Prediction on Global Warming

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Abstract— Global warming is an important issues all over the world those posses several effects on the environment. Several factors are responsible for global warming. One of the main issues is the release of carbon dioxide. In this paper, focussing on the aftermath factors (variables) on environment due to global warming. For this, classification and prediction technique is being used to classify the factors of global warming and then predict on future years in the atmosphere, and thereby affecting the environment.

Index Terms— Classification algorithms, Data mining , Global Warming, Prediction algorithms.

I. INTRODUCTION

Data mining has attracted lot of attention in the research industry and in society as a whole in recent years, due to enormous availability of large amount of data and the need for turning such data into useful information and knowledge. The objective of this paper is to analyze such data and to resolve environmental research issues.

Global Warming is an issue that keeps coming up recently with the increase of temperature and carbon dioxide level. Scientist believes that the main cause of this is because of the deforestation, pollution, carbon emission from transportation and factories that led to this global warming and climate change are terms for the observed century-scale rise in the average temperature of the Earth's climate system and its related effects.

Factors of global warming
Greenhouse gases
Variations in earth's orbit
Deforestation
Burning fossil fuels

Prediction technique has been a prior one technique to immolate the pattern of global warming. There are several factors of global warming, but out of them only highly potential factors are considered in this paper. Data sets on these factors have been formulated in such a way that the impact of each and everyone can beagglomerated together to predict the effects of global warming in future. Algorithms such as regression (linear regression, multi-linear regression, and non-linear regression), classification, and density estimate have been used for prediction. Using these algorithms, comparisons will be done to summarise the aftermath effect of these factors on the environment.

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II. LITERATURE REVIEW

Data mining, also called Knowledge Discovery in Databases (KDD), is the field of discovering novel and potentially useful information from large amounts of data. The idea behind this paper is educational data mining which is still in its infancy. In case of global warming, we studied several papers from which we came to certain results that are:

P. Kaur, M. Singh, G S Josan applied CHAID prediction model to analyze the interrelation between variables that are used to predict the slow learner in school education. The CHAID prediction model of student performance was constructed with seven class predictor variable. [13]

K KAKU show that approximation of baseline of GHG emissions and reduction on poultry and swine industries of ASEAN 8 countries by adoption of GHG reduction scenario as waste management system instead of conventional system on GHG reduction; the fluctuation of current benchmark price of GHG and show that the stable economic benefit could not be expected; and to show economic benefits that broiler and swine industry in ASEAN 8 countries as developing countries could expect. [12]

T-S Kwon, C M Lee, S-S Kim describe Prediction of abundance of beetles: In this study, a simple change in temperature will affect the abundance of beetles; they applied Quantitative prediction of abundance on the basis of temperature change; Statistical analysis is used on data set. [18]

T-S Kwon, C M Lee, J Park, S-S Kim, J H Chun ,J H Sung describe Prediction of abundance of ants in this study included a simple change in temperature and didn't consider competition between species. When the range of temperature in the existing statistical methods was estimated, it is different from the result obtained in this study. [19]

T-S Kwon, C M Lee, J Park, S-S Kim, J H Chun, J H Sung describes Prediction of abundance of spiders: They applied Quantitative prediction of abundance on the basis of temperature change; Take more than one species of spider distributed into three categories- increase, no change, decrease.[17]

P C Austin, E W Steyerbery provide a method to determine the number of independent variables that can be included in a linear regression model and focused on accurate estimation of regression coefficients, standard errors, and confidence intervals. In contrast, linear regression models require only two SPV for adequate estimation of regression coefficients, standard errors, and confidence intervals. [14]

H Wang, X Lua, P Xua, D Yuan provide the concept of CDHs/HDHs (cooling/heating degree hours) is introduced and weekly prediction models of total building power consumption are proposed by the way of multiple linear regression algorithm which is relatively simple and easy to understand. The prediction models are validated to have great accuracy and general applicability in the paper, offering reliable instructions to the building facility manager and relevant competent authorities in terms of decision making and policy implementation. [4]

A M Freije, T Hussain, E A Salman provided an information and increase awareness about three aspects of global warming including causes, impacts, and solutions; Therefore, the study has recommended integrating environmental concepts into the university curriculum for all students irrespective of their academic specialization in order to increase the environmental awareness.[1].

Reviewing all these papers, one thing can be estimated that the issue on global warming needs to be taken in a serious way and methods or techniques has to be developed to know global warming pattern better. This paper discuss on the factors that mostly affect the environment in a hazardous way. Predicting the patterns using the data set with prediction algorithms will certainly give an idea to the world that global warming is alarming issue that has to be taken in a concerning way. Most of the prediction techniques take into account only the temperature rise, but, this paper will focus more than that. Data set has to be categorised in a way that there can be separate results on separate factors of global warming that which can automatically gives everyone an idea on what to reduce and on what to take care of. One has to know what has to be stopped using and what not. This paper focuses on such agenda that will give results and will give a chance to redeem the nature and environment to being extinct.

III. METHODOLOGY

A. Proposed methodology

A survey cum experimental methodology is used. Through extensive search of the literature and discussion with experts on global warming effects, a number of factors that are considered to have influence on the effects of global warming are identified. These influencing factors are categorized as input variables. For this work, recent real world data is collected from online (World Development bank). This data is then filtered out using manual techniques. Then data will transform into a standard format. After that, features and parameters selection is identified. Then analysis of identified parameters and implementation will be performing on the tool. After implementation results will produced and analyzed. Stepwise description of methodology used is represented with the help of flowchart as shown in Fig 1
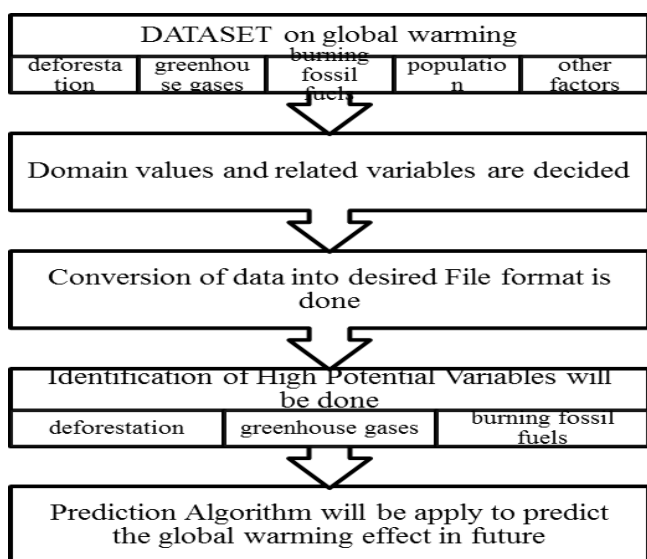

Fig 1. Flowchart of proposed work

IV. EXPERIMENTATION

A. Database

Use a numerical database in this experimental setup, collected the data from a various websites and converted that data into a relational database schema.

Factors	Years	Variables	
Greenhouse gases(co_2)	2001-2011	Domestic transport, End user level, Industries, Household waste, Burning fossil fuels	Road Rail Taxi Chemical
Deforestation	2001-2011	Not plantation, Whether, Population	Gross forest loss U N forest loss

Tab 1. Dataset on factors of global warming

B. Algorithms

In the survey many algorithms are used for the prediction which helps to predict the most influence factors that are affecting the environment. An algorithm in data mining is a set of heuristics and calculations that create a model from data. The mining model that an algorithm creates from data can take various forms, including classification, regression, prediction, density estimate, and association rule.

➢ Classification algorithms predict one or more discrete variables based on the other attributes in the dataset.
➢ Regression algorithms predict one or more continuous numeric variables, such as profit or loss, based on the other attributes in the dataset.
➢ Segmentation algorithms divide data into groups, or clusters, of the items that have similar properties.
➢ Association algorithms find correlation between different attributes in a dataset. The most common application of this kind of algorithms is for creating association rules, which can be used in a market basket analysis.
➢ Sequence analysis algorithms summarize frequent sequences or episodes in data, such as a series of clicks in a web site, or a series of log events preceding machine maintenance.

One of the above mentioned algorithms will be use for prediction.
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V. CONCLUSION AND FUTURE WORK

In this paper, classification techniques are used for prediction on the dataset of global warming, to predict and analyze factors affecting the environment as well most hazardous factors among them. This research helps everyone on what to reduce and on what to take care of. One has to know what has to be stopped using and what not. This paper focuses on such agenda that will give results and will give a chance to redeem the nature and wildlife environment to being extinct. This paper discuss on the factors that mostly affect the environment in a hazardous way. Predicting the patterns using the data set with classification algorithms will certainly give an idea to the world that global warming in alarming issue that

has to be taken in a concerning way, which further provide base for deciding special aid to them. In future, Integration of data mining techniques with DBMS and machine learning techniques is merged together on different datasets to find accuracy and predictions of desired results. Also, some new factors can be applied to improve lives, learning and retention capabilities among people. Hence the future of Global warming is promising for further research and can be applied in other areas like medicine, sports, education and share market due to the availability of huge databases.

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