Project functionalities description

The project is a client – server implementation of the Quality Treshold Clustering Algorithm.

The application allows to the user to visualize (both in tabular and graphical format) the result of the clustering and then to save it in a file which can be reloaded later.

The server interact with the database, the save files and compute the clustering whose result can be sent to the client.
The client role is sending input to the server (DB table name, radius, file name) and visualize the clustering result computed on the server.

Project Extension

The project has been extended by adding, for the client side, a graphical user interface (GUI) implemented with the JavaFX library and the SceneBuilder tool.

The Client source is designed following the Model – View – Controller (MVC) architectural pattern.
The Model role is covered by the ServerModel, in the model package, which interacts with the server by sending and receiving input data and execution code from / to it.
The Controller roles is covered by the controller files, that defines how the program works when an event happens in a program window, for example which method is called when a button is clicked.

The view role is covered by the Fxml files, which describes the graphic layout of the program windows.

The client allows to visualize in a XY chart the clustering result emphasizing the clusters using different colours and shapes.
Each tuple in the XY chart has been represented by choosing as y value the distance of the tuple from the centroid tuple of the biggest cluster.
A better method of representation can be based on the distance of the tuple from a “zero tuple”, but such tuple doesn’t exists because its value for the continuous items should be 0.0, but for the discrete item doesn’t exists a value whose distance can guarantee a good representation because the algorithm compute a relative distance between the discrete items instead of an absolute numeric value.

Only minor changes have been made on the server side, in particular has been modified the synchronization of the communication with the client allowing the execution of the new functionalities and have been added some method that create nested list representations of the data and the clustering result that can be sent to the server, while the server representation that use the class hierarchy described in the data package can’t be sent because the client doesn’t implement this class hierarchy.

Other fixes and little changes was applied in the server.