

Abstract

We propose to develop a program that can show a QuadTree view and data model architecture. Nowadays, many digital map applications have the need to present large quantities of precise point data on the map. Such data can be weather information or the population in towns. With the development of the Internet of Things (IoT), we expect such data will grow at a rapid pace. However, visualizing and searching in such a magnitude of data becomes a problem as it takes a huge amount of time. QuadTrees are trees used to efficiently store data of points in a two-dimensional space. In this tree, each node has at most four children. QuadTrees allow us to visualize the data easily and rapidly compared to other data structures. This project aims to build an application for interactively visualizing such data, using a combination of grid-based clustering and hierarchical clustering, along with QuadTree spatial indexing. This application illustrates the simulation of the working of the QuadTree data structure.