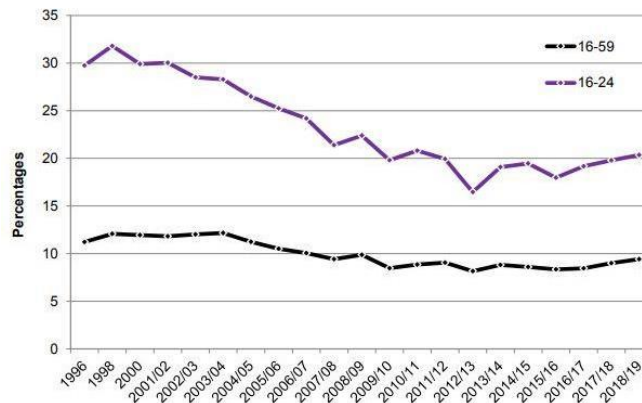

Fig. 2. Patterns in drug use in the most recent yearamong grown-ups, 16 to 59 and 16 to 24 year old's, 1996 to 2018/19

Several researchers and governments have been conducting research on drug addiction [8-11].In [2], the authors have proposed the use of artificial neural networks for identifying drug addict persons. A Decision Support System (DSS)is developed for detecting the drug abuse using Artificial Neural Network (ANN). The input layer includes 50 variables while the output layer contains one neuron which indicates whether the person is a drug addict [2]. In [3], the author has proposed the methods for identification on the basis of observable signs and symptoms. There areendless researches done on drugs stating its very important to control the drug usage among youth.

In this paper, we implement an expert system for identifying drug addicts using decision tree ID3 algorithm. In spite of the fact that there are many medication programs, it's still essential to assume responsibility for drugs. With the assistance of this specialist framework, an individual can test oneself to think about them in the event that they are dependent on drugs or not by responding to the inquiries in the test. Sometimes exceptions

like , a person may hesitateto test himself/herself or think that he/she may be lying, so in those cases the questions may also be answered by their family members or relatives.

EXPERT SYSTEM:

Expert systems (ES) are also known as knowledge based systems. It is an intelligent computer program that uses knowledge and reasoning procedures to solve difficult problems that require some experience to solve them.
The components of Expert system include- 1.Knowledge base – Data, information, pastexperiences are termed together as knowledge.
2.Inference engine- It provides guidelines on using the knowledge in expert system that manages and controls the steps needs for solving the problem and drives to a conclusion.
3.User interface – It provides communication between user and the Expert system.
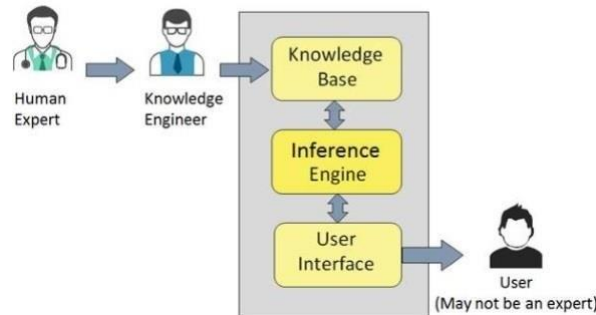

Fig. 3. Architecture of Expert System

METHODOLOGY:

Expert System is created utilizing the decision tree algorithm ID3. It is a psychical test that contains in excess of 65,000 standards that recognize the low, moderate and extremecondition of the client as indicated by the test to which he reacted. A survey of in excess of 100 inquiries to tranquilize addicts is readied as shownin Table 1. The survey proposed here is examined in a few rehabilitation centers, students, and so on.The gathered information enables you to choose the traits that generally influence.

Table. 1. Parameters for individual's independenton drugs

Parameters	Values
drug frequency daily	Once in a while
Is life more Enjoyable with Single drug	More than one drug
How much people aroundyou irritate you or make you aggressive	Little more
Any Accident Conflict with law while consuming drugs	Yes , No
Someone helped you get rid of this problem of taking drugs	Yes , No
Suffering from medical problems?	Yes , No
Drugs in life are?(Enjoyable, physicallyfit, relaxed, boring)	enjoyable

DECISION TREE ID3 ALGORITHM:

The ID3 algorithm is a non-incrementalalgorithm that is used to generate a decision tree from a data set given by a greedy top-down approach, to test each attribute in each node of the tree as shown in Fig. 4. The algorithm procedure is.

function ID3 (Input, Output, Data) {

/* Data refers to Training data*/

compute the information gain for each attribute inInput with respect to Data;

/* Gain refers to the value applied to the selectednode */

let H be the attribute with highest Gain(H, Data) of the attributes in Input; let hi|i = 1,2,..,n be the values of H; let Datai|i = 1,2,..,n be the subsets of Data

Separate the Data into arcs labeled h1, h2,..,hn, when Data is divided according to the value of H; return tree with the root node labelled H

In the event that all examples in Data are sure, thisoutcomes in SEVERE illicit drug use and shows "counsel the specialist" and halt.

In the event that all examples in Data are negative, you end up with feeble dependence on drugs i.e LOW habit, you have the assurance to quit utilizing them showing "you are in a verified hands to quit utilizing drugs" and halt.

Otherwise

In the event that examples in Data are both positive and negative, at that point bring about MODERATE dependence on drugs and show" you need assistance and   you   need   to   controlutilizing drugs" and halt.

}

IMPLEMENTATION:

Initially, an individual finishes the registration and that data is put away in the database. When enlisted or if the individual isenrolled, a client can rehash the test as shown in Fig 6. and Fig 7.

The test can be rehashed ordinarily as to date and time. During the test, certain arrangementof questions originate from a few elements to investigate the individual as shown in Fig 8. Contingent upon the alternatives finished in the test, the outcome leaves the calculation of the decision tree applied. The assessment outcomes are low, moderate and serious states finished by the client. Arrangement of questions test the client's brain science. Patient records are put awayin the database for future use as shown in Fig 9.
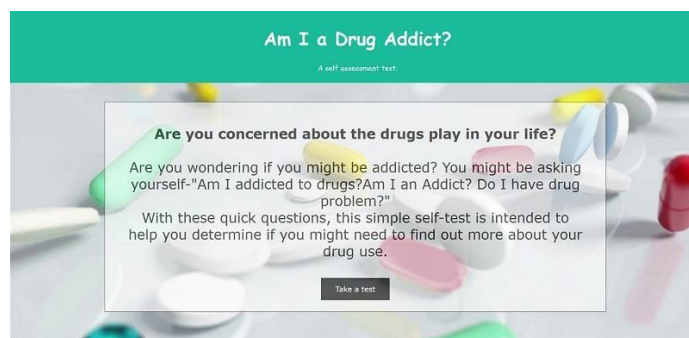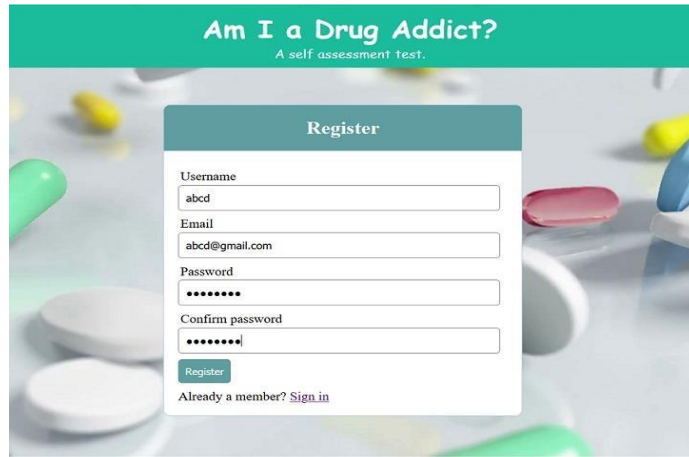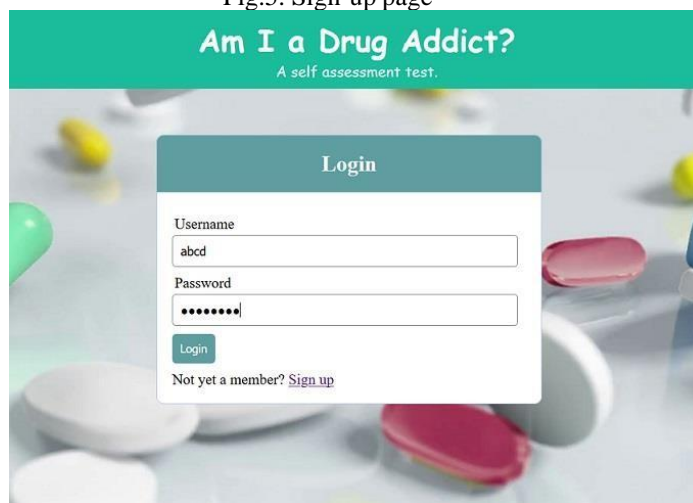

Fig. 4. Home page

Fig.5. Sign-up page

Fig.6. Sign-in page

Fig.7. Series of questionnaire

Fig.8. Result page

CONCLUSION AND FUTURE WORK:

One of the primary issues looked by relatives and scientists is to recognize an individual on the off chance that he is dependent on drugs or not. This can be accomplished throughspecific perceptions in the patient's body or responses to specific inquiries or changes in socialconduct; however, every one of these measures can likewise analyze different ailments, so it is difficult to distinguish individuals and requires more noteworthy exertion with respect to guardians, family members and scientists. In this way, the goal was to build up a expert system to recognize if an individual is dependent on drugs ornot.

Future work incorporates more algorithms can be applied and decision rules can be dealt with as it was a binary tree containing combinations. Such framework should be accessible online self- prediction and avoidance from being gotten into drugs.

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