Earthquake prediction model using python

Abstract:

An earthquake is a type of natural disaster that is well-known for the devastation it causes to both naturally existing and artificial structures, including buildings, bungalows, and residential areas, to name a few. Seismometers, which pick up vibrations caused by seismic waves moving through the earth's crust, are used to measure earthquakes. The damage caused by an earthquake was categorised in this work into damage ratings, which have values ranging from one to five. The damage grade of a certain structure, which is linked to a Unique Identification String, was predicted using a previously gathered data set and a number of criteria. An analysis of current machine learning classifier techniques was used to make the forecast. Logistic Regression, Support Vector Machine (SVM), Random Forest Classifier, and K-Nearest Neighbors were the machine learning techniques employed in this study. The best algorithm was taken into consideration after a review of a number of attributes. The method used to predict the property underwent a thorough investigation, and the data analysis that followed revealed information that could help future earthquakes' effects be lessened.

I. INTRODUCTION

A catastrophic event such as an earthquake is harmful to human interests and has negative effects on the environment. Incalculable harm to buildings and other assets has always been done by earthquakes, which have also claimed millions of lives around the world. Numerous national, international, and transnational organizations implement various disaster warning and preventive strategies to lessen the effects of such an incident. Organization managers have a number of challenges when it comes to allocating the organization's resources because time and quantity are constraints. To estimate the extent of damage done to buildings after an earthquake, it is possible to use machine learning. This is accomplished by categorizing these buildings according to a degree of damage severity based on a number of elements, including their age, foundation, number of floors, kind of material used, and others. Then, ward-by-ward in a district, the number of families and the likely casualties are considered. This enables the proportionate distribution of relief forces by ward and their prioritizing according to the severity of the damage. Such models can contribute to the fastest possible lifesaving and prove to be a successful and affordable option.[1-3] It can be further enhanced by include the distribution of goods like food, clothing, medical care, and money in accordance with the number of fatalities among people and the degree of structural damage.