Geo-Location Clustering using k-means algorithm

Contents

Introduction and Motivation

What is Geo-Location Clustering?

Geolocation Clustering is done over geographically dispersed sites with computer clustering. A Cluster can be defined as a group of independent computers called nodes. Clustering has plenty of useful applications like in marketing, logistics. The clustering is done at the point of data storage or a group of points which are close to one other. Here, we are using k-means algorithm for geolocation clustering to solve the clustering problem in parallel fashion. We implemented the algorithm in Spark.

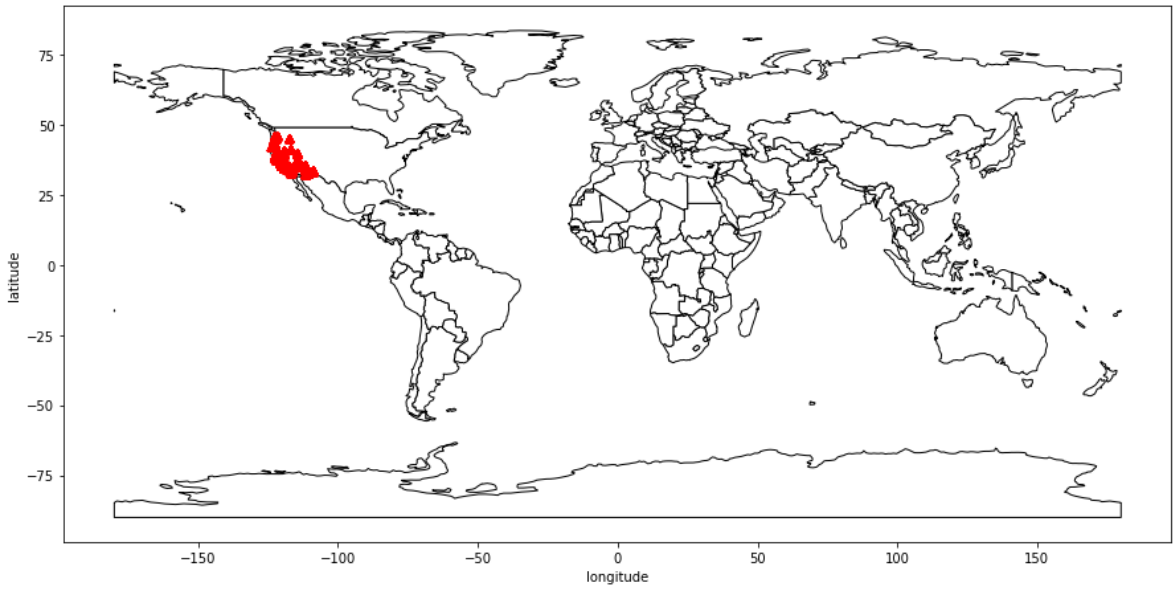
Data Preparation

To implement the algorithm, we need to get the pre-processed data:

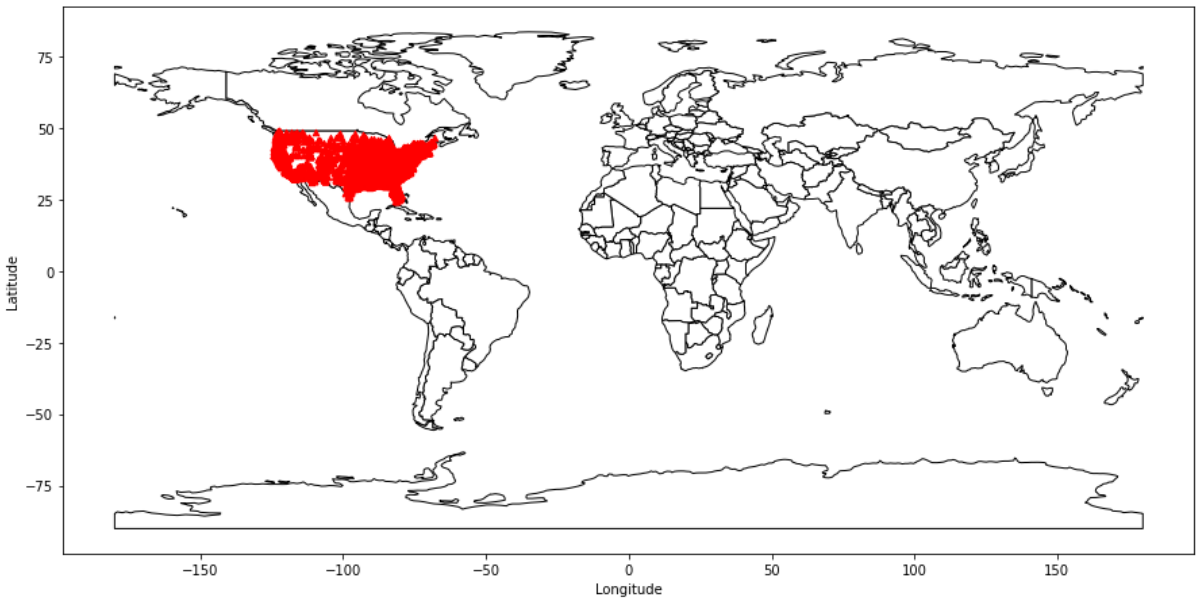
- To load the dataset,
- Determine which delimiter to use
- Filter out any records more than 14 values which do not sparse correctly.
- Extract the data, extract the model, the device ID, and lat and long.
- Filtering out the locations that have a lat and long of 0.
- Split the model field by spaces to separate the manufacturer from the model.
- Save the extracted data to comma delimited text files.
- Save the data in a file correctly and confirm.

Visualization

Synthetic cluster location data



DBpedia Location Data



Creating EMR cluster and keypair