

Code Documentation

I Web Resources

Matlab

The software suite used to develop and execute the K-Means experiments.

<http://www.mathworks.com/products/matlab/>

Intlab

Interval Laboratory. Adds support for interval data to Matlab.

<http://www.ti3.tu-harburg.de/rump/intlab/>

Extrema

Finds the local maxima of a set of data points. A required dependency of the Interval Cluster Project

<http://www.mathworks.com/matlabcentral/fileexchange/12275>

Modified Fundamental Clustering Problem Suite Data

Contains the FCPS data used in the second experiment

<https://github.com/bnordin/intervalcluster/data.zip>

Interval Cluster Project Code

Contains the source code and HTML documentation for the second experiment.

Github Project

<https://github.com/bnordin/intervalcluster>

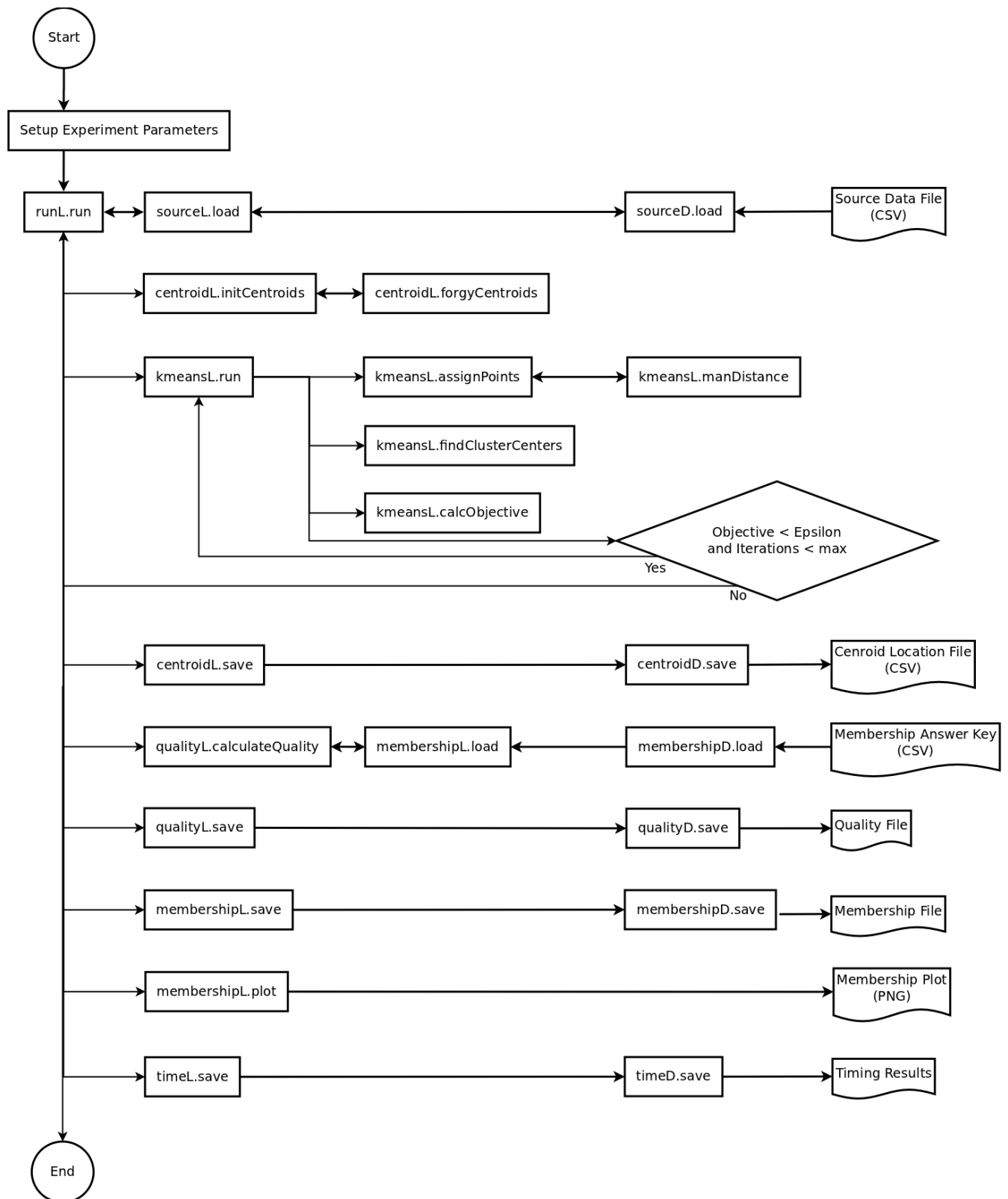
Version 1.2 Download

<https://github.com/bnordin/intervalcluster/intervalcluster-1.2.zip>

II Environment Setup

1. Install Matlab
2. Install Intlab
 - a) Install path is INTLAB (substitute INTLAB with the real path)
 - b) Modify INTLAB/startup.m, set the “cd” path to INTLAB
 - c) In matlab, add INTLAB to the path (File→Set Path). Save the path.
 - d) Restart matlab and wait... it will ask you to press Enter to start, but it seems to always freeze, so kill matlab and restart
3. Place the source in INTERVALCLUSTER (substitute INTERVALCLUSTER with the real path)
4. In matlab, add INTERVALCLUSTER/src and INTERVALCLUSTER/lib to the path
 - a) (File→Set Path). Save the path.
5. Download extrema and place in INTERVALCLUSTER/lib/
6. Download the FCPS data
7. If you wish to use the run scripts, set the appropriate values in INTERVALCLUSTER/src/+ikmeans/setupGlobal.m

III Run Flow



Execution flow for a single K-Means run

IV File List and Description

For complete documentation, download the source and open:
intervalcluster/doc/html/index.html

+ikmeans/runall.m	Sets up parameter combinations to execute a batch of runs
+ikmeans/runone.m	Sets up parameters and executes a single K-Means run
+ikmeans/setupGlobal.m	Sets up parameters that do not change between experiments
+ikmeans/test.m	Executes a single K-Means run without the automation logic
+ikmeans/+logic/centroidL.m	Selects an initial set of centroids
+ikmeans/+logic/kmeansL.m	Executes the K-Means algorithm
+ikmeans/+logic/logL.m	Filters and prints log information to a file or the screen
+ikmeans/+logic/membershipL.m	Load, save, plot, and convert membership data
+ikmeans/+logic/qualityL.m	Calculates and saves cluster quality
+ikmeans/+logic/reportL.m	Generate and save report information
+ikmeans/+logic/runL.m	Automates the execution of an experiment
+ikmeans/+logic/sourceL.m	Load, Save, and Convert source file data
+ikmeans/+logic/timeL.m	Tracks, converts, filters, and saves execution time logs
+ikmeans/+data/centroidD.m	Loads and saves centroid information to file
+ikmeans/+data/logD.m	Reads or writes log information to the screen or file
+ikmeans/+data/membershipD.m	Reads or writes membership information to a file
+ikmeans/+data/qualityD.m	Saves quality information to a file
+ikmeans/+data/reportD.m	Saves detail and aggregate K-Means result information
+ikmeans/+data/sourceD.m	Loads source data from a file
+ikmeans/+data/timeD.m	Saves recorded timing information to a file
+ikmeans/+entity/aggregateRR.m	Represents one row of the aggregate report
+ikmeans/+entity/batch.m	Stores multiple parameter combinations
+ikmeans/+entity/centroidSet.m	Stores all of the centroid locations in K-Means
+ikmeans/+entity/colorType.m	An enumeration of colors available to MATLAB
+ikmeans/+entity/data.m	A generic class used for holding a list of values
+ikmeans/+entity/dataType.m	The available data type containers
+ikmeans/+entity/initType.m	The available K-Means initialization methods
+ikmeans/+entity/logLevel.m	The level at which to filter or display log entries
+ikmeans/+entity/logMessage.m	Represents a single log entry
+ikmeans/+entity/logType.m	Provides a set of types/categories for filtering log entries
+ikmeans/+entity/logWriter.m	Data used to write a log entry to the screen or a file
+ikmeans/+entity/membership.m	Point-to-Centroid mappings
+ikmeans/+entity/parameters.m	Contains a single-set of experiment parameters
+ikmeans/+entity/project.m	Contains run-time data for use with the K-Means algorithm
+ikmeans/+entity/quality.m	Describes the structural similarity of points within each cluster
+ikmeans/+entity/qualityRR.m	Represents one line in the average quality report
+ikmeans/+entity/qualityType.m	The structural similarity measure to use in the experiment
+ikmeans/+entity/results.m	Contains final result data produced from the K-Means algorithm
+ikmeans/+entity/run.m	Holds the data needed to execute a single K-Means run
+ikmeans/+entity/source.m	Contains all the source file data in the proper format
+ikmeans/+entity/timing.m	Stores execution time information