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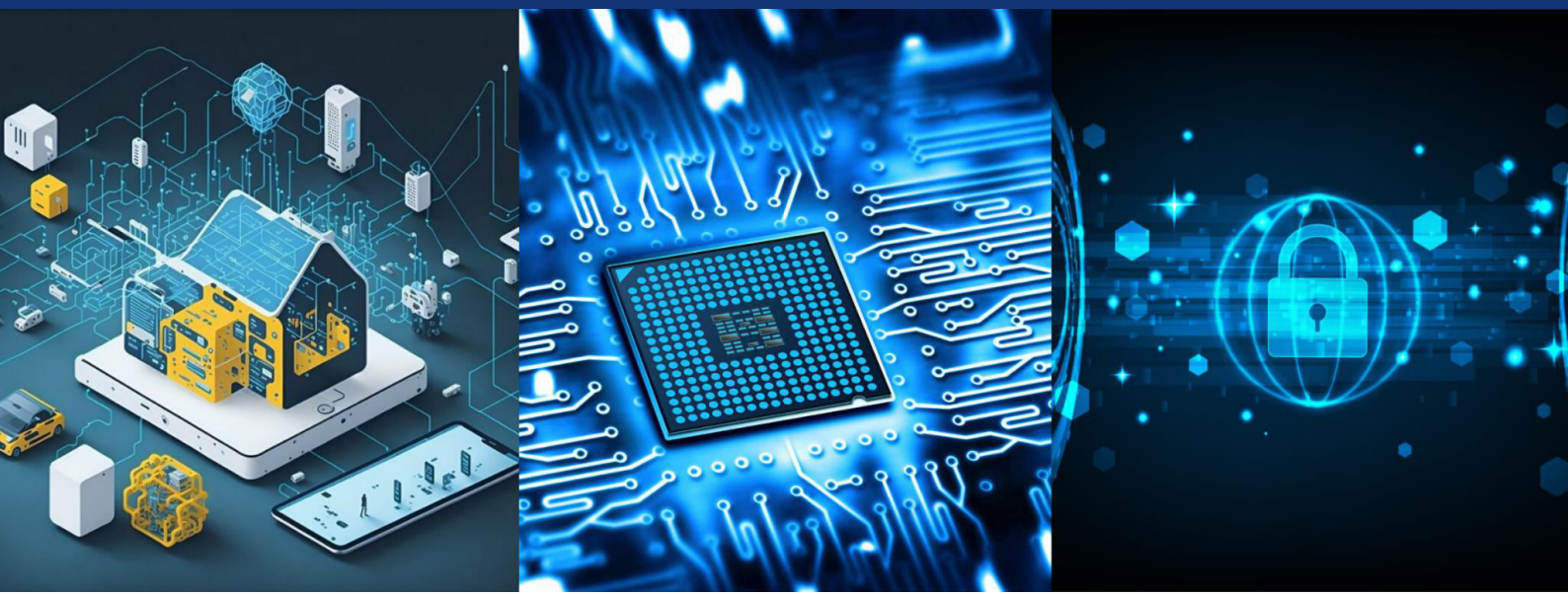

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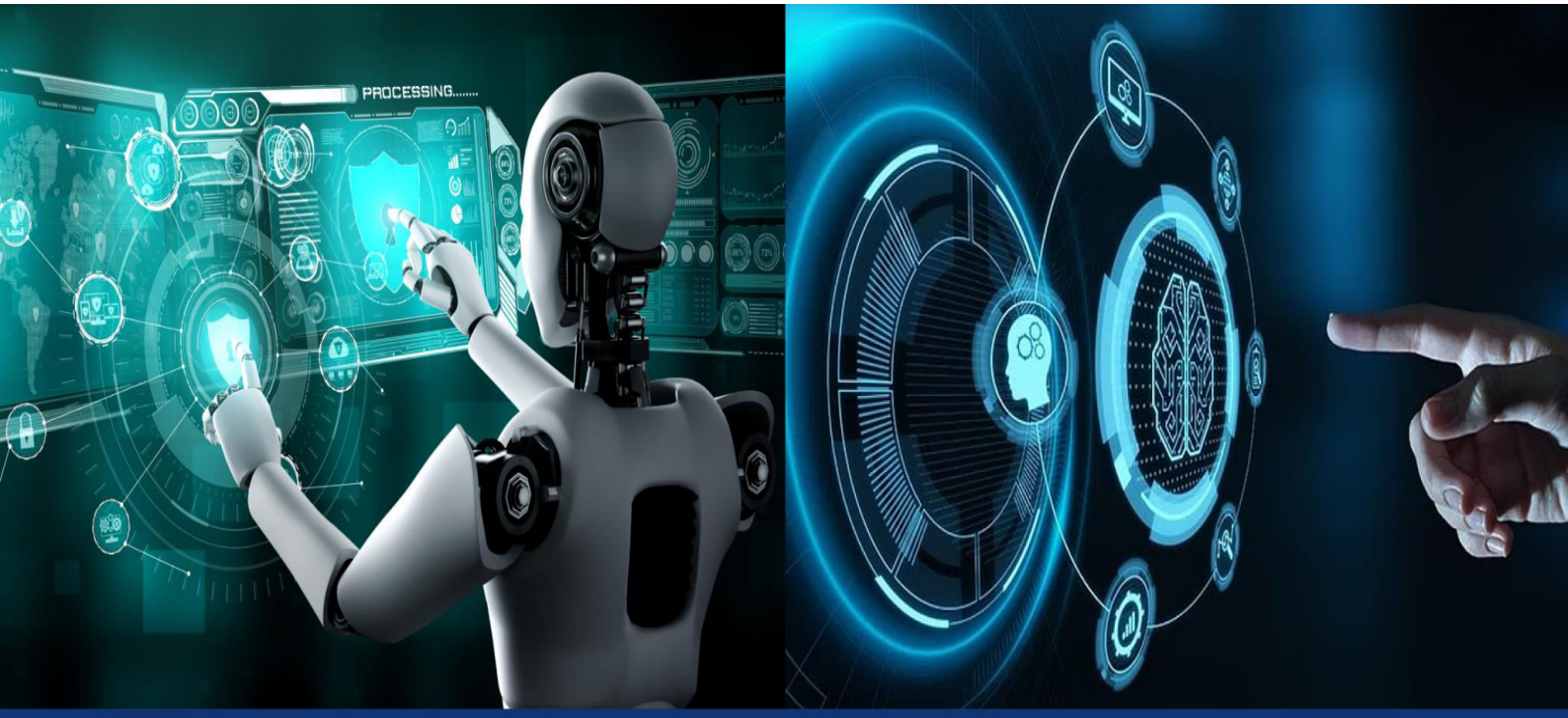

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Rainfall Prediction Using Machine Learning Techniques

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ABSTRACT: India is an agricultural country and its economy is largely based upon crop productivity and rainfall. For analyzing the crop productivity, rainfall prediction is require and necessary to all farmers. Rainfall Prediction is the application of science and technology to predict the state of the atmosphere. It is important to exactly determine the rainfall for effective use of water resources, crop productivity and pre planning of water structures. Using different data mining techniques it can predict rainfall. Data mining techniques are used to estimate the rainfall numerically. This paper focuses some of the popular data mining algorithms for rainfall prediction. Naive Bayes, K-Nearest Neighbor algorithm, Decision Tree, Neural Network and fuzzy logic are some of the algorithms compared in this paper. From that comparison, it can analyze which method gives better accuracy for rainfall prediction.

I. INTRODUCTION

Rainfall Prediction is one of the most challenging tasks. Though already many algorithms have being proposed but still accurate prediction of rainfall is very difficult. In an agricultural country like India, the success or failure of the crops and water scarcity in any year is always viewed with greatest concern. A small fluctuation in the seasonal rainfall can have devastating impacts on agriculture sector. Accurate rainfall prediction has a potential benefit of preventing causalities and damages caused by natural disasters. Under certain circumstances such as flood and drought, highly accurate rainfall prediction is useful for agriculture management and disaster prevention. In this paper, various algorithms have been analyzed. Data mining techniques are efficiently used in rainfall prediction.

II. RELATED WORK

A. Existing System

Agriculture is the strength of our Indian economy. Farmer only depends upon monsoon to be their cultivation. The good crop productivity needs good soil, fertilizer and also good climate. Weather forecasting is the very important requirement of the each farmer. Due to the sudden changes in climate/weather, The people are suffered economically and physically. Weather prediction is one of the challenging problems in current state. The main motivation of this paper to predict the weather using various data mining techniques. Such as classification, clustering, decision tree and also neural networks. Weather related information is also called the meteorological data. In this paper the most commonly used weather parameters are rainfall, wind speed, temperature and cold.

B. Proposed System

Rainfall is important for food production plan, water resource management and all activity plans in the nature. The occurrence of prolonged dry period or heavy rain at the critical stages of the crop growth and development may lead to significantly reduce crop yield. India is an agricultural country and its economy is largely based upon crop productivity. Thus, rainfall prediction becomes a significant factor in agricultural countries like India. Rainfall forecasting has been one of the most scientifically and technologically challenging problems around the world in the last century.

III. METHODOLOGY

System Requirement Specification
HARDWARE REQUIREMENTS:

System - Windows11/10

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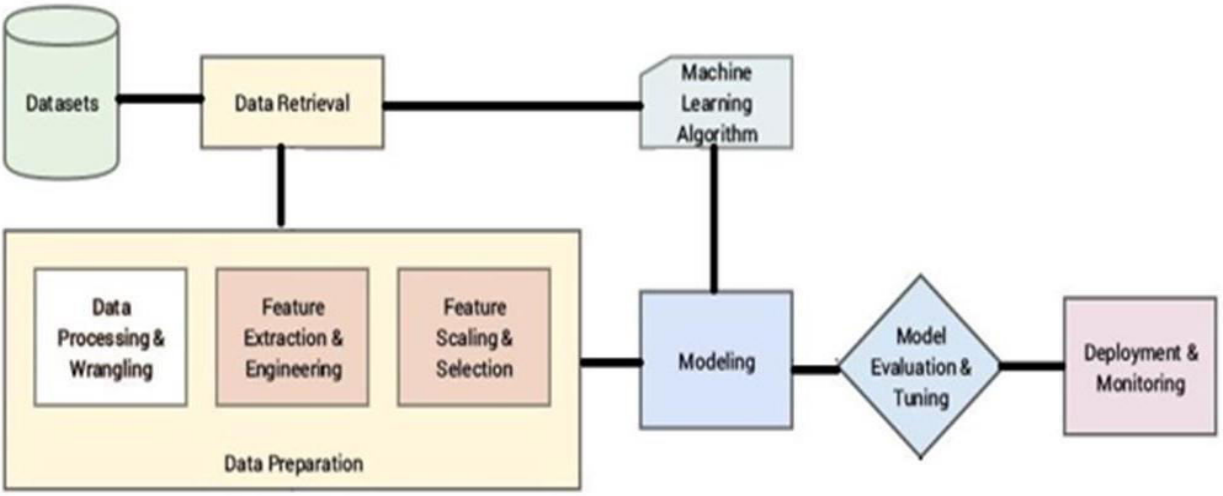
Speed-2.4GHZ
Hard disk - 40GB
Monitor- 15VGA
Color Ram - 4GB

SOFTWARE REQUIREMENTS:
Coding Language - PYTHON
IDE - PYCHARM

SOFTWARE ENVIRONMENT
Python:
Python is a high-level, interpreted, interactive and object-oriented scripting language. Python is designed to be highly readable. It uses English keywords frequently where as other languages use punctuation, and it has fewer syntactical constructions than other languages.

- **Python is Interpreted** − Python is processed at runtime by the interpreter. You do not need to compile your program before executing it. This is similar to PERL and PHP.
- **Python is Interactive** − You can actually sit at a Python prompt and interact with the interpreter directly to write your programs.
- **Python is Object-Oriented** − Python supports Object-Oriented style or technique of programming that encapsulates code within objects.
- **Python is a Beginner's Language** − Python is a great language for the beginner- level programmers and supports the development of a wide range of applications from simple text processing to WWW browsers to games.
- **Flask Framework:**
- Flask is a web application framework written in Python. Armin Ronacher, who leads an international group of Python enthusiasts named Pocco, develops it. Flask is based on Werkzeug WSGI toolkit and Jinja2 template engine. Both are Pocco projects.
- Http protocol is the foundation of data communication in world wide web. Different methods of data retrieval from specified URL are defined in this protocol.

IV. SYSTEM ARCHITECTURE



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SNAPSHOTS AND RESULTS

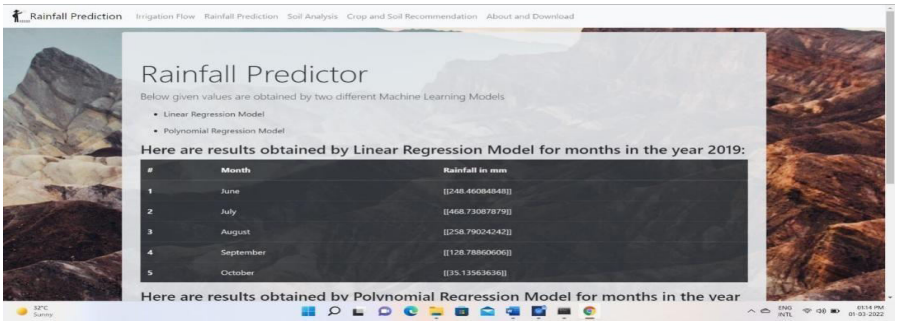
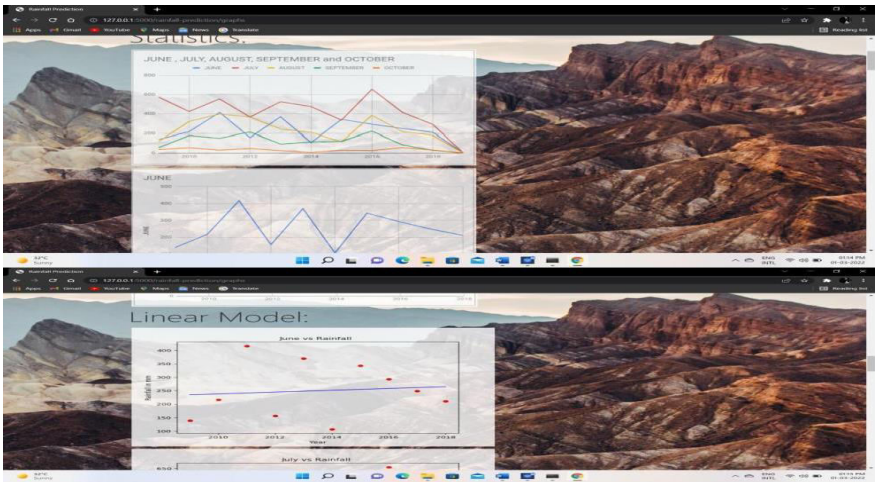
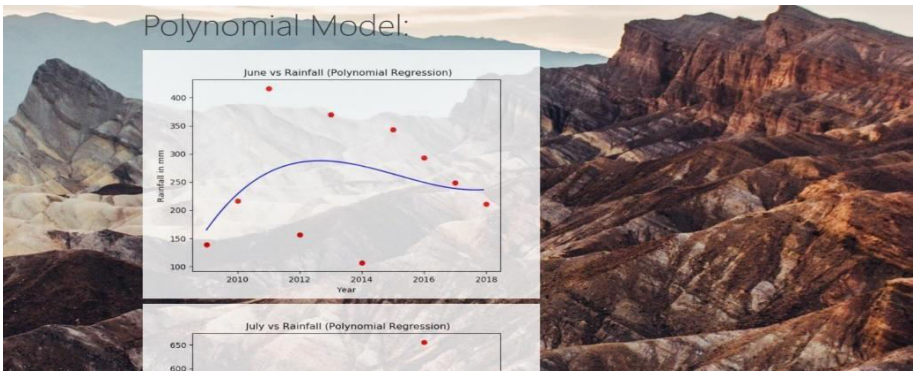


Fig: Home Page





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V. CONCLUSION

Weather forecasting is a meteorological work that easy to modify researcher work by applying the numerical weather prediction method. Weather forecasted by using various data mining techniques especially classification clustering and neural network, decision tree. The key aim for improving the classification and prediction performance for the traditional; weather prediction model is designed and developed in this work. But some limitation of the model is also observed, thus in near future need to be review before use of the proposed technique. And also soil there are some issues and challenges in which better implement of data mining technique should be implemented in the field of weather forecasting

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