

Flood Prediction using Logistic Regression for Kerala State

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Abstract—Flood is a major disaster in India, which causes a huge damage to the living world. The model built here is an approach towards the determination of flood which can be used further for various implementations. It uses a Machine learning approach-Supervised Learning known as Logistic Regression. Logistic Regression is a type of Binary Classification which gives the output in the form of 0s and 1s, which makes it easier to pre-determine whether the event (flood) is about to occur or not. The main aim is to study previous data of States and give a good-fitting approach to be used in future. In Future Machine Learning will replace all the human efforts and abilities in order to make things easier. This is one of those applications of ML that will prove beneficial to the Living Life in-order to sustain the upcoming event (Flood).

Keywords:- Machine Learning, Logistic Regression, Linear Regression, Rainfall data, Flood.

I. INTRODUCTION

It is seen that now-a-days Machine Learning is playing a huge role in every field, it also includes research about various events depending on the previous event related data. It is the ability to learn based on experiences which is only possible when we have some original, precise, complete data. Thus, In-order to apply ML we need to assemble all the required data. The data then needs to be pre-processed so that it could be carried forward for further operations or functioning. It is necessary to maintain knowledge about the residing or available data to use it in the best way possible. We can use or try different Algorithms to get the accuracy based on the existing data. Flood prediction is an important consideration, due to changing climatic conditions. We have used Logistic Regression to come-up with the best outcome. We have considered KERALA STATE for the maximum use of the built- system. Floods are the most damaging natural disaster in this world. On the occasion of heavy flood, it can destroy a whole community. It is crucial to develop a flood prediction system as a mechanism to predict and reduce the flood risk. It proves necessary for alerting resident to take early action such as evacuate quickly to a safer and higher place. Aim

is to specify the contribution of ML in different models. The dataset for the amount of rainfall in various states in India is provided on data.gov.in. We have provided dataset consisting of rainfall details of Kerala of previous 115 years, it clearly defines the annual as well as the monthly rainfall data which proves this system more accurate, and it confirms its reliability, efficiency and confident dependence as well. This model gives us a well defined idea of how the Logistic Regression Algorithm works well with a precise data. This algorithm solves half of the case because of its binary classified nature. The goal of this particular system is to contribute to development of ML as well and to improve the conditions of Living Life in case of the calamity (Flood).

II. OBJECTIVES

A EXISTINGALGORITHM

Flood Early Warning System

As the name suggests, Flood Early Warning System (FLEWS) is as system by which flood induced hazards can be minimized and prevented. There are different organizations which are working on flood forecasting and early warning at national, continental as well as global scale.

In a flood prediction system the most significant info is constant hydro-meteorological perceptions which are given by climate radar satellites and auto hydro meteorological station systems (Billa et al, 2006; Budhakoontharoen, 2004). This data's which are real time data can be used in various ways to evaluate flood risks and issues of flood warning. Apart from real life data, probabilistic weather forecasts (Numerical Weather Prediction-NWP) are also playing an important role in providing input for hydrological models to generate warnings scenarios(Burger et al 2009;Thielen et al 2010).Other than having conjectures of the most significant information (precipitation) a model should be chosen that describes and mimics catchment responses for flood early warning.

B IMPLEMENTEDMETHODOLOGY

The DATA concerned with factors that affect flood