Ensemble Clustering

Generated by Doxygen 1.8.2

Thu Dec 13 2012 16:53:36

Contents

Chapter 1

Namespace Index

1.1 Namespace List

Here is a list of all namespaces with brief descriptions:

Chapter 2

Hierarchical Index

2.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

Chapter 3

Class Index

3.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

Chapter 4

File Index

4.1 File List

Here is a list of all files with brief descriptions:

Chapter 5

Namespace Documentation

5.1 EnsembleClustering Namespace Reference

Classes

- class IndexMap

    An IndexMap implements a 1-based mapping from an integer index type to an arbitray value type.
- class Clusterer
- class Clustering
- class ClusteringGenerator
- class LabelPropagation

    As described in Ovelgoenne et al: An Ensemble Learning Strategy for Graph Clustering Raghavan et al.
- class Modularity
- class QualityMeasure

    Abstract base class for all clustering quality measures.
- class ScoreMatchContract
- class ClusteringTest
- class ClusterContracter
- class Contracter
- class MatchingContracter
- class EnsembleClusterer
- class Graph

    Graph interface.
- class GraphGenerator
- class NodeMap
- class GraphGTest
- class METISParser
- class METIStoSTINGER

    This class provides a user interface for reading a METIS graph file and returning a STINGER-based graph object.
- class STINGERFromAdjacencies

    A 'builder' which constructs a STINGER-based graph from adjacencies.
- class InputGTest
- class Matcher
- class Matching
- class ParallelMatcher
- class Overlapper
- class RegionGrowingOverlapper
- class EdgeScoring
- class ModularityScoring

Typedefs

- typedef int64_t cluster

  cluster is represented as a 1-based index
- typedef int64_t node

  Typedefs.
- typedef std::pair< node, node > edge

  an undirected edge is a pair of nodes (indices)
- typedef int Node
- typedef int Edge
- typedef int Clustering
- typedef int Cluster

Functions

- TEST_F (ClusteringTest, testModularity)
- TEST_F (GraphGTest, testIteration)
- TEST_F (InputGTest, testMETISParser)

5.1.1 Typedef Documentation

5.1.1.1 typedef int64_t **EnsembleClustering::cluster**

cluster is represented as a 1-based index

Definition at line 15 of file Clustering.h.

5.1.1.2 typedef int **EnsembleClustering::Cluster**

Definition at line 21 of file ModularityScoring.h.

5.1.1.3 typedef int **EnsembleClustering::Clustering**

Definition at line 20 of file ModularityScoring.h.

5.1.1.4 typedef int **EnsembleClustering::Edge**

Definition at line 17 of file ModularityScoring.h.

5.1.1.5 typedef std::pair<**node, node**> **EnsembleClustering::edge**

an undirected edge is a pair of nodes (indices)

Definition at line 26 of file Graph.h.

5.1.1.6 typedef int **EnsembleClustering::Node**

Definition at line 14 of file EdgeScoring.h.

5.1.1.7 typedef int64_t EnsembleClustering::node

Typedefs.

a node is an integer logical index. it is 1-based!

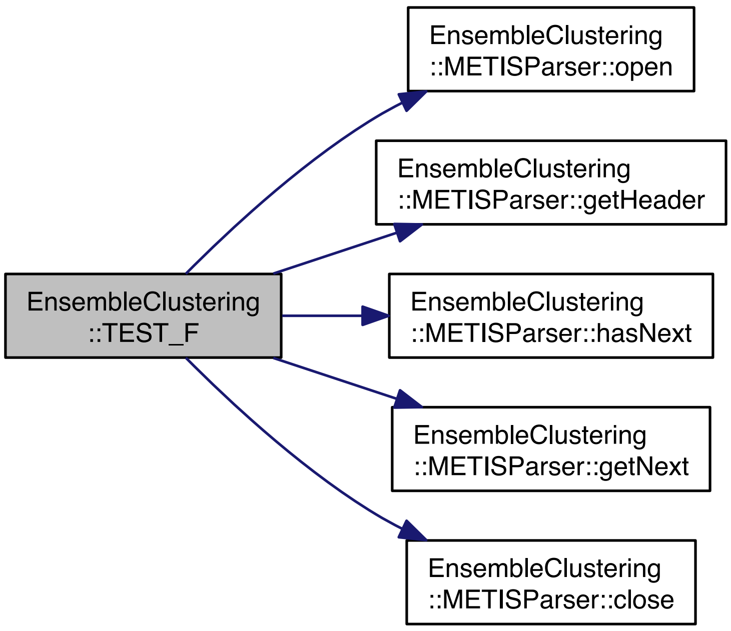
Definition at line 25 of file Graph.h.

5.1.2 Function Documentation

5.1.2.1 EnsembleClustering::TEST_F (InputGTest , testMETISParser)

Definition at line 22 of file InputGTest.h.

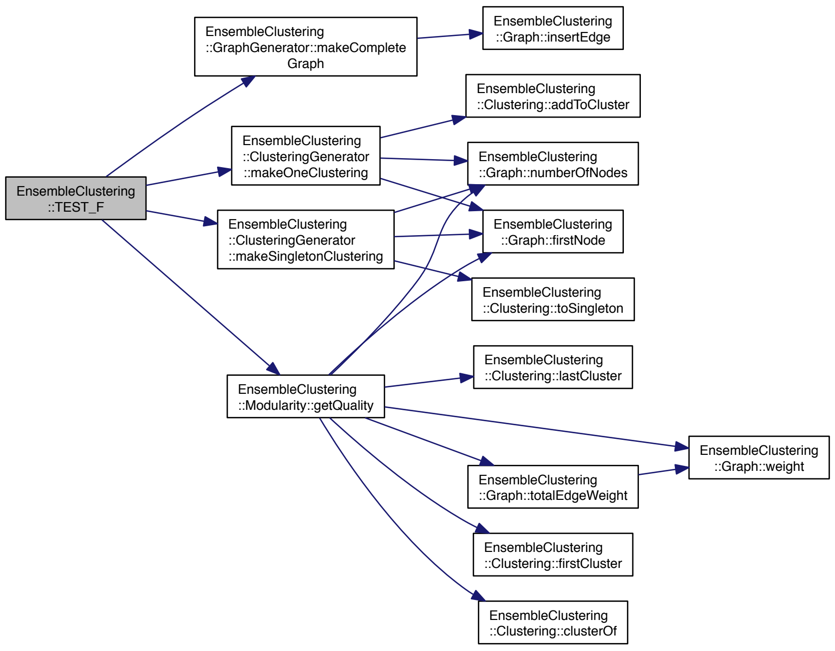
Here is the call graph for this function:


EnsembleClustering ::TEST_F
EnsembleClustering ::METISParser::open
EnsembleClustering ::METISParser::getHeader
EnsembleClustering ::METISParser::hasNext
EnsembleClustering ::METISParser::getNext
EnsembleClustering ::METISParser::close

5.1.2.2 EnsembleClustering::TEST_F (ClusteringTest , testModularity)

Definition at line 29 of file ClusteringTest.h.

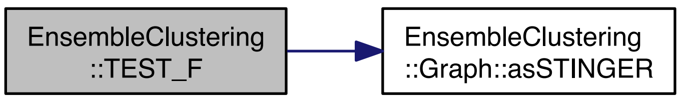
Here is the call graph for this function:


EnsembleClustering ::TEST_F
EnsembleClustering ::GraphGenerator::makeComplete Graph
EnsembleClustering ::Graph::insertEdge
EnsembleClustering ::ClusteringGenerator ::makeOneClustering
EnsembleClustering ::Clustering::addToCluster
EnsembleClustering ::Graph::numberOfNodes
EnsembleClustering ::ClusteringGenerator ::makeSingletonClustering
EnsembleClustering ::Graph::firstNode
EnsembleClustering ::Clustering::toSingleton
EnsembleClustering ::Modularity::getQuality
EnsembleClustering ::Clustering::lastCluster
EnsembleClustering ::Graph::weight
EnsembleClustering ::Graph::totalEdgeWeight
EnsembleClustering ::Clustering::firstCluster
EnsembleClustering ::Clustering::clusterOf

5.1.2.3 EnsembleClustering::TEST_F (GraphGTest , testIteration)

Definition at line 34 of file GraphGTest.h.

Here is the call graph for this function:


EnsembleClustering ::TEST_F
EnsembleClustering ::Graph::asSTINGER

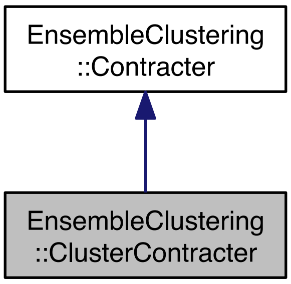
Chapter 6

Class Documentation

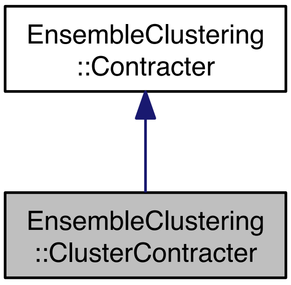
6.1 EnsembleClustering::ClusterContracter Class Reference

```
#include <ClusterContracter.h>
```

Inheritance diagram for EnsembleClustering::ClusterContracter:



Collaboration diagram for EnsembleClustering::ClusterContracter:



Public Member Functions

- ClusterContracter ()
- virtual ∼ClusterContracter ()

6.1.1 Detailed Description

Definition at line 15 of file ClusterContracter.h.

6.1.2 Constructor & Destructor Documentation

6.1.2.1 EnsembleClustering::ClusterContracter::ClusterContracter ( )

Definition at line 12 of file ClusterContracter.cpp.

6.1.2.2 EnsembleClustering::ClusterContracter::∼ClusterContracter ( ) [virtual]

Definition at line 17 of file ClusterContracter.cpp.

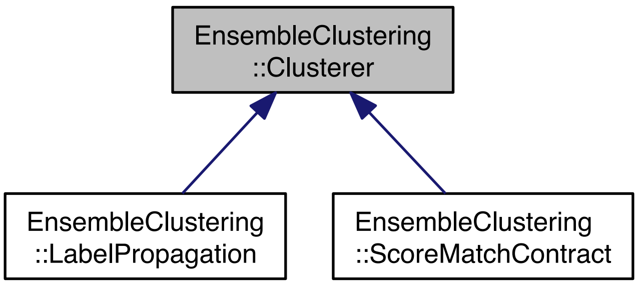
The documentation for this class was generated from the following files:

- src/coarsening/ClusterContracter.h
- src/coarsening/ClusterContracter.cpp

6.2 EnsembleClustering::Clusterer Class Reference

```
#include <Clusterer.h>
```

Inheritance diagram for EnsembleClustering::Clusterer:



Public Member Functions

- Clusterer ()
- virtual ∼Clusterer ()
- virtual Clustering & run (Graph &G)=0

6.2.1 Detailed Description

Definition at line 17 of file Clusterer.h.

6.2.2 Constructor & Destructor Documentation

6.2.2.1 EnsembleClustering::Clusterer::Clusterer ( )

Definition at line 12 of file Clusterer.cpp.

6.2.2.2 EnsembleClustering::Clusterer::∼Clusterer ( ) `[virtual]`

Definition at line 17 of file Clusterer.cpp.

6.2.3 Member Function Documentation

6.2.3.1 virtual Clustering& EnsembleClustering::Clusterer::run (Graph & *G*) `[pure virtual]`

Implemented in EnsembleClustering::LabelPropagation.

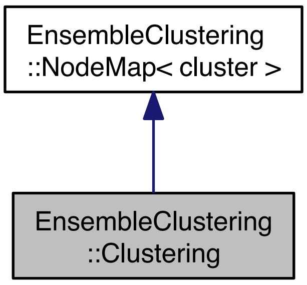
The documentation for this class was generated from the following files:

- src/clustering/Clusterer.h
- src/clustering/Clusterer.cpp

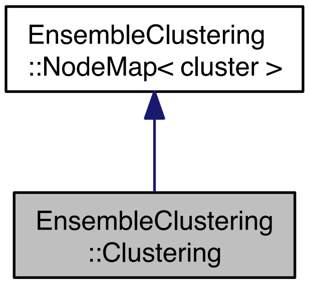
6.3 EnsembleClustering::Clustering Class Reference

`#include <Clustering.h>`

Inheritance diagram for EnsembleClustering::Clustering:


EnsembleClustering ::NodeMap< cluster >
EnsembleClustering ::Clustering

Collaboration diagram for EnsembleClustering::Clustering:


EnsembleClustering ::NodeMap< cluster >
EnsembleClustering ::Clustering

Public Member Functions

- Clustering (int64_t n)

  Construct new clustering.
- virtual ∼Clustering ()
- cluster & operator[] (const node &u)

  Index operator.
- const cluster & operator[] (const node &u) const

  Index operator for const instances of this class.
- cluster & clusterOf (node u)

  Return the cluster (id) in which a node is contained.
- void addToCluster (cluster c, node u)

  Add a (previously unassigned) node to a cluster.
- void moveToCluster (cluster c, node u)

  Move a (previously assigned) node to a cluster.
- void toSingleton (node u)

  Creates a singleton cluster containing the node.
- void mergeClusters (cluster c, cluster d)

  Assigns the nodes from both clusters to a new cluster.
- bool isProper (const Graph &G)

  Check whether this clustering is a proper clustering of the graph, i.e.
- cluster firstCluster ()

  Get the lowest cluster id;.
- cluster lastCluster ()

  Get the highest cluster id that has been assigned.

Protected Attributes

- cluster nextCluster

  next free cluster id for new cluster

6.3.1 Detailed Description

Definition at line 17 of file Clustering.h.

6.3.2 Constructor & Destructor Documentation

6.3.2.1 EnsembleClustering::Clustering::Clustering (int64_t *n*)

Construct new clustering.

Parameters

in	*n*	number of nodes

< first cluster index is 1

Definition at line 12 of file Clustering.cpp.

6.3.2.2 EnsembleClustering::Clustering::∼Clustering ( ) [virtual]

Definition at line 16 of file Clustering.cpp.

6.3.3 Member Function Documentation

6.3.3.1 void EnsembleClustering::Clustering::addToCluster (cluster *c*, node *u*)

Add a (previously unassigned) node to a cluster.

Definition at line 22 of file Clustering.cpp.

6.3.3.2 cluster& EnsembleClustering::Clustering::clusterOf (node *u*) [inline]

Return the cluster (id) in which a node is contained.

Definition at line 55 of file Clustering.h.

6.3.3.3 cluster EnsembleClustering::Clustering::firstCluster ( )

Get the lowest cluster id;.

Definition at line 53 of file Clustering.cpp.

6.3.3.4 bool EnsembleClustering::Clustering::isProper (const Graph & *G*)

Check whether this clustering is a proper clustering of the graph, i.e.

a disjoint partition of the whole node set.

Definition at line 49 of file Clustering.cpp.

6.3.3.5 cluster EnsembleClustering::Clustering::lastCluster ( )

Get the highest cluster id that has been assigned.

This gives an upper bound for the number of clusters in this clustering, although not the actual number of clusters since clusters can become empty.

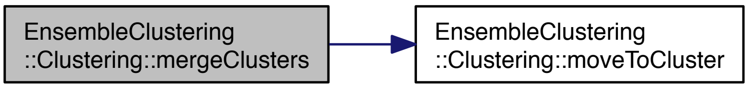
Definition at line 57 of file Clustering.cpp.

6.3.3.6 void EnsembleClustering::Clustering::mergeClusters (**cluster** *c*, **cluster** *d*)

Assigns the nodes from both clusters to a new cluster.

Definition at line 37 of file Clustering.cpp.

Here is the call graph for this function:


EnsembleClustering ::Clustering::mergeClusters
EnsembleClustering ::Clustering::moveToCluster

6.3.3.7 void EnsembleClustering::Clustering::moveToCluster (**cluster** *c*, **node** *u*)

Move a (previously assigned) node to a cluster.

Definition at line 32 of file Clustering.cpp.

6.3.3.8 **cluster**& EnsembleClustering::Clustering::operator[] (const **node** & *u*) `[inline]`

Index operator.

Parameters

`in`	*u*	a node

Definition at line 39 of file Clustering.h.

6.3.3.9 const **cluster**& EnsembleClustering::Clustering::operator[] (const **node** & *u*) const `[inline]`

Index operator for const instances of this class.

Parameters

`in`	*u*	a node

Definition at line 47 of file Clustering.h.

6.3.3.10 void EnsembleClustering::Clustering::toSingleton (**node** *u*)

Creates a singleton cluster containing the node.

Definition at line 27 of file Clustering.cpp.

6.3.4 Member Data Documentation

6.3.4.1 **cluster** EnsembleClustering::Clustering::nextCluster `[protected]`

next free cluster id for new cluster

Definition at line 21 of file Clustering.h.

The documentation for this class was generated from the following files:

- src/clustering/Clustering.h
- src/clustering/Clustering.cpp

6.4 EnsembleClustering::ClusteringGenerator Class Reference

```
#include <ClusteringGenerator.h>
```

Public Member Functions

- ClusteringGenerator ()
- virtual ∼ClusteringGenerator ()
- virtual Clustering & makeSingletonClustering (const Graph &G)

  Make a singleton clustering of G, i.e.
- virtual Clustering & makeOneClustering (const Graph &G)

  Make a 1-clustering of G, i.e.

6.4.1 Detailed Description

Definition at line 15 of file ClusteringGenerator.h.

6.4.2 Constructor & Destructor Documentation

6.4.2.1 EnsembleClustering::ClusteringGenerator::ClusteringGenerator ( )

Definition at line 12 of file ClusteringGenerator.cpp.

6.4.2.2 EnsembleClustering::ClusteringGenerator::∼ClusteringGenerator ( ) [virtual]

Definition at line 17 of file ClusteringGenerator.cpp.

6.4.3 Member Function Documentation

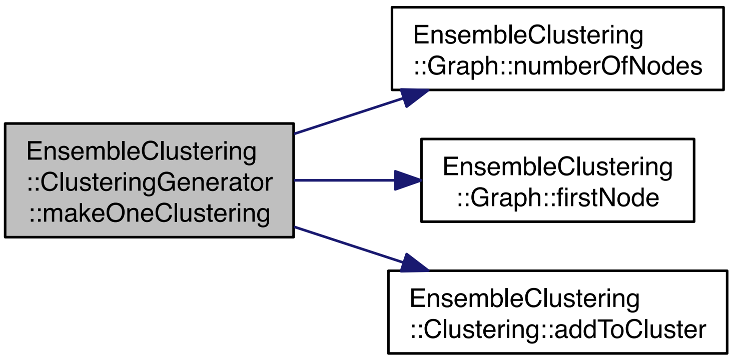
6.4.3.1 Clustering & EnsembleClustering::ClusteringGenerator::makeOneClustering (const Graph & *G*) [virtual]

Make a 1-clustering of G, i.e.

a clustering in which all nodes belong to the same cluster.

Definition at line 30 of file ClusteringGenerator.cpp.

Here is the call graph for this function:


EnsembleClustering ::ClusteringGenerator ::makeOneClustering
EnsembleClustering ::Graph::numberOfNodes
EnsembleClustering ::Graph::firstNode
EnsembleClustering ::Clustering::addToCluster

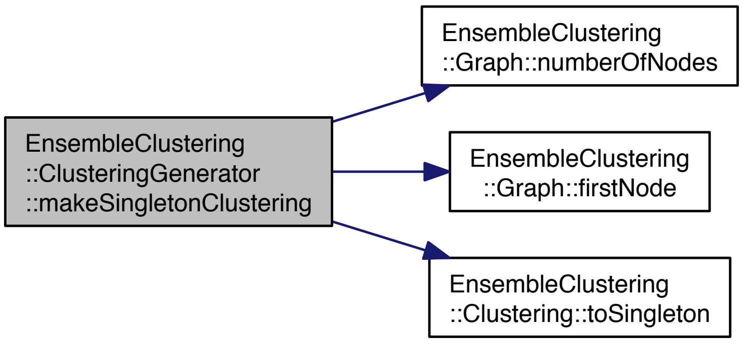
6.4.3.2 Clustering & EnsembleClustering::ClusteringGenerator::makeSingletonClustering (const Graph & *G*) [virtual]

Make a singleton clustering of G, i.e.

a clustering in which every node belongs to its own cluster.

Definition at line 21 of file ClusteringGenerator.cpp.

Here is the call graph for this function:


EnsembleClustering ::ClusteringGenerator ::makeSingletonClustering
EnsembleClustering ::Graph::numberOfNodes
EnsembleClustering ::Graph::firstNode
EnsembleClustering ::Clustering::toSingleton

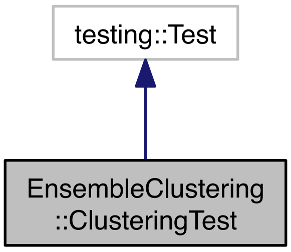
The documentation for this class was generated from the following files:

- src/clustering/ClusteringGenerator.h
- src/clustering/ClusteringGenerator.cpp

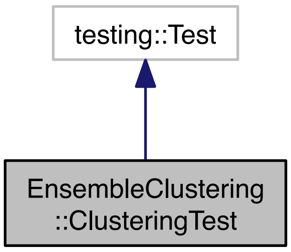
6.5 EnsembleClustering::ClusteringTest Class Reference

`#include <ClusteringTest.h>`

Inheritance diagram for EnsembleClustering::ClusteringTest:



Collaboration diagram for EnsembleClustering::ClusteringTest:



6.5.1 Detailed Description

Definition at line 22 of file ClusteringTest.h.

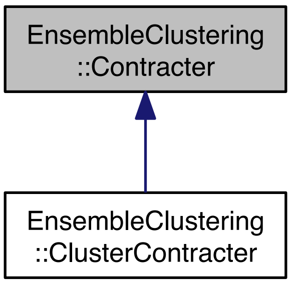
The documentation for this class was generated from the following file:

- src/clustering/test/ClusteringTest.h

6.6 EnsembleClustering::Contracter Class Reference

`#include <Contracter.h>`

Inheritance diagram for EnsembleClustering::Contracter:


EnsembleClustering ::Contracter
EnsembleClustering ::ClusterContracter

Public Member Functions

- Contracter ()
- virtual ∼Contracter ()
- virtual node contract (node u, node v)

6.6.1 Detailed Description

Definition at line 17 of file Contracter.h.

6.6.2 Constructor & Destructor Documentation

6.6.2.1 EnsembleClustering::Contracter::Contracter ( )

Definition at line 12 of file Contracter.cpp.

6.6.2.2 EnsembleClustering::Contracter::∼Contracter ( ) `[virtual]`

Definition at line 17 of file Contracter.cpp.

6.6.3 Member Function Documentation

6.6.3.1 node EnsembleClustering::Contracter::contract (node *u*, node *v*) `[virtual]`

Definition at line 21 of file Contracter.cpp.

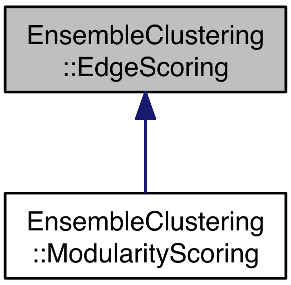
The documentation for this class was generated from the following files:

- src/coarsening/Contracter.h
- src/coarsening/Contracter.cpp

6.7 EnsembleClustering::EdgeScoring Class Reference

`#include <EdgeScoring.h>`

Inheritance diagram for EnsembleClustering::EdgeScoring:


EnsembleClustering ::EdgeScoring
EnsembleClustering ::ModularityScoring

Public Member Functions

- EdgeScoring ()
- virtual ∼EdgeScoring ()
- virtual double scoreEdge (Node u, Node v)=0

6.7.1 Detailed Description

Definition at line 16 of file EdgeScoring.h.

6.7.2 Constructor & Destructor Documentation

6.7.2.1 EnsembleClustering::EdgeScoring::EdgeScoring ( )

Definition at line 12 of file EdgeScoring.cpp.

6.7.2.2 EnsembleClustering::EdgeScoring::∼EdgeScoring ( ) `[virtual]`

Definition at line 17 of file EdgeScoring.cpp.

6.7.3 Member Function Documentation

6.7.3.1 virtual double EnsembleClustering::EdgeScoring::scoreEdge (Node *u*, Node *v*) `[pure virtual]`

The documentation for this class was generated from the following files:

- src/scoring/EdgeScoring.h
- src/scoring/EdgeScoring.cpp

6.8 EnsembleClustering::EnsembleClusterer Class Reference

```
#include <EnsembleClusterer.h>
```

Public Member Functions

- EnsembleClusterer ()
- virtual ∼EnsembleClusterer ()

6.8.1 Detailed Description

Definition at line 13 of file EnsembleClusterer.h.

6.8.2 Constructor & Destructor Documentation

6.8.2.1 EnsembleClustering::EnsembleClusterer::EnsembleClusterer ( )

Definition at line 12 of file EnsembleClusterer.cpp.

6.8.2.2 EnsembleClustering::EnsembleClusterer::∼EnsembleClusterer ( ) [virtual]

Definition at line 17 of file EnsembleClusterer.cpp.

The documentation for this class was generated from the following files:

- src/ensemble/EnsembleClusterer.h
- src/ensemble/EnsembleClusterer.cpp

6.9 EnsembleClustering::Graph Class Reference

Graph interface.

```
#include <Graph.h>
```

Public Member Functions

- Graph ()

  methods
- Graph (stinger ∗stingerG)

  Initialize with STINGER graph.
- ∼Graph ()
- stinger ∗ asSTINGER () const

  Return the internal STINGER data structure.
- void insertEdge (node u, node v, double weight=defaultEdgeWeight, int64_t type=defaultEdgeType, int64_t timestamp=defaultTimeStamp)

  Insert a weighted, undirected edge.
- bool hasEdge (node u, node v) const

  Check if undirected edge {u,v} exists in G.
- double weight (node v) const

  Return node weight.
- double weight (edge uv) const

Return edge weight.

- double weight (node u, node v) const

  Return edge weight.
- double totalEdgeWeight () const

  Get the sum of the weight of all edges.
- int64_t degree (node u) const

  Return the degree (number of incident edges).
- int64_t numberOfEdges () const

  Return the number of edges in the graph.
- int64_t numberOfNodes () const

  Return the number of (non-isolated) nodes in the graph.
- node firstNode () const

  Get the first node index (for iteration over all nodes)
- node lastNode () const

  Get the last node index (for iteration over all nodes).
- template<typename Callback >
  void forallEdges (bool parallel, Callback callback)

Static Public Attributes

- static constexpr double defaultEdgeWeight = 1.0

  default parameters
- static const int64_t defaultEdgeType = 0
- static const int64_t defaultTimeStamp = 0

Protected Attributes

- stinger ∗ stingerG

6.9.1 Detailed Description

Graph interface.

Graph encapsulates a STINGER graph object and provides a more concise interface to it.

The graph concept modelled is

- undirected
- weighted
- without self-loops (use node weights instead)

Definition at line 77 of file Graph.h.

6.9.2 Constructor & Destructor Documentation

6.9.2.1 EnsembleClustering::Graph::Graph ( )

methods

Construct Graph object with new STINGER graph inside.

Definition at line 13 of file Graph.cpp.

6.9.2.2 EnsembleClustering::Graph::Graph (stinger ∗ *stingerG*)

Initialize with STINGER graph.

Parameters

in	*stingerG*	a STINGER graph struct

Definition at line 20 of file Graph.cpp.

6.9.2.3 EnsembleClustering::Graph::∼Graph ( )

Definition at line 17 of file Graph.cpp.

6.9.3 Member Function Documentation

6.9.3.1 stinger ∗ EnsembleClustering::Graph::asSTINGER ( ) const

Return the internal STINGER data structure.

Definition at line 26 of file Graph.cpp.

6.9.3.2 int64_t EnsembleClustering::Graph::degree (node *u*) const

Return the degree (number of incident edges).

Definition at line 69 of file Graph.cpp.

6.9.3.3 node EnsembleClustering::Graph::firstNode ( ) const

Get the first node index (for iteration over all nodes)

Definition at line 65 of file Graph.cpp.

6.9.3.4 template<typename Callback > void EnsembleClustering::Graph::forallEdges (bool *parallel,* Callback *callback*) [inline]

Definition at line 195 of file Graph.h.

6.9.3.5 bool EnsembleClustering::Graph::hasEdge (node *u,* node *v*) const

Check if undirected edge {u,v} exists in G.

Definition at line 36 of file Graph.cpp.

6.9.3.6 void EnsembleClustering::Graph::insertEdge (node *u,* node *v,* double *weight* = defaultEdgeWeight*,* int64_t *type* = defaultEdgeType*,* int64_t *timestamp* = defaultTimeStamp)

Insert a weighted, undirected edge.

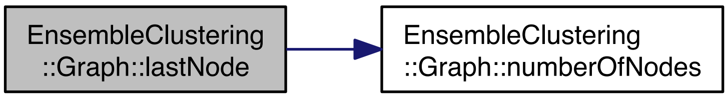
Definition at line 30 of file Graph.cpp.

6.9.3.7 node EnsembleClustering::Graph::lastNode ( ) const

Get the last node index (for iteration over all nodes).

Definition at line 85 of file Graph.cpp.

Here is the call graph for this function:


EnsembleClustering ::Graph::lastNode
EnsembleClustering ::Graph::numberOfNodes

6.9.3.8 int64_t EnsembleClustering::Graph::numberOfEdges ( ) const

Return the number of edges in the graph.

Definition at line 54 of file Graph.cpp.

6.9.3.9 int64_t EnsembleClustering::Graph::numberOfNodes ( ) const

Return the number of (non-isolated) nodes in the graph.

TODO: Maybe this should be changed to support isolated nodes.

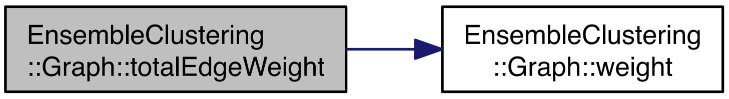
Definition at line 59 of file Graph.cpp.

6.9.3.10 double EnsembleClustering::Graph::totalEdgeWeight ( ) const

Get the sum of the weight of all edges.

Definition at line 76 of file Graph.cpp.

Here is the call graph for this function:


EnsembleClustering ::Graph::totalEdgeWeight
EnsembleClustering ::Graph::weight

6.9.3.11 double EnsembleClustering::Graph::weight (node *v*) const

Return node weight.

Definition at line 43 of file Graph.cpp.

6.9.3.12 double EnsembleClustering::Graph::weight (edge *uv*) const

Return edge weight.

Definition at line 47 of file Graph.cpp.

6.9.3.13 double EnsembleClustering::Graph::weight (node *u*, node *v*) const [inline]

Return edge weight.

Equivalent to getWeight(edge uv)

Definition at line 144 of file Graph.h.

6.9.4 Member Data Documentation

6.9.4.1 const int64_t EnsembleClustering::Graph::defaultEdgeType = 0 [static]

Definition at line 92 of file Graph.h.

6.9.4.2 constexpr double EnsembleClustering::Graph::defaultEdgeWeight = 1.0 [static]

default parameters

Definition at line 91 of file Graph.h.

6.9.4.3 const int64_t EnsembleClustering::Graph::defaultTimeStamp = 0 [static]

Definition at line 93 of file Graph.h.

6.9.4.4 stinger* EnsembleClustering::Graph::stingerG [protected]

Definition at line 81 of file Graph.h.

The documentation for this class was generated from the following files:

- src/graph/Graph.h
- src/graph/Graph.cpp

6.10 EnsembleClustering::GraphGenerator Class Reference

```
#include <GraphGenerator.h>
```

Public Member Functions

- GraphGenerator ()
- virtual ∼GraphGenerator ()
- Graph & makeErdosRenyiGraph (int64_t n, double p)

  Generate a random graph according to the Erdos-Renyi model.
- Graph & makeCircularGraph (int64_t n)

  Gemerate a graph whose nodes and edges form a circle.
- Graph & makeCompleteGraph (int64_t n)

6.10.1 Detailed Description

Definition at line 16 of file GraphGenerator.h.

6.10.2 Constructor & Destructor Documentation

6.10.2.1 EnsembleClustering::GraphGenerator::GraphGenerator ( )

Definition at line 12 of file GraphGenerator.cpp.

6.10.2.2 EnsembleClustering::GraphGenerator::∼GraphGenerator ( ) [virtual]

Definition at line 17 of file GraphGenerator.cpp.

6.10.3 Member Function Documentation

6.10.3.1 Graph & EnsembleClustering::GraphGenerator::makeCircularGraph (int64_t *n*)

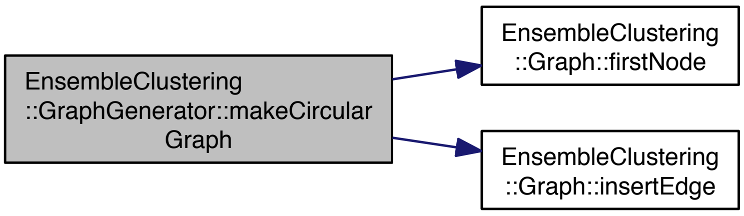
Gemerate a graph whose nodes and edges form a circle.

Parameters

in	*n*	number of nodes

Definition at line 37 of file GraphGenerator.cpp.

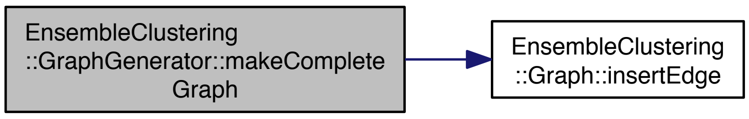
Here is the call graph for this function:


EnsembleClustering ::GraphGenerator::makeCircular Graph
EnsembleClustering ::Graph::firstNode
EnsembleClustering ::Graph::insertEdge

6.10.3.2 Graph & EnsembleClustering::GraphGenerator::makeCompleteGraph (int64_t *n*)

Definition at line 45 of file GraphGenerator.cpp.

Here is the call graph for this function:


EnsembleClustering ::GraphGenerator::makeComplete Graph
EnsembleClustering ::Graph::insertEdge

6.10.3.3 Graph & EnsembleClustering::GraphGenerator::makeErdosRenyiGraph (int64_t *n*, double *p*)

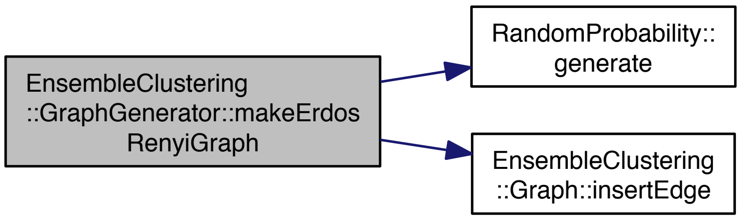
Generate a random graph according to the Erdos-Renyi model.

Parameters

`in`	*n*	number of nodes
`in`	*p*	edge probability

Definition at line 25 of file GraphGenerator.cpp.

Here is the call graph for this function:


EnsembleClustering ::GraphGenerator::makeErdos RenyiGraph
RandomProbability:: generate
EnsembleClustering ::Graph::insertEdge

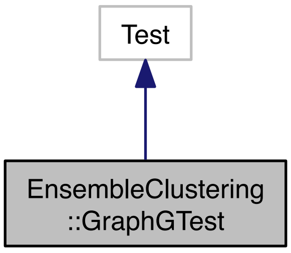
The documentation for this class was generated from the following files:

- src/graph/GraphGenerator.h
- src/graph/GraphGenerator.cpp

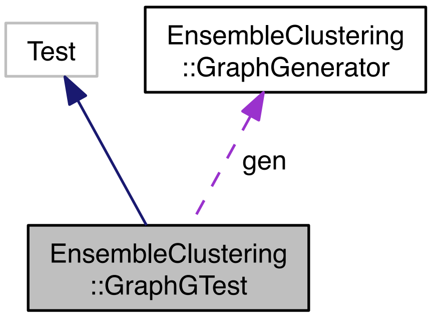
6.11 EnsembleClustering::GraphGTest Class Reference

```
#include <GraphGTest.h>
```

Inheritance diagram for EnsembleClustering::GraphGTest:



Collaboration diagram for EnsembleClustering::GraphGTest:


Test
EnsembleClustering ::GraphGenerator
gen
EnsembleClustering ::GraphGTest

Public Member Functions

- virtual void SetUp ()
- virtual void TearDown ()

Protected Attributes

- GraphGenerator gen

6.11.1 Detailed Description

Definition at line 20 of file GraphGTest.h.

6.11.2 Member Function Documentation

6.11.2.1 void EnsembleClustering::GraphGTest::SetUp ( ) [virtual]

Definition at line 14 of file GraphGTest.cpp.

6.11.2.2 void EnsembleClustering::GraphGTest::TearDown ( ) [virtual]

Definition at line 17 of file GraphGTest.cpp.

6.11.3 Member Data Documentation

6.11.3.1 GraphGenerator EnsembleClustering::GraphGTest::gen [protected]

Definition at line 24 of file GraphGTest.h.

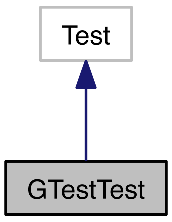
The documentation for this class was generated from the following files:

- src/graph/test/GraphGTest.h
- src/graph/test/GraphGTest.cpp

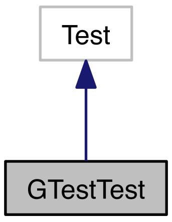
6.12 GTestTest Class Reference

```
#include <TestGTest.h>
```

Inheritance diagram for GTestTest:



Collaboration diagram for GTestTest:



Protected Member Functions

- virtual void SetUp ()

6.12.1 Detailed Description

Definition at line 13 of file TestGTest.h.

6.12.2 Member Function Documentation

6.12.2.1 virtual void GTestTest::SetUp ( ) `[inline], [protected], [virtual]`

Definition at line 16 of file TestGTest.h.

The documentation for this class was generated from the following file:

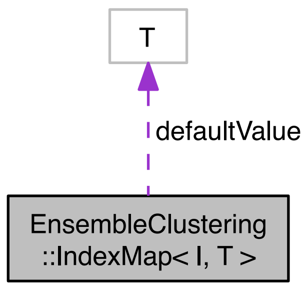
- src/test/TestGTest.h

6.13 EnsembleClustering::IndexMap< I, T > Class Template Reference

An IndexMap implements a 1-based mapping from an integer index type to an arbitray value type.

`#include <IndexMap.h>`

Collaboration diagram for EnsembleClustering::IndexMap< I, T >:



Public Member Functions

- IndexMap (int64_t n)
- IndexMap (int64_t n, T defaultValue)

    Construct a new IndexMap which holds n entries .
- virtual ∼IndexMap ()
- T & operator[] (const I &index)

    Index operator.
- const T & operator[] (const I &index) const

    Index operator for const instances of this class.

Protected Attributes

- T ∗ array

    array of size (n+1). array[0] is not a valid entry, since node indices are 1-based
- T defaultValue
- int64_t n

6.13.1 Detailed Description

template<typename I, typename T>class EnsembleClustering::IndexMap< I, T >

An IndexMap implements a 1-based mapping from an integer index type to an arbitray value type.

Definition at line 17 of file IndexMap.h.

6.13.2 Constructor & Destructor Documentation

6.13.2.1 template<typename I , typename T > **EnsembleClustering::IndexMap< I, T >::IndexMap** (int64_t *n*) `[inline]`

Definition at line 60 of file IndexMap.h.

6.13.2.2 template<typename I , typename T > EnsembleClustering::IndexMap< I, T >::IndexMap (int64_t *n*, T *defaultValue*) [inline]

Construct a new IndexMap which holds n entries .

Parameters

in	*defaultValue*	all entries are initialized to this value

Definition at line 67 of file IndexMap.h.

6.13.2.3 template<typename I , typename T > EnsembleClustering::IndexMap< I, T >::∼IndexMap ( ) [inline], [virtual]

Definition at line 77 of file IndexMap.h.

6.13.3 Member Function Documentation

6.13.3.1 template<typename I , typename T > T & EnsembleClustering::IndexMap< I, T >::operator[] (const I & *index*) [inline]

Index operator.

Parameters

in	*u*	a node

Definition at line 82 of file IndexMap.h.

6.13.3.2 template<typename I , typename T > const T & EnsembleClustering::IndexMap< I, T >::operator[] (const I & *index*) const [inline]

Index operator for const instances of this class.

Parameters

in	*u*	a node

Definition at line 87 of file IndexMap.h.

6.13.4 Member Data Documentation

6.13.4.1 template<typename I , typename T > T* EnsembleClustering::IndexMap< I, T >::array [protected]

array of size (n+1). array[0] is not a valid entry, since node indices are 1-based

Definition at line 22 of file IndexMap.h.

6.13.4.2 template<typename I , typename T > T EnsembleClustering::IndexMap< I, T >::defaultValue [protected]

Definition at line 23 of file IndexMap.h.

6.13.4.3 template<typename I , typename T > int64_t EnsembleClustering::IndexMap< I, T >::n [protected]

Definition at line 24 of file IndexMap.h.

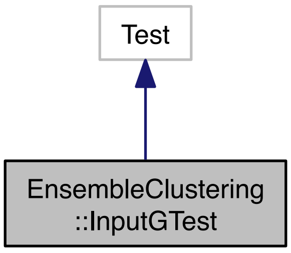
The documentation for this class was generated from the following file:

- src/aux/IndexMap.h

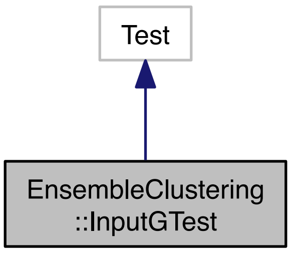
6.14 EnsembleClustering::InputGTest Class Reference

```
#include <InputGTest.h>
```

Inheritance diagram for EnsembleClustering::InputGTest:



Collaboration diagram for EnsembleClustering::InputGTest:



6.14.1 Detailed Description

Definition at line 18 of file InputGTest.h.

The documentation for this class was generated from the following file:

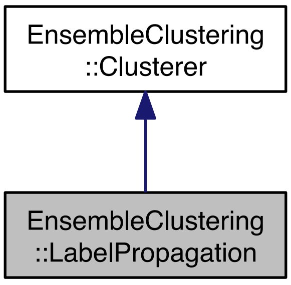
- src/input/test/InputGTest.h

6.15 EnsembleClustering::LabelPropagation Class Reference

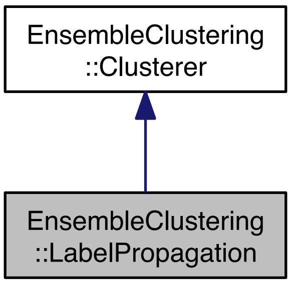
As described in Ovelgoenne et al: An Ensemble Learning Strategy for Graph Clustering Raghavan et al.

`#include <LabelPropagation.h>`

Inheritance diagram for EnsembleClustering::LabelPropagation:


EnsembleClustering ::Clusterer
EnsembleClustering ::LabelPropagation

Collaboration diagram for EnsembleClustering::LabelPropagation:


EnsembleClustering ::Clusterer
EnsembleClustering ::LabelPropagation

Public Member Functions

- LabelPropagation ()
- virtual ∼LabelPropagation ()
- virtual Clustering & run (Graph &G)

6.15.1 Detailed Description

As described in Ovelgoenne et al: An Ensemble Learning Strategy for Graph Clustering Raghavan et al.

proposed a label propagation algorithm for graph clustering. This algorithm initializes every vertex of a graph with a unique label. Then, in iterative sweeps over the set of vertices the vertex labels are updated. A vertex gets the label that the maximum number of its neighbors have. The procedure is stopped when every vertex has the label that at least half of its neighbors have.

Definition at line 30 of file LabelPropagation.h.

6.15.2 Constructor & Destructor Documentation

6.15.2.1 EnsembleClustering::LabelPropagation::LabelPropagation ( )

Definition at line 12 of file LabelPropagation.cpp.

6.15.2.2 EnsembleClustering::LabelPropagation::∼LabelPropagation ( ) `[virtual]`

Definition at line 17 of file LabelPropagation.cpp.

6.15.3 Member Function Documentation

6.15.3.1 Clustering & EnsembleClustering::LabelPropagation::run (Graph & *G*) `[virtual]`

< a label is the same as a cluster id

< neighborLabelCounts[v] maps label -> frequency in the neighbors of v

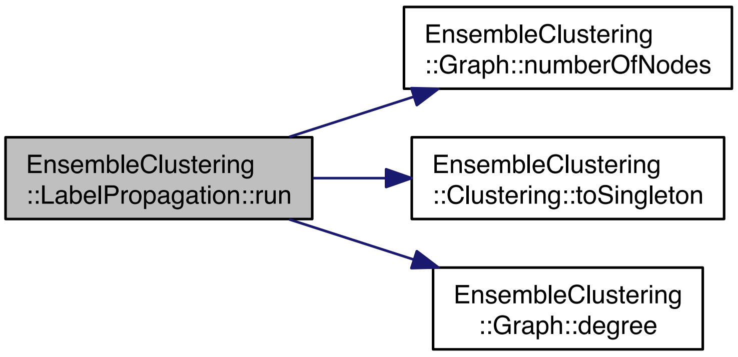
< number of nodes which already have the majority label

< number of iterations

Implements EnsembleClustering::Clusterer.

Definition at line 21 of file LabelPropagation.cpp.

Here is the call graph for this function:


EnsembleClustering ::Graph::numberOfNodes
EnsembleClustering ::LabelPropagation::run
EnsembleClustering ::Clustering::toSingleton
EnsembleClustering ::Graph::degree

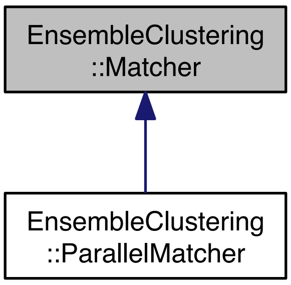
The documentation for this class was generated from the following files:

- src/clustering/LabelPropagation.h
- src/clustering/LabelPropagation.cpp

6.16 EnsembleClustering::Matcher Class Reference

`#include <Matcher.h>`

Inheritance diagram for EnsembleClustering::Matcher:


EnsembleClustering ::Matcher
EnsembleClustering ::ParallelMatcher

Public Member Functions

- Matcher ()
- virtual ∼Matcher ()
- virtual Matching & run (const Graph &G)=0

6.16.1 Detailed Description

Definition at line 16 of file Matcher.h.

6.16.2 Constructor & Destructor Documentation

6.16.2.1 EnsembleClustering::Matcher::Matcher ( )

Definition at line 12 of file Matcher.cpp.

6.16.2.2 EnsembleClustering::Matcher::∼Matcher ( ) `[virtual]`

Definition at line 17 of file Matcher.cpp.

6.16.3 Member Function Documentation

6.16.3.1 virtual **Matching**& EnsembleClustering::Matcher::run (const **Graph** & *G*) `[pure virtual]`

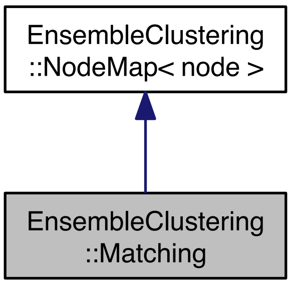
The documentation for this class was generated from the following files:

- src/matching/Matcher.h
- src/matching/Matcher.cpp

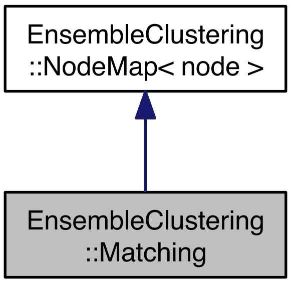
6.17 EnsembleClustering::Matching Class Reference

```
#include <Matching.h>
```

Inheritance diagram for EnsembleClustering::Matching:


EnsembleClustering ::NodeMap< node >
EnsembleClustering ::Matching

Collaboration diagram for EnsembleClustering::Matching:


EnsembleClustering ::NodeMap< node >
EnsembleClustering ::Matching

Public Member Functions

- Matching (int64_t n)

  Construct new matching.
- virtual ∼Matching ()

  Destructor.
- void match (const node &u, const node &v)

  Set two nodes as eachothers matching partners.
- void unmatch (const node &u, const node &v)

  Reset the two nodes to unmatched.
- bool isMatched (const node &u) const

  Check if node is matched.
- bool areMatched (const node &u, const node &v) const

Check if the two nodes are matched.
- bool isProper (Graph &G) const

  Check whether this is a proper matching in the graph, i.e.
- Matching & operator= (const Matching &from)

  copy semantics
- void clone (const Matching &from)

  Properly copy this object.
- void dispose ()

  Properly destruct this object.

Additional Inherited Members

6.17.1 Detailed Description

Definition at line 17 of file Matching.h.

6.17.2 Constructor & Destructor Documentation

6.17.2.1 EnsembleClustering::Matching::Matching (int64_t *n*)

Construct new matching.

Parameters

in	*n*	maximum number of nodes

Definition at line 12 of file Matching.cpp.

6.17.2.2 EnsembleClustering::Matching::∼Matching ( ) [virtual]

Destructor.

Definition at line 19 of file Matching.cpp.

6.17.3 Member Function Documentation

6.17.3.1 bool EnsembleClustering::Matching::areMatched (const node & *u*, const node & *v*) const

Check if the two nodes are matched.

Definition at line 82 of file Matching.cpp.

6.17.3.2 void EnsembleClustering::Matching::clone (const Matching & *from*)

Properly copy this object.

Definition at line 78 of file Matching.cpp.

6.17.3.3 void EnsembleClustering::Matching::dispose ( )

Properly destruct this object.

Definition at line 88 of file Matching.cpp.

6.17.3.4 bool EnsembleClustering::Matching::isMatched (const node & *u*) const

Check if node is matched.

Parameters

in	*u*	a node
out	*true*	if u is matched

Definition at line 23 of file Matching.cpp.

6.17.3.5 bool EnsembleClustering::Matching::isProper (Graph & *G*) const

Check whether this is a proper matching in the graph, i.e.

no two edges are adjacent.

[in] G a graph

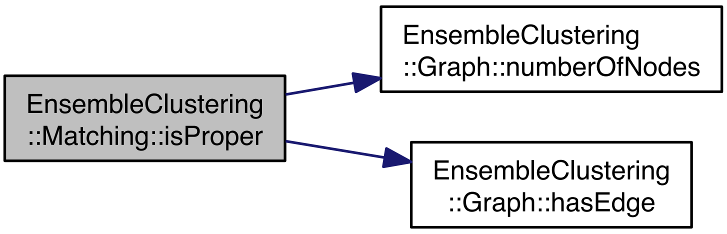
Parameters

out	*true*	if this is a proper matching

The content of this data structure represents a matching iff (for all v in V: M[v] = 0 or M[M[v]] = v) and (for all (u,v) in M): (u,v) in E

Definition at line 27 of file Matching.cpp.

Here is the call graph for this function:


EnsembleClustering ::Matching::isProper
EnsembleClustering ::Graph::numberOfNodes
EnsembleClustering ::Graph::hasEdge

6.17.3.6 void EnsembleClustering::Matching::match (const node & *u*, const node & *v*)

Set two nodes as eachothers matching partners.

Definition at line 57 of file Matching.cpp.

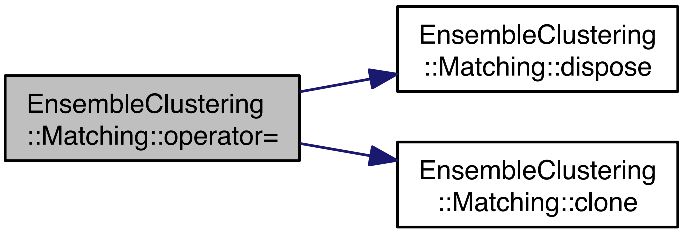
6.17.3.7 Matching & EnsembleClustering::Matching::operator= (const Matching & *from*)

copy semantics

Assignment operator.

Definition at line 69 of file Matching.cpp.

Here is the call graph for this function:


EnsembleClustering ::Matching::operator=
EnsembleClustering ::Matching::dispose
EnsembleClustering ::Matching::clone

6.17.3.8 void EnsembleClustering::Matching::unmatch (const node & *u,* const node & *v*)

Reset the two nodes to unmatched.

Definition at line 63 of file Matching.cpp.

The documentation for this class was generated from the following files:

- src/matching/Matching.h
- src/matching/Matching.cpp

6.18 EnsembleClustering::MatchingContracter Class Reference

`#include <MatchingContracter.h>`

Public Member Functions

- MatchingContracter ()
- virtual ∼MatchingContracter ()

6.18.1 Detailed Description

Definition at line 13 of file MatchingContracter.h.

6.18.2 Constructor & Destructor Documentation

6.18.2.1 EnsembleClustering::MatchingContracter::MatchingContracter ( )

Definition at line 12 of file MatchingContracter.cpp.

6.18.2.2 EnsembleClustering::MatchingContracter::∼MatchingContracter ( ) `[virtual]`

Definition at line 17 of file MatchingContracter.cpp.

The documentation for this class was generated from the following files:

- src/coarsening/MatchingContracter.h
- src/coarsening/MatchingContracter.cpp

6.19 EnsembleClustering::METISParser Class Reference

```
#include <METISParser.h>
```

Public Member Functions

- METISParser ()
- virtual ∼METISParser ()
- virtual void open (std::string graphPath)

  Open a METIS graph file.
- virtual std::pair< int, int > getHeader ()

  Get the METIS graph file header.
- virtual bool hasNext ()

  Test if graph file has a next line.
- virtual std::vector< node > getNext ()

  Get adjacencies from the next line in the METIS graph file.
- virtual void close ()

  Close input file and clean up.

Protected Attributes

- std::string graphPath
- std::ifstream graphFile
- std::string line
- int nodeCount

6.19.1 Detailed Description

Definition at line 25 of file METISParser.h.

6.19.2 Constructor & Destructor Documentation

6.19.2.1 EnsembleClustering::METISParser::METISParser ( )

Definition at line 39 of file METISParser.cpp.

6.19.2.2 EnsembleClustering::METISParser::∼METISParser ( ) `[virtual]`

Definition at line 43 of file METISParser.cpp.

6.19.3 Member Function Documentation

6.19.3.1 void EnsembleClustering::METISParser::close ( ) `[virtual]`

Close input file and clean up.

Definition at line 103 of file METISParser.cpp.

6.19.3.2 std::pair< int, int > EnsembleClustering::METISParser::getHeader ( ) [virtual]

Get the METIS graph file header.

Definition at line 62 of file METISParser.cpp.

6.19.3.3 std::vector< node > EnsembleClustering::METISParser::getNext ( ) [virtual]

Get adjacencies from the next line in the METIS graph file.

Definition at line 87 of file METISParser.cpp.

6.19.3.4 bool EnsembleClustering::METISParser::hasNext ( ) [virtual]

Test if graph file has a next line.

Definition at line 79 of file METISParser.cpp.

6.19.3.5 void EnsembleClustering::METISParser::open (std::string *graphPath*) [virtual]

Open a METIS graph file.

Definition at line 48 of file METISParser.cpp.

6.19.4 Member Data Documentation

6.19.4.1 std::ifstream EnsembleClustering::METISParser::graphFile [protected]

Definition at line 61 of file METISParser.h.

6.19.4.2 std::string EnsembleClustering::METISParser::graphPath [protected]

Definition at line 60 of file METISParser.h.

6.19.4.3 std::string EnsembleClustering::METISParser::line [protected]

Definition at line 62 of file METISParser.h.

6.19.4.4 int EnsembleClustering::METISParser::nodeCount [protected]

Definition at line 63 of file METISParser.h.

The documentation for this class was generated from the following files:

- src/input/METISParser.h
- src/input/METISParser.cpp

6.20 EnsembleClustering::METIStoSTINGER Class Reference

This class provides a user interface for reading a METIS graph file and returning a STINGER-based graph object.

`#include <METIStoSTINGER.h>`

Public Member Functions

- METIStoSTINGER ()
- virtual ∼METIStoSTINGER ()
- virtual Graph ∗ read (std::string graphPath)

6.20.1 Detailed Description

This class provides a user interface for reading a METIS graph file and returning a STINGER-based graph object.

Definition at line 22 of file METIStoSTINGER.h.

6.20.2 Constructor & Destructor Documentation

6.20.2.1 EnsembleClustering::METIStoSTINGER::METIStoSTINGER ( )

Definition at line 19 of file METIStoSTINGER.cpp.

6.20.2.2 EnsembleClustering::METIStoSTINGER::∼METIStoSTINGER ( ) [virtual]

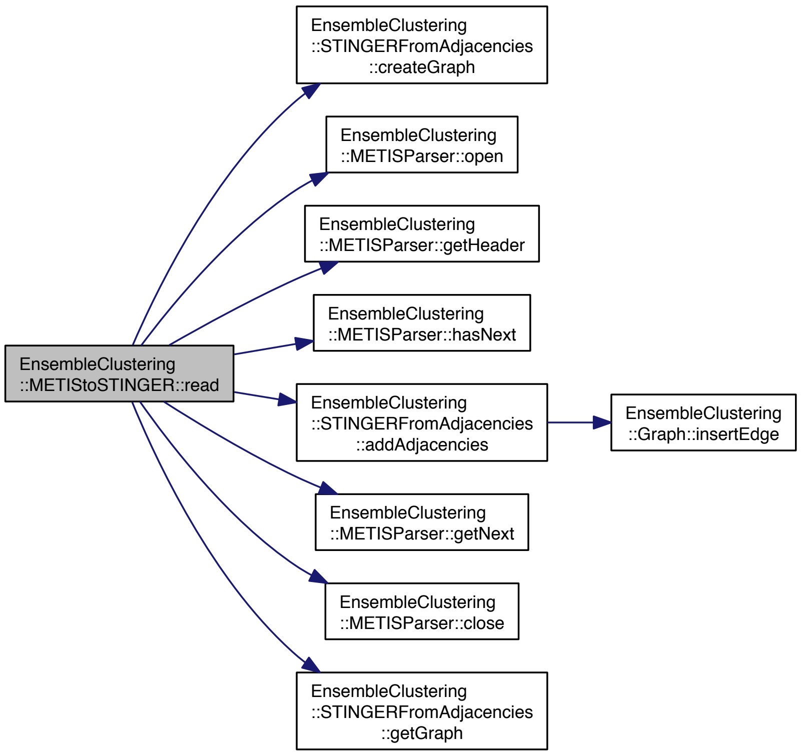
Definition at line 24 of file METIStoSTINGER.cpp.

6.20.3 Member Function Documentation

6.20.3.1 Graph ∗ EnsembleClustering::METIStoSTINGER::read (std::string *graphPath*) [virtual]

Definition at line 28 of file METIStoSTINGER.cpp.

Here is the call graph for this function:


EnsembleClustering ::METIStoSTINGER::read
EnsembleClustering ::STINGERFromAdjacencies ::createGraph
EnsembleClustering ::METISParser::open
EnsembleClustering ::METISParser::getHeader
EnsembleClustering ::METISParser::hasNext
EnsembleClustering ::STINGERFromAdjacencies ::addAdjacencies
EnsembleClustering ::Graph::insertEdge
EnsembleClustering ::METISParser::getNext
EnsembleClustering ::METISParser::close
EnsembleClustering ::STINGERFromAdjacencies ::getGraph

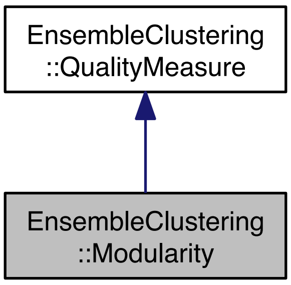
The documentation for this class was generated from the following files:

- src/input/METIStoSTINGER.h
- src/input/METIStoSTINGER.cpp

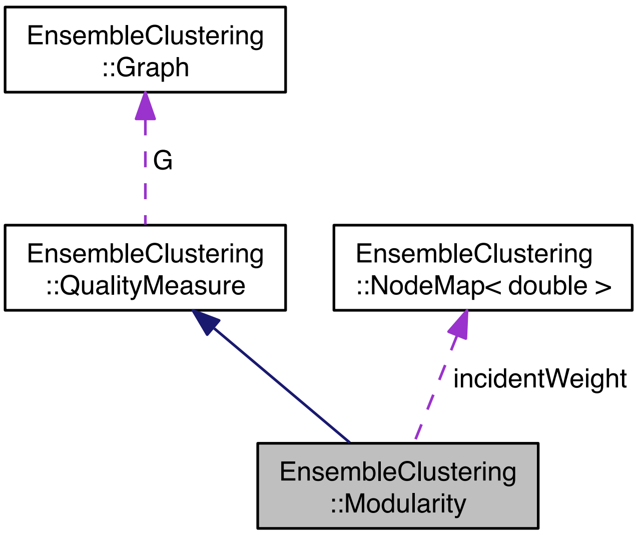
6.21 EnsembleClustering::Modularity Class Reference

```
#include <Modularity.h>
```

Inheritance diagram for EnsembleClustering::Modularity:


EnsembleClustering ::QualityMeasure
EnsembleClustering ::Modularity

Collaboration diagram for EnsembleClustering::Modularity:


EnsembleClustering ::Graph
G
EnsembleClustering ::QualityMeasure
EnsembleClustering ::NodeMap< double >
incidentWeight
EnsembleClustering ::Modularity

Public Member Functions

- Modularity (Graph &G)
- virtual ~Modularity ()
- virtual double getQuality (Clustering &zeta)

  Returns the Modularity of the given clustering with respect to the graph instance.

Protected Member Functions

- virtual void precompute ()

Precompute some values depending on the graph instance to be used in getQuality.

Protected Attributes

- NodeMap< double > ∗ incidentWeight

  node -> sum of the weight of incident edges

6.21.1 Detailed Description

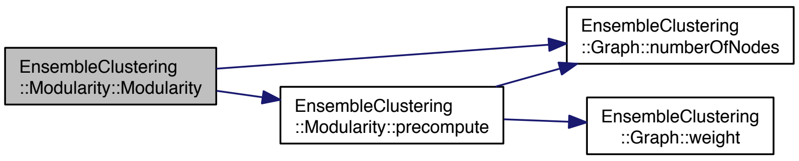
Definition at line 22 of file Modularity.h.

6.21.2 Constructor & Destructor Documentation

6.21.2.1 EnsembleClustering::Modularity::Modularity (**Graph & *G***)

Definition at line 14 of file Modularity.cpp.

Here is the call graph for this function:


EnsembleClustering ::Modularity::Modularity
EnsembleClustering ::Graph::numberOfNodes
EnsembleClustering ::Modularity::precompute
EnsembleClustering ::Graph::weight

6.21.2.2 EnsembleClustering::Modularity::∼Modularity ( ) `[virtual]`

Definition at line 19 of file Modularity.cpp.

6.21.3 Member Function Documentation

6.21.3.1 double EnsembleClustering::Modularity::getQuality (**Clustering & *zeta***) `[virtual]`

Returns the Modularity of the given clustering with respect to the graph instance.

Modularity is defined as:

```
$$mod(\zeta) := \frac{\sum_{C \in \zeta} \sum_{ e \in E(C) } \omega(e)}{\sum_{e \in E} \omega(e)}
- \frac{ \sum_{C \in \zeta}( \sum_{v \in C} \omega(v) )^2 }{4( \sum_{e \in E} \omega(e) )^2 }$$
```

< term ${{C } { e E(C) } (e)}{{e E} (e)}$

< term ${ {C }({v C} (v))^2 }{4({e E} (e))^2 }$

< cluster -> weight of its internal edges

< term ${C } { e E(C) } (e)$

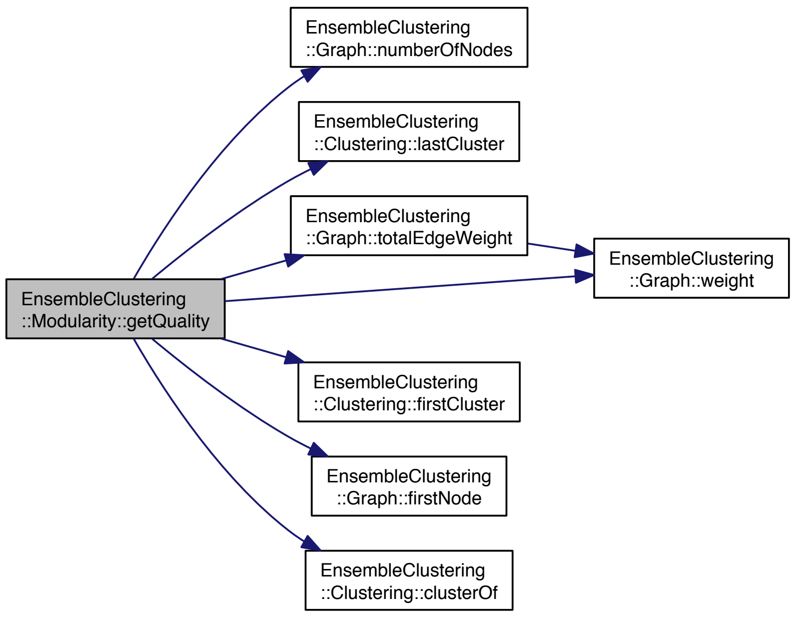
< cluster -> sum of the weights of incident edges for all nodes

< term ${C }({v C} (v))^2 $

Implements EnsembleClustering::QualityMeasure.

Definition at line 36 of file Modularity.cpp.

Here is the call graph for this function:

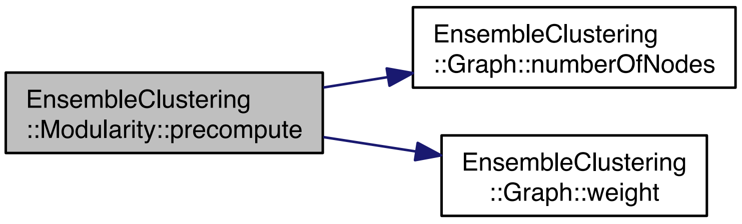

EnsembleClustering ::Graph::numberOfNodes
EnsembleClustering ::Clustering::lastCluster
EnsembleClustering ::Graph::totalEdgeWeight
EnsembleClustering ::Graph::weight
EnsembleClustering ::Modularity::getQuality
EnsembleClustering ::Clustering::firstCluster
EnsembleClustering ::Graph::firstNode
EnsembleClustering ::Clustering::clusterOf

6.21.3.2 void EnsembleClustering::Modularity::precompute ( ) [protected], [virtual]

Precompute some values depending on the graph instance to be used in getQuality.

Definition at line 23 of file Modularity.cpp.

Here is the call graph for this function:


EnsembleClustering ::Graph::numberOfNodes
EnsembleClustering ::Modularity::precompute
EnsembleClustering ::Graph::weight

6.21.4 Member Data Documentation

6.21.4.1 NodeMap<double>* EnsembleClustering::Modularity::incidentWeight `[protected]`

node -> sum of the weight of incident edges

Definition at line 26 of file Modularity.h.

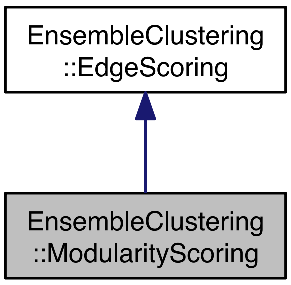
The documentation for this class was generated from the following files:

- src/clustering/Modularity.h
- src/clustering/Modularity.cpp

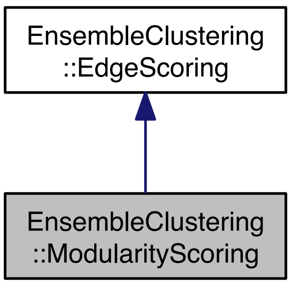
6.22 EnsembleClustering::ModularityScoring Class Reference

`#include <ModularityScoring.h>`

Inheritance diagram for EnsembleClustering::ModularityScoring:


EnsembleClustering ::EdgeScoring
EnsembleClustering ::ModularityScoring

Collaboration diagram for EnsembleClustering::ModularityScoring:


EnsembleClustering ::EdgeScoring
EnsembleClustering ::ModularityScoring

Public Member Functions

- ModularityScoring ()

- virtual ∼ModularityScoring ()
- virtual double scoreEdge (Edge uv)=0

  Returns an edge score for an edge (u,v) which expresses the modularity increase which can be gained by merging the clusters of u and v.
- virtual double mod (Clustering clustering)=0

  Calculates the modularity of the given clustering;.
- virtual double deltaMod (Cluster c, Cluster d)=0

  Calculates the difference in modularity that would result from a merger of two clusters.
- virtual double cutweight (Cluster c, Cluster d)=0
- virtual double weight (Cluster c)=0

6.22.1 Detailed Description

Definition at line 26 of file ModularityScoring.h.

6.22.2 Constructor & Destructor Documentation

6.22.2.1 EnsembleClustering::ModularityScoring::ModularityScoring ( )

Definition at line 13 of file ModularityScoring.cpp.

6.22.2.2 EnsembleClustering::ModularityScoring::∼ModularityScoring ( ) [virtual]

Definition at line 18 of file ModularityScoring.cpp.

6.22.3 Member Function Documentation

6.22.3.1 virtual double EnsembleClustering::ModularityScoring::cutweight (Cluster *c*, Cluster *d*) [pure virtual]

6.22.3.2 virtual double EnsembleClustering::ModularityScoring::deltaMod (Cluster *c*, Cluster *d*) [pure virtual]

Calculates the difference in modularity that would result from a merger of two clusters.

6.22.3.3 double EnsembleClustering::ModularityScoring::mod (Clustering *clustering*) [pure virtual]

Calculates the modularity of the given clustering;.

Definition at line 25 of file ModularityScoring.cpp.

6.22.3.4 virtual double EnsembleClustering::ModularityScoring::scoreEdge (Edge *uv*) [pure virtual]

Returns an edge score for an edge (u,v) which expresses the modularity increase which can be gained by merging the clusters of u and v.

Parameters

in	*u*	source node id
out	*v*	target node id

6.22.3.5 virtual double EnsembleClustering::ModularityScoring::weight (Cluster *c*) [pure virtual]

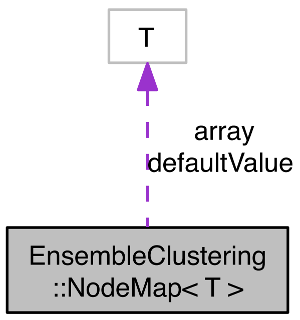
The documentation for this class was generated from the following files:

- src/scoring/ModularityScoring.h
- src/scoring/ModularityScoring.cpp

6.23 EnsembleClustering::NodeMap< T > Class Template Reference

`#include <NodeMap.h>`

Collaboration diagram for EnsembleClustering::NodeMap< T >:



Public Member Functions

- NodeMap (int64_t n)
- NodeMap (int64_t n, T defaultValue)

  Construct a node map which holds n entries .
- virtual ∼NodeMap ()
- T & operator[] (const node &u)

  Index operator.
- const T & operator[] (const node &u) const

  Index operator for const instances of this class.

Protected Attributes

- T ∗ array

  array of size (n+1). array[0] is not a valid entry, since node indices are 1-based
- T defaultValue
- int64_t n

6.23.1 Detailed Description

template<class T>class EnsembleClustering::NodeMap< T >

Definition at line 15 of file NodeMap.h.

6.23.2 Constructor & Destructor Documentation

6.23.2.1 template<class T > EnsembleClustering::NodeMap< T >::NodeMap (int64_t *n*) `[inline]`

Definition at line 57 of file NodeMap.h.

6.23.2.2 template<class T> EnsembleClustering::NodeMap< T >::NodeMap (int64_t *n*, T *defaultValue*) `[inline]`

Construct a node map which holds n entries .

Parameters

`in`	*defaultValue*	all entries are initialized to this value

Definition at line 62 of file NodeMap.h.

6.23.2.3 template<class T > EnsembleClustering::NodeMap< T >::∼NodeMap ( ) `[inline]`, `[virtual]`

Definition at line 71 of file NodeMap.h.

6.23.3 Member Function Documentation

6.23.3.1 template<class T > T & EnsembleClustering::NodeMap< T >::operator[] (const node & *u*) `[inline]`

Index operator.

Parameters

`in`	*u*	a node

Definition at line 75 of file NodeMap.h.

6.23.3.2 template<class T > const T & EnsembleClustering::NodeMap< T >::operator[] (const node & *u*) const `[inline]`

Index operator for const instances of this class.

Parameters

`in`	*u*	a node

Definition at line 79 of file NodeMap.h.

6.23.4 Member Data Documentation

6.23.4.1 template<class T> T* EnsembleClustering::NodeMap< T >::array `[protected]`

array of size (n+1). array[0] is not a valid entry, since node indices are 1-based

Definition at line 19 of file NodeMap.h.

6.23.4.2 template<class T> T EnsembleClustering::NodeMap< T >::defaultValue `[protected]`

Definition at line 20 of file NodeMap.h.

6.23.4.3 template<class T> int64_t EnsembleClustering::NodeMap< T >::n `[protected]`

Definition at line 21 of file NodeMap.h.

The documentation for this class was generated from the following file:

- src/graph/NodeMap.h

6.24 Noise Class Reference

Noise is random addition to a signal.

`#include <Noise.h>`

Public Member Functions

- Noise (double l, double u)
- virtual ~Noise ()
- double add (double x)

  Add noise to double.

Public Attributes

- double lowerBound
- double upperBound

Protected Attributes

- std::uniform_real_distribution
  < double > uniform
- std::default_random_engine randomEngine

6.24.1 Detailed Description

Noise is random addition to a signal.

This class provides methods which add random numbers to their inputs in order to enable randomization.

Definition at line 19 of file Noise.h.

6.24.2 Constructor & Destructor Documentation

6.24.2.1 Noise::Noise (double *l*, double *u*)

Parameters

`in`	*l*	lower bound for added random number
`in`	*u*	upper bound for added random number

Definition at line 12 of file Noise.cpp.

6.24.2.2 Noise::∼Noise ( ) `[virtual]`

Definition at line 19 of file Noise.cpp.

6.24.3 Member Function Documentation

6.24.3.1 double Noise::add (double *x*)

Add noise to double.

Parameters

`in`	*x*	input
`out`	*input*	plus noise

Definition at line 23 of file Noise.cpp.

6.24.4 Member Data Documentation

6.24.4.1 double Noise::lowerBound

Definition at line 28 of file Noise.h.

6.24.4.2 std::default_random_engine Noise::randomEngine `[protected]`

Definition at line 24 of file Noise.h.

6.24.4.3 std::uniform_real_distribution<double> Noise::uniform `[protected]`

Definition at line 23 of file Noise.h.

6.24.4.4 double Noise::upperBound

Definition at line 29 of file Noise.h.

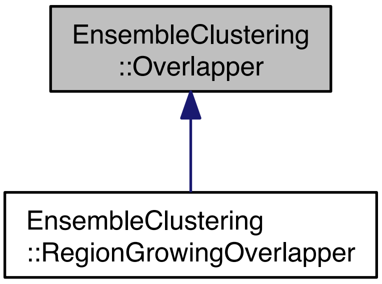
The documentation for this class was generated from the following files:

- src/aux/Noise.h
- src/aux/Noise.cpp

6.25 EnsembleClustering::Overlapper Class Reference

`#include <Overlapper.h>`

Inheritance diagram for EnsembleClustering::Overlapper:


EnsembleClustering ::Overlapper
EnsembleClustering ::RegionGrowingOverlapper

Public Member Functions

- Overlapper ()
- virtual ∼Overlapper ()

6.25.1 Detailed Description

Definition at line 20 of file Overlapper.h.

6.25.2 Constructor & Destructor Documentation

6.25.2.1 EnsembleClustering::Overlapper::Overlapper ( )

Definition at line 12 of file Overlapper.cpp.

6.25.2.2 EnsembleClustering::Overlapper::∼Overlapper ( ) `[virtual]`

Definition at line 17 of file Overlapper.cpp.

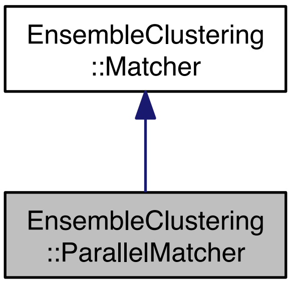
The documentation for this class was generated from the following files:

- src/overlap/Overlapper.h
- src/overlap/Overlapper.cpp

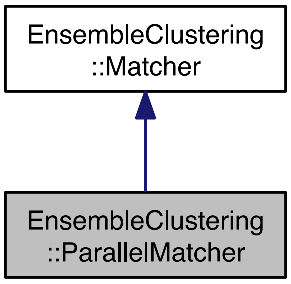
6.26 EnsembleClustering::ParallelMatcher Class Reference

`#include <ParallelMatcher.h>`

Inheritance diagram for EnsembleClustering::ParallelMatcher:


EnsembleClustering ::Matcher
EnsembleClustering ::ParallelMatcher

Collaboration diagram for EnsembleClustering::ParallelMatcher:


EnsembleClustering ::Matcher
EnsembleClustering ::ParallelMatcher

Public Member Functions

- ParallelMatcher ()
- virtual ∼ParallelMatcher ()
- virtual Matching & run (Graph &G)

  Apply the parallel matching algorithm described by Manne/Bisseling Source: `http://link.springer.com/chapter/10.1007%2F978-3-540-68111-3_74?LI=true#page-1`.

6.26.1 Detailed Description

Definition at line 16 of file ParallelMatcher.h.

6.26.2 Constructor & Destructor Documentation

6.26.2.1 EnsembleClustering::ParallelMatcher::ParallelMatcher ( )

Definition at line 14 of file ParallelMatcher.cpp.

6.26.2.2 EnsembleClustering::ParallelMatcher::∼ParallelMatcher ( ) [virtual]

Definition at line 19 of file ParallelMatcher.cpp.

6.26.3 Member Function Documentation

6.26.3.1 Matching & EnsembleClustering::ParallelMatcher::run (Graph & *G*) [virtual]

Apply the parallel matching algorithm described by Manne/Bisseling Source: `http://link.springer.-com/chapter/10.1007%2F978-3-540-68111-3_74?LI=true#page-1`.

< candidate[v] is the preferred matching partner of v

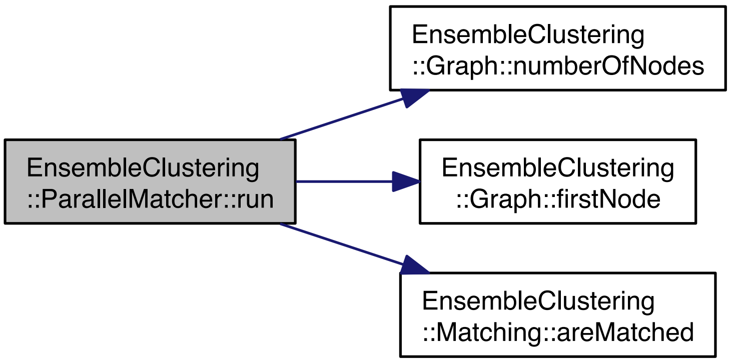
< S[v] is a set with the potential

< candidates of node v

< targets of dominating edges

Definition at line 23 of file ParallelMatcher.cpp.

Here is the call graph for this function:


EnsembleClustering ::Graph::numberOfNodes
EnsembleClustering ::ParallelMatcher::run
EnsembleClustering ::Graph::firstNode
EnsembleClustering ::Matching::areMatched

The documentation for this class was generated from the following files:

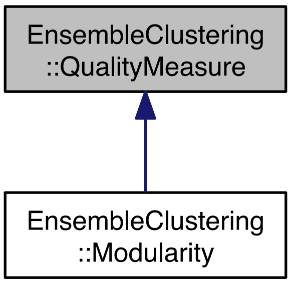
- src/matching/ParallelMatcher.h
- src/matching/ParallelMatcher.cpp

6.27 EnsembleClustering::QualityMeasure Class Reference

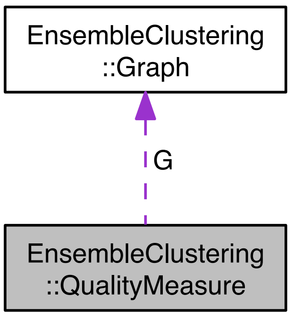
Abstract base class for all clustering quality measures.

`#include <QualityMeasure.h>`

Inheritance diagram for EnsembleClustering::QualityMeasure:


EnsembleClustering ::QualityMeasure
EnsembleClustering ::Modularity

Collaboration diagram for EnsembleClustering::QualityMeasure:


EnsembleClustering ::Graph
G
EnsembleClustering ::QualityMeasure

Public Member Functions

- QualityMeasure (Graph &G)
- virtual ∼QualityMeasure ()
- virtual double getQuality (Clustering &zeta)=0

Protected Attributes

- Graph ∗ G

6.27.1 Detailed Description

Abstract base class for all clustering quality measures.

Definition at line 18 of file QualityMeasure.h.

6.27.2 Constructor & Destructor Documentation

6.27.2.1 EnsembleClustering::QualityMeasure::QualityMeasure (Graph & *G*)

Definition at line 12 of file QualityMeasure.cpp.

6.27.2.2 EnsembleClustering::QualityMeasure::∼QualityMeasure ( ) `[virtual]`

Definition at line 16 of file QualityMeasure.cpp.

6.27.3 Member Function Documentation

6.27.3.1 virtual double EnsembleClustering::QualityMeasure::getQuality (Clustering & *zeta*) `[pure virtual]`

Implemented in EnsembleClustering::Modularity.

6.27.4 Member Data Documentation

6.27.4.1 Graph∗ EnsembleClustering::QualityMeasure::G `[protected]`

Definition at line 22 of file QualityMeasure.h.

The documentation for this class was generated from the following files:

- src/clustering/QualityMeasure.h
- src/clustering/QualityMeasure.cpp

6.28 RandomProbability Class Reference

`#include <RandomProbability.h>`

Public Member Functions

- RandomProbability ()
- virtual ∼RandomProbability ()
- virtual double generate ()

Protected Attributes

- std::uniform_real_distribution
  < double > uniform
- std::default_random_engine randomEngine

6.28.1 Detailed Description

Definition at line 13 of file RandomProbability.h.

6.28.2 Constructor & Destructor Documentation

6.28.2.1 RandomProbability::RandomProbability ( )

Definition at line 10 of file RandomProbability.cpp.

6.28.2.2 RandomProbability::∼RandomProbability ( ) [virtual]

Definition at line 15 of file RandomProbability.cpp.

6.28.3 Member Function Documentation

6.28.3.1 double RandomProbability::generate ( ) [virtual]

Definition at line 19 of file RandomProbability.cpp.

6.28.4 Member Data Documentation

6.28.4.1 std::default_random_engine RandomProbability::randomEngine [protected]

Definition at line 18 of file RandomProbability.h.

6.28.4.2 std::uniform_real_distribution<double> RandomProbability::uniform [protected]

Definition at line 17 of file RandomProbability.h.

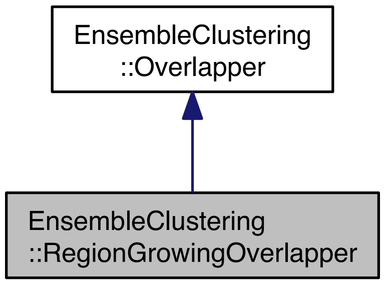
The documentation for this class was generated from the following files:

- src/aux/RandomProbability.h
- src/aux/RandomProbability.cpp

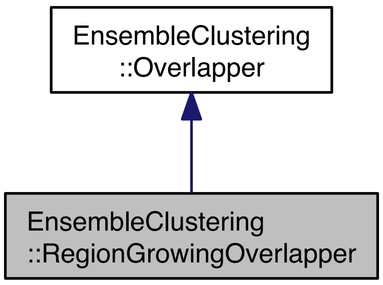
6.29 EnsembleClustering::RegionGrowingOverlapper Class Reference

`#include <RegionGrowingOverlapper.h>`

Inheritance diagram for EnsembleClustering::RegionGrowingOverlapper:



Collaboration diagram for EnsembleClustering::RegionGrowingOverlapper:


EnsembleClustering ::Overlapper
EnsembleClustering ::RegionGrowingOverlapper

Public Member Functions

- RegionGrowingOverlapper ()
- virtual ∼RegionGrowingOverlapper ()

6.29.1 Detailed Description

Definition at line 15 of file RegionGrowingOverlapper.h.

6.29.2 Constructor & Destructor Documentation

6.29.2.1 EnsembleClustering::RegionGrowingOverlapper::RegionGrowingOverlapper ( )

Definition at line 12 of file RegionGrowingOverlapper.cpp.

6.29.2.2 EnsembleClustering::RegionGrowingOverlapper::∼RegionGrowingOverlapper ( ) `[virtual]`

Definition at line 17 of file RegionGrowingOverlapper.cpp.

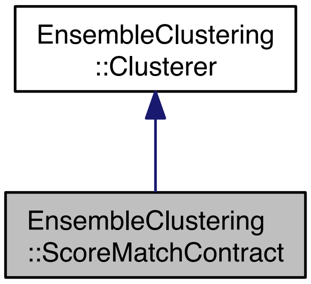
The documentation for this class was generated from the following files:

- src/overlap/RegionGrowingOverlapper.h
- src/overlap/RegionGrowingOverlapper.cpp

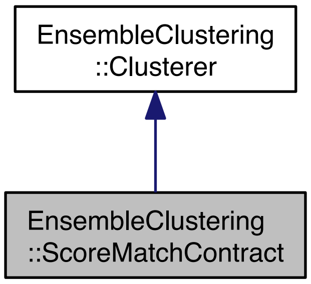
6.30 EnsembleClustering::ScoreMatchContract Class Reference

`#include <ScoreMatchContract.h>`

Inheritance diagram for EnsembleClustering::ScoreMatchContract:


EnsembleClustering ::Clusterer
EnsembleClustering ::ScoreMatchContract

Collaboration diagram for EnsembleClustering::ScoreMatchContract:


EnsembleClustering ::Clusterer
EnsembleClustering ::ScoreMatchContract

Public Member Functions

- ScoreMatchContract ()
- virtual ∼ScoreMatchContract ()

6.30.1 Detailed Description

Definition at line 15 of file ScoreMatchContract.h.

6.30.2 Constructor & Destructor Documentation

6.30.2.1 EnsembleClustering::ScoreMatchContract::ScoreMatchContract ( )

Definition at line 12 of file ScoreMatchContract.cpp.

6.30.2.2 EnsembleClustering::ScoreMatchContract::∼ScoreMatchContract ( ) [virtual]

Definition at line 17 of file ScoreMatchContract.cpp.

The documentation for this class was generated from the following files:

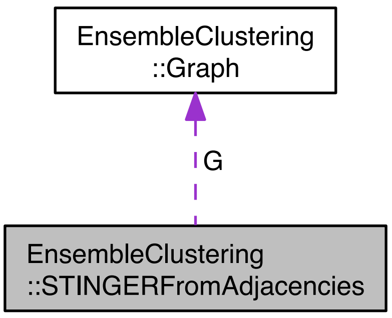
- src/clustering/ScoreMatchContract.h
- src/clustering/ScoreMatchContract.cpp

6.31 EnsembleClustering::STINGERFromAdjacencies Class Reference

A 'builder' which constructs a STINGER-based graph from adjacencies.

`#include <STINGERFromAdjacencies.h>`

Collaboration diagram for EnsembleClustering::STINGERFromAdjacencies:


EnsembleClustering ::Graph
G
EnsembleClustering ::STINGERFromAdjacencies

Public Member Functions

- STINGERFromAdjacencies ()
- virtual ∼STINGERFromAdjacencies ()
- virtual void createGraph ()

    Create new STINGER instance.
- virtual void addAdjacencies (std::vector< node > adj)

    Add next node and its adjacent edges.
- virtual stinger ∗ getSTINGER ()
- virtual Graph ∗ getGraph ()

Protected Attributes

- Graph ∗ G
- node currentNode

6.31.1 Detailed Description

A 'builder' which constructs a STINGER-based graph from adjacencies.

An adjacency is a collection of node ids which represent a new node as well as its incident edges.

Definition at line 26 of file STINGERFromAdjacencies.h.

6.31.2 Constructor & Destructor Documentation

6.31.2.1 EnsembleClustering::STINGERFromAdjacencies::STINGERFromAdjacencies ( )

Definition at line 18 of file STINGERFromAdjacencies.cpp.

6.31.2.2 EnsembleClustering::STINGERFromAdjacencies::∼STINGERFromAdjacencies ( ) `[virtual]`

Definition at line 22 of file STINGERFromAdjacencies.cpp.

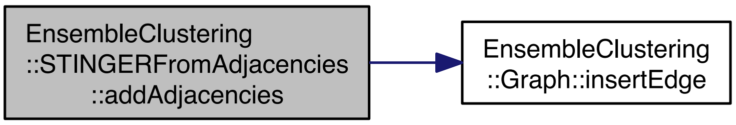
6.31.3 Member Function Documentation

6.31.3.1 void EnsembleClustering::STINGERFromAdjacencies::addAdjacencies (std::vector< node > *adj*) `[virtual]`

Add next node and its adjacent edges.

Definition at line 31 of file STINGERFromAdjacencies.cpp.

Here is the call graph for this function:



6.31.3.2 void EnsembleClustering::STINGERFromAdjacencies::createGraph ( ) `[virtual]`

Create new STINGER instance.

Definition at line 26 of file STINGERFromAdjacencies.cpp.

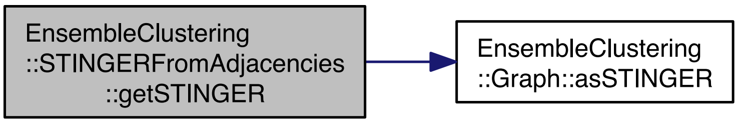
6.31.3.3 Graph ∗ EnsembleClustering::STINGERFromAdjacencies::getGraph ( ) `[virtual]`

Definition at line 47 of file STINGERFromAdjacencies.cpp.

6.31.3.4 stinger ∗ EnsembleClustering::STINGERFromAdjacencies::getSTINGER ( ) `[virtual]`

Definition at line 43 of file STINGERFromAdjacencies.cpp.

Here is the call graph for this function:


EnsembleClustering ::STINGERFromAdjacencies ::getSTINGER
EnsembleClustering ::Graph::asSTINGER

6.31.4 Member Data Documentation

6.31.4.1 node EnsembleClustering::STINGERFromAdjacencies::currentNode `[protected]`

Definition at line 54 of file STINGERFromAdjacencies.h.

6.31.4.2 Graph∗ EnsembleClustering::STINGERFromAdjacencies::G `[protected]`

Definition at line 50 of file STINGERFromAdjacencies.h.

The documentation for this class was generated from the following files:

- src/input/STINGERFromAdjacencies.h
- src/input/STINGERFromAdjacencies.cpp

6.32 Timer Class Reference

TODO: Platform-agnostic timer class.

`#include <Timer.h>`

Public Member Functions

- Timer ()
- virtual ∼Timer ()

6.32.1 Detailed Description

TODO: Platform-agnostic timer class.

Definition at line 42 of file Timer.h.

6.32.2 Constructor & Destructor Documentation

6.32.2.1 Timer::Timer ( )

Definition at line 11 of file Timer.cpp.

6.32.2.2 Timer::∼Timer ( ) [virtual]

Definition at line 16 of file Timer.cpp.

The documentation for this class was generated from the following files:

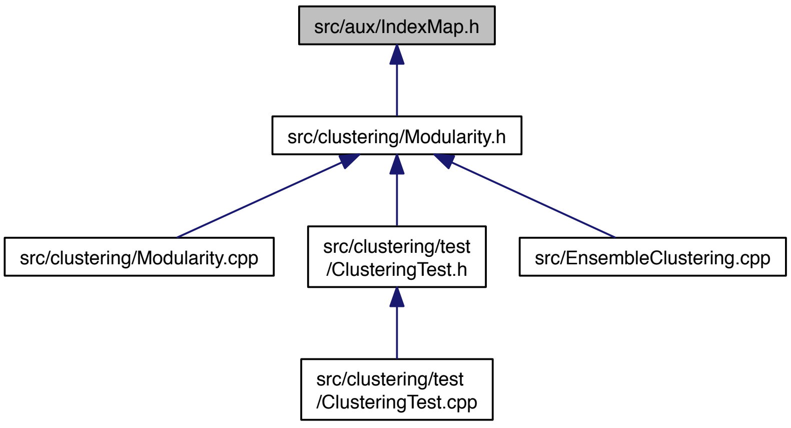
- src/aux/Timer.h
- src/aux/Timer.cpp

Chapter 7

File Documentation

7.1 src/aux/IndexMap.h File Reference

This graph shows which files directly or indirectly include this file:



Classes

- class EnsembleClustering::IndexMap< I, T >

  An IndexMap implements a 1-based mapping from an integer index type to an arbitray value type.

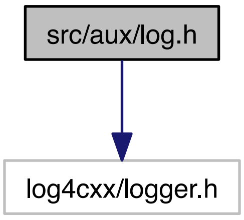
Namespaces

- namespace EnsembleClustering

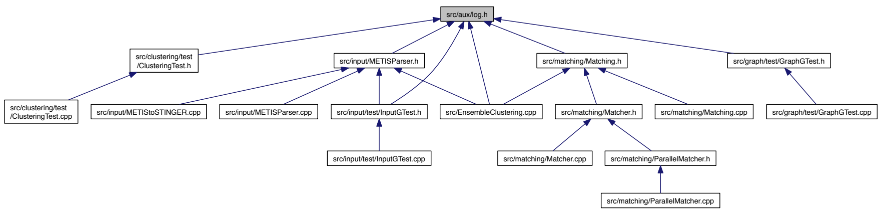
7.2 src/aux/log.h File Reference

```
#include "log4cxx/logger.h"
```

Include dependency graph for log.h:



This graph shows which files directly or indirectly include this file:


src/aux/log.h
src/clustering/test/ClusteringTest.h
src/input/METISParser.h
src/matching/Matching.h
src/graph/test/GraphGTest.h
src/clustering/test/ClusteringTest.cpp
src/input/METIStoSTINGER.cpp
src/input/METISParser.cpp
src/input/test/InputGTest.h
src/EnsembleClustering.cpp
src/matching/Matcher.h
src/matching/Matching.cpp
src/graph/test/GraphGTest.cpp
src/input/test/InputGTest.cpp
src/matching/Matcher.cpp
src/matching/ParallelMatcher.h
src/matching/ParallelMatcher.cpp

Macros

- #define LOCATION "in " << __PRETTY_FUNCTION__ << ": "
- #define LOGGER log4cxx::Logger::getRootLogger()
- #define FATAL(X) LOG4CXX_FATAL(LOGGER, LOCATION << X)
- #define ERROR(X) LOG4CXX_ERROR(LOGGER, LOCATION << X)
- #define WARN(X) LOG4CXX_WARN(LOGGER, LOCATION << X)
- #define INFO(X) LOG4CXX_INFO(LOGGER, LOCATION << X)
- #define DEBUG(X) LOG4CXX_DEBUG(LOGGER, LOCATION << X);
- #define TRACE(X) LOG4CXX_TRACE(LOGGER, LOCATION << X)

7.2.1 Macro Definition Documentation

7.2.1.1 #define DEBUG(*X*) LOG4CXX_DEBUG(LOGGER, LOCATION << X);

Definition at line 23 of file log.h.

7.2.1.2 #define ERROR(*X*) LOG4CXX_ERROR(LOGGER, LOCATION << X)

Definition at line 20 of file log.h.

7.2.1.3 #define FATAL(*X*) LOG4CXX_FATAL(LOGGER, LOCATION << X)

Definition at line 19 of file log.h.

7.2.1.4 #define INFO(*X*) LOG4CXX_INFO(LOGGER, LOCATION << X)

Definition at line 22 of file log.h.

7.2.1.5 #define LOCATION "in " << __PRETTY_FUNCTION__ << ": "

Definition at line 14 of file log.h.

7.2.1.6 #define LOGGER log4cxx::Logger::getRootLogger()

Definition at line 15 of file log.h.

7.2.1.7 #define TRACE(*X*) LOG4CXX_TRACE(LOGGER, LOCATION << X)

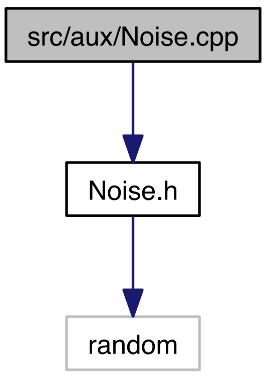
Definition at line 24 of file log.h.

7.2.1.8 #define WARN(*X*) LOG4CXX_WARN(LOGGER, LOCATION << X)

Definition at line 21 of file log.h.

7.3 src/aux/Noise.cpp File Reference

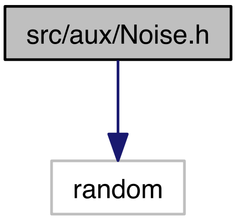
```
#include "Noise.h"
```
Include dependency graph for Noise.cpp:



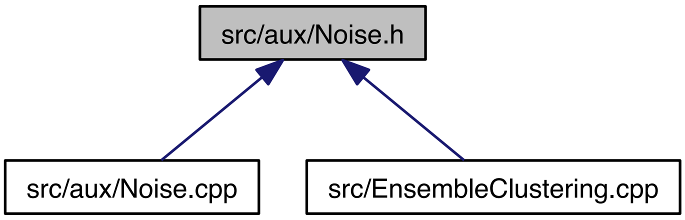
7.4 src/aux/Noise.h File Reference

```
#include <random>
```

Include dependency graph for Noise.h:



This graph shows which files directly or indirectly include this file:



Classes

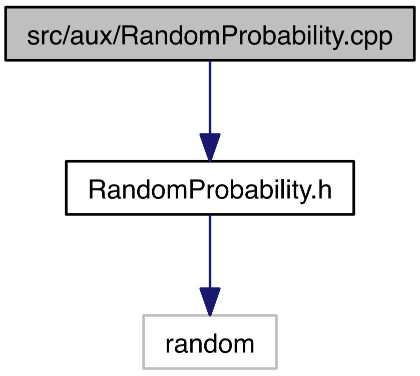
- class Noise

    Noise is random addition to a signal.

7.5 src/aux/RandomProbability.cpp File Reference

```
#include "RandomProbability.h"
```

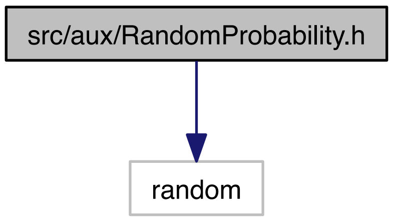
Include dependency graph for RandomProbability.cpp:



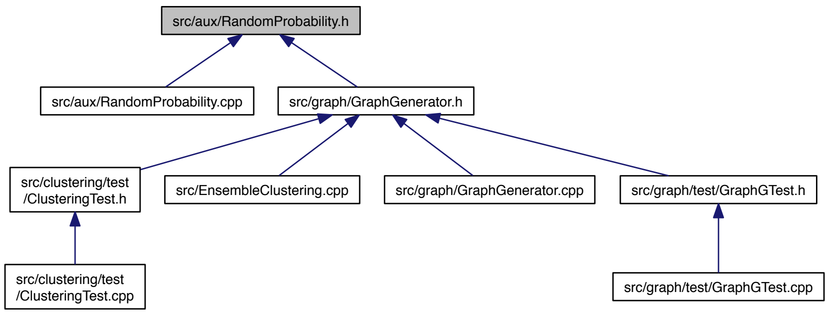
7.6 src/aux/RandomProbability.h File Reference

```
#include <random>
```

Include dependency graph for RandomProbability.h:



This graph shows which files directly or indirectly include this file:


src/aux/RandomProbability.h
src/aux/RandomProbability.cpp
src/graph/GraphGenerator.h
src/clustering/test
/ClusteringTest.h
src/EnsembleClustering.cpp
src/graph/GraphGenerator.cpp
src/graph/test/GraphGTest.h
src/clustering/test
/ClusteringTest.cpp
src/graph/test/GraphGTest.cpp

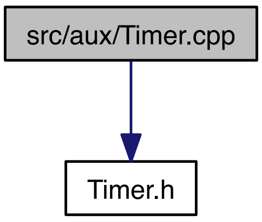
Classes

- class RandomProbability

7.7 src/aux/Timer.cpp File Reference

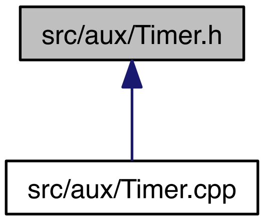
```
#include "Timer.h"
```

Include dependency graph for Timer.cpp:



7.8 src/aux/Timer.h File Reference

This graph shows which files directly or indirectly include this file:



Classes

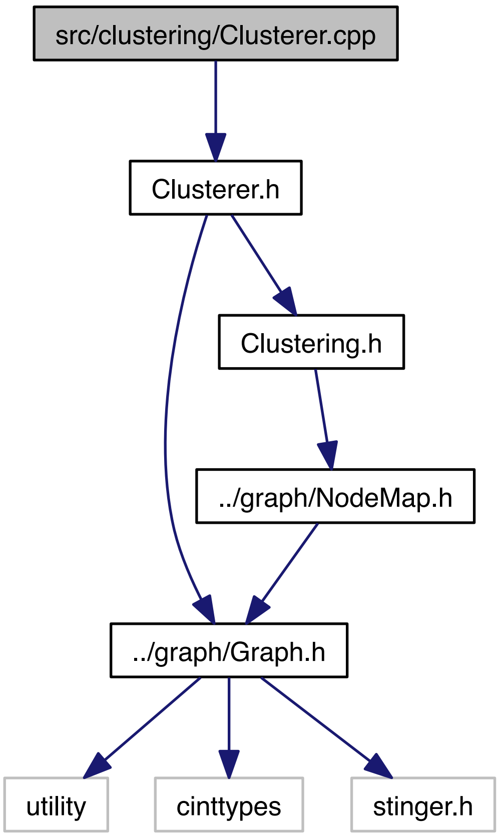
- class Timer

  TODO: Platform-agnostic timer class.

7.9 src/clustering/Clusterer.cpp File Reference

```
#include "Clusterer.h"
```

Include dependency graph for Clusterer.cpp:



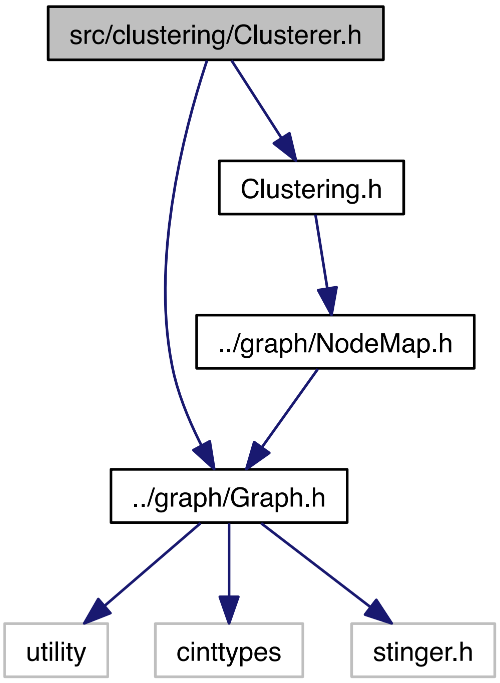
Namespaces

- namespace EnsembleClustering

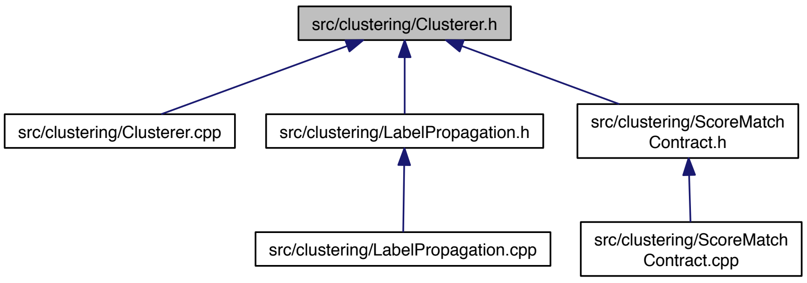
7.10 src/clustering/Clusterer.h File Reference

```
#include "../graph/Graph.h"
#include "Clustering.h"
```

Include dependency graph for Clusterer.h:



This graph shows which files directly or indirectly include this file:


src/clustering/Clusterer.h
src/clustering/Clusterer.cpp
src/clustering/LabelPropagation.h
src/clustering/ScoreMatch Contract.h
src/clustering/LabelPropagation.cpp
src/clustering/ScoreMatch Contract.cpp

Classes

- class EnsembleClustering::Clusterer

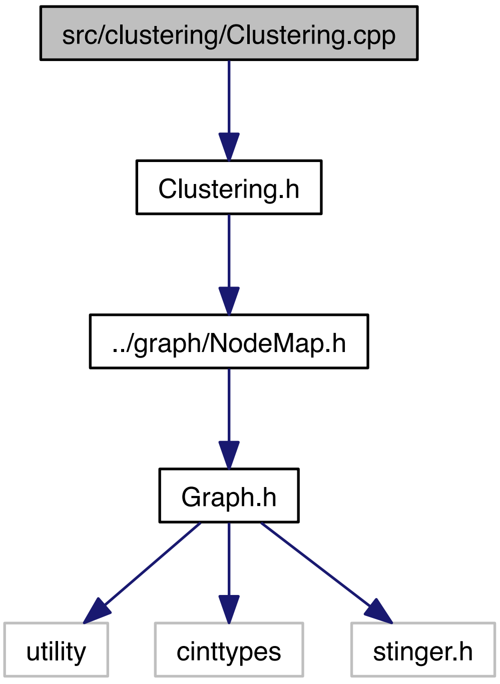
Namespaces

- namespace EnsembleClustering

7.11 src/clustering/Clustering.cpp File Reference

```
#include "Clustering.h"
```

Include dependency graph for Clustering.cpp:



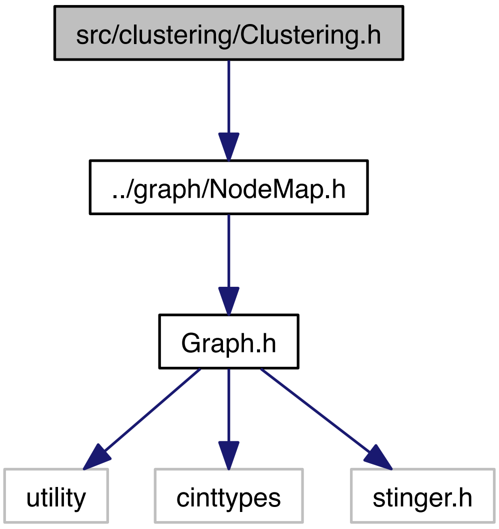
Namespaces

- namespace EnsembleClustering

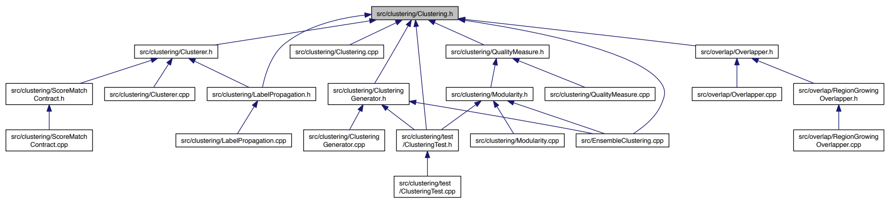
7.12 src/clustering/Clustering.h File Reference

```
#include "../graph/NodeMap.h"
```

Include dependency graph for Clustering.h:



This graph shows which files directly or indirectly include this file:


src/clustering/Clustering.h
src/clustering/Clusterer.h
src/clustering/Clustering.cpp
src/clustering/QualityMeasure.h
src/overlap/Overlapper.h
src/clustering/ScoreMatch Contract.h
src/clustering/Clusterer.cpp
src/clustering/LabelPropagation.h
src/clustering/Clustering Generator.h
src/clustering/Modularity.h
src/clustering/QualityMeasure.cpp
src/overlap/Overlapper.cpp
src/overlap/RegionGrowing Overlapper.h
src/clustering/ScoreMatch Contract.cpp
src/clustering/LabelPropagation.cpp
src/clustering/Clustering Generator.cpp
src/clustering/test /ClusteringTest.h
src/clustering/Modularity.cpp
src/EnsembleClustering.cpp
src/overlap/RegionGrowing Overlapper.cpp
src/clustering/test /ClusteringTest.cpp

Classes

- class EnsembleClustering::Clustering

Namespaces

- namespace EnsembleClustering

Typedefs

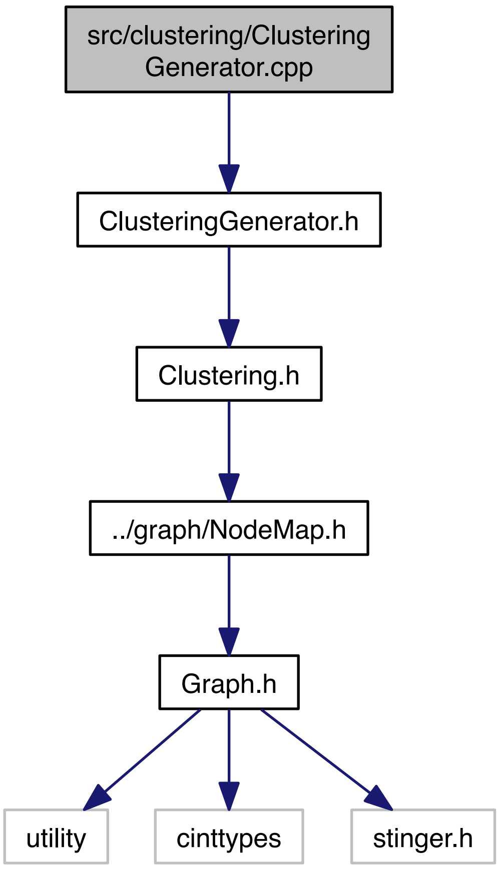
- typedef int64_t EnsembleClustering::cluster

  cluster is represented as a 1-based index

7.13 src/clustering/ClusteringGenerator.cpp File Reference

```
#include "ClusteringGenerator.h"
```

Include dependency graph for ClusteringGenerator.cpp:



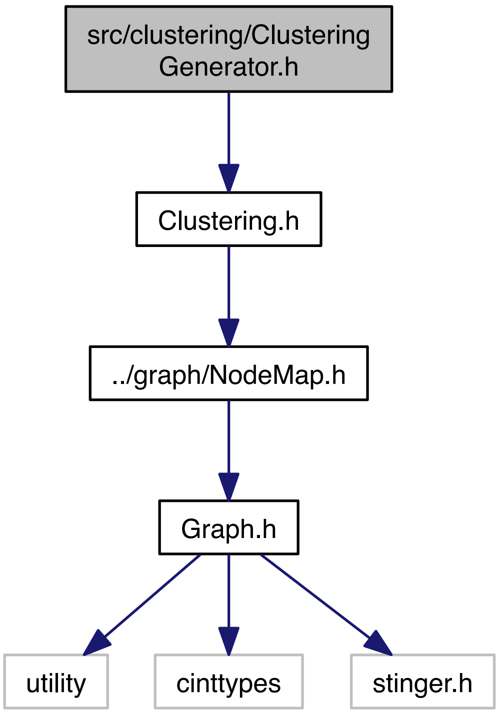
Namespaces

- namespace EnsembleClustering

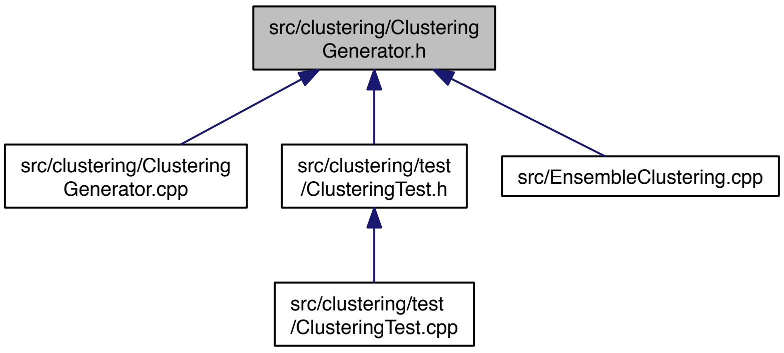
7.14 src/clustering/ClusteringGenerator.h File Reference

```
#include "Clustering.h"
```

Include dependency graph for ClusteringGenerator.h:



This graph shows which files directly or indirectly include this file:


src/clustering/Clustering Generator.h
src/clustering/Clustering Generator.cpp
src/clustering/test /ClusteringTest.h
src/EnsembleClustering.cpp
src/clustering/test /ClusteringTest.cpp

Classes

- class EnsembleClustering::ClusteringGenerator

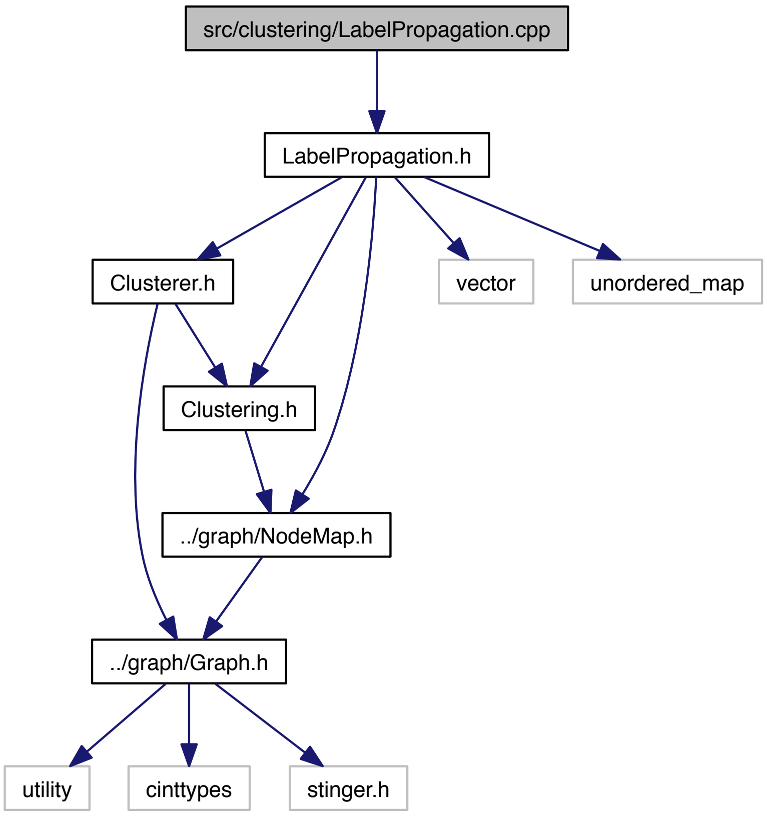
Namespaces

- namespace EnsembleClustering

7.15 src/clustering/LabelPropagation.cpp File Reference

```
#include "LabelPropagation.h"
```

Include dependency graph for LabelPropagation.cpp:



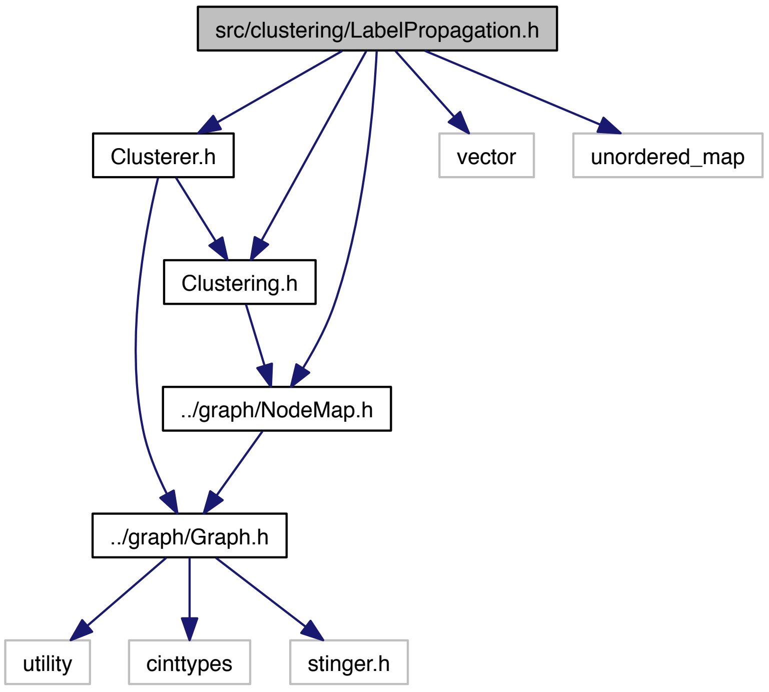
Namespaces

- namespace EnsembleClustering

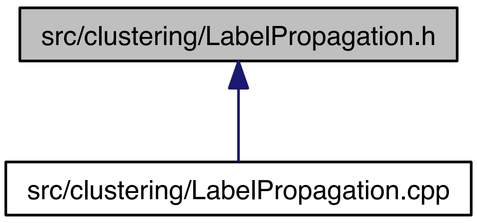
7.16 src/clustering/LabelPropagation.h File Reference

```
#include "Clusterer.h"
#include "Clustering.h"
#include <vector>
#include <unordered_map>
#include "../graph/NodeMap.h"
```

Include dependency graph for LabelPropagation.h:



This graph shows which files directly or indirectly include this file:


src/clustering/LabelPropagation.h
src/clustering/LabelPropagation.cpp

Classes

- class EnsembleClustering::LabelPropagation

    As described in Ovelgoenne et al: An Ensemble Learning Strategy for Graph Clustering Raghavan et al.

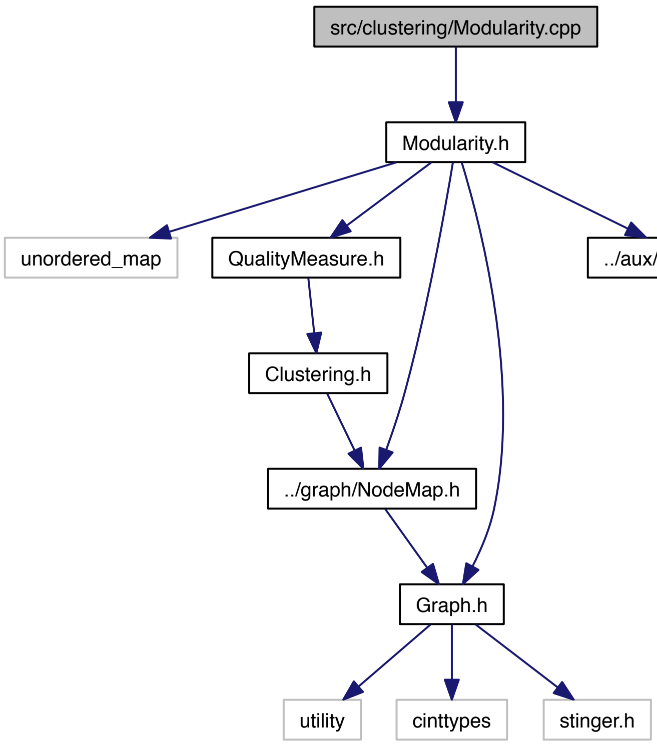
Namespaces

- namespace EnsembleClustering

7.17 src/clustering/Modularity.cpp File Reference

```
#include "Modularity.h"
```

Include dependency graph for Modularity.cpp:



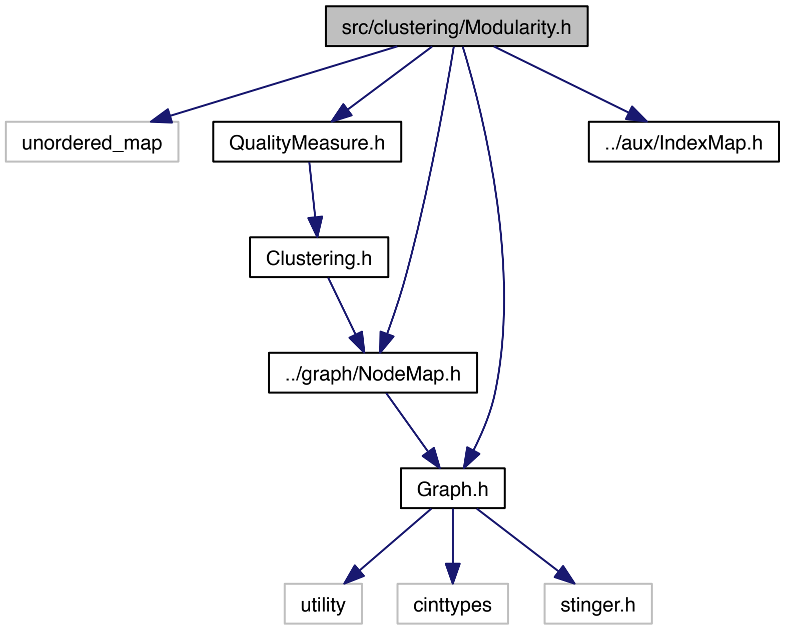
Namespaces

- namespace EnsembleClustering

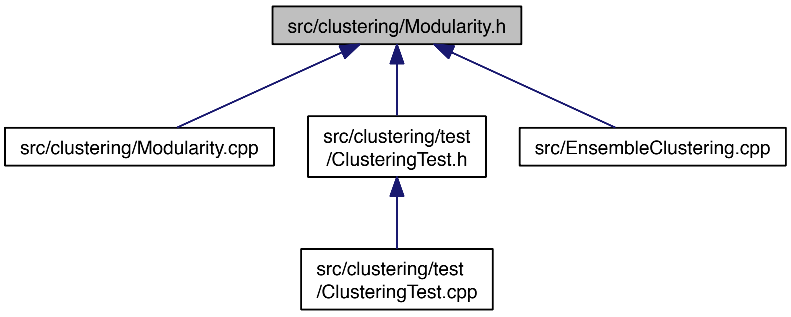
7.18 src/clustering/Modularity.h File Reference

```
#include <unordered_map>
#include "QualityMeasure.h"
#include "../aux/IndexMap.h"
#include "../graph/Graph.h"
#include "../graph/NodeMap.h"
```

Include dependency graph for Modularity.h:



This graph shows which files directly or indirectly include this file:


src/clustering/Modularity.h
src/clustering/Modularity.cpp
src/clustering/test /ClusteringTest.h
src/EnsembleClustering.cpp
src/clustering/test /ClusteringTest.cpp

Classes

- class EnsembleClustering::Modularity

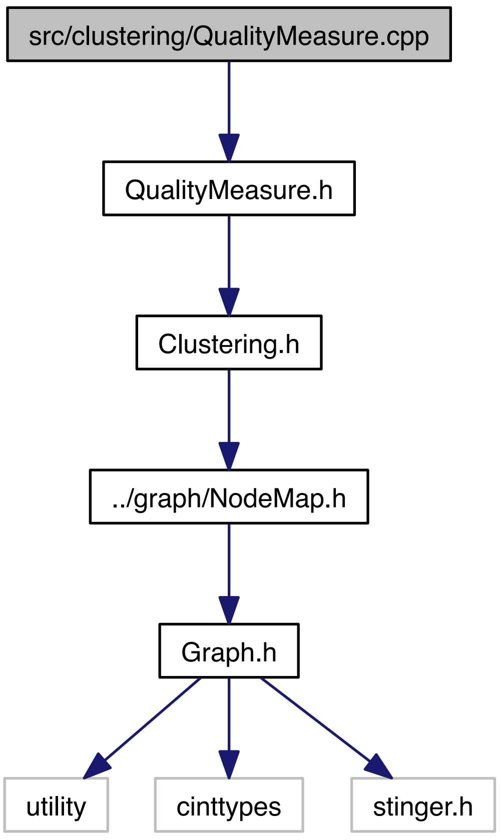
Namespaces

- namespace EnsembleClustering

7.19 src/clustering/QualityMeasure.cpp File Reference

```
#include "QualityMeasure.h"
```

Include dependency graph for QualityMeasure.cpp:



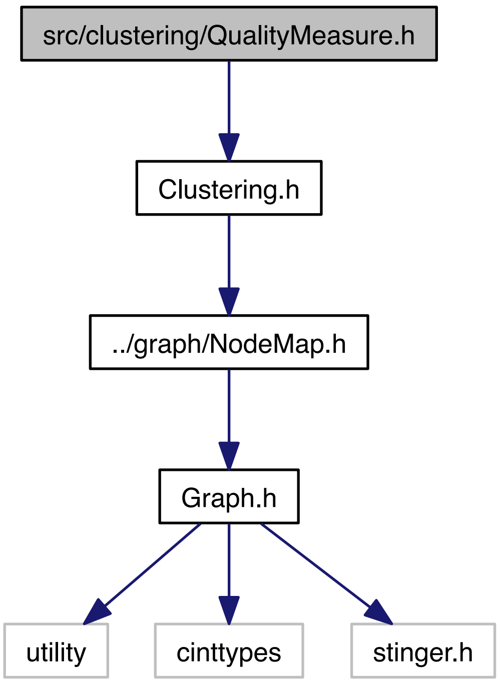
Namespaces

- namespace EnsembleClustering

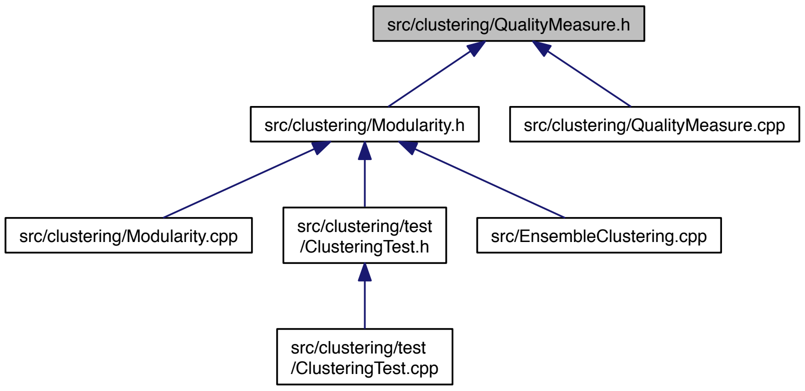
7.20 src/clustering/QualityMeasure.h File Reference

```
#include "Clustering.h"
```

Include dependency graph for QualityMeasure.h:



This graph shows which files directly or indirectly include this file:


src/clustering/QualityMeasure.h
src/clustering/Modularity.h
src/clustering/QualityMeasure.cpp
src/clustering/Modularity.cpp
src/clustering/test /ClusteringTest.h
src/EnsembleClustering.cpp
src/clustering/test /ClusteringTest.cpp

Classes

- class EnsembleClustering::QualityMeasure

  Abstract base class for all clustering quality measures.

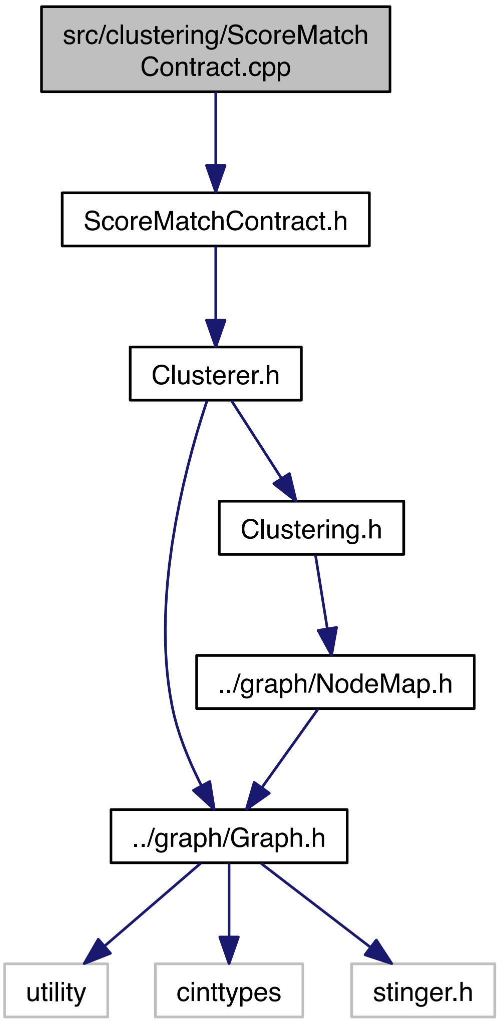
Namespaces

- namespace EnsembleClustering

7.21 src/clustering/ScoreMatchContract.cpp File Reference

```
#include "ScoreMatchContract.h"
```

Include dependency graph for ScoreMatchContract.cpp:



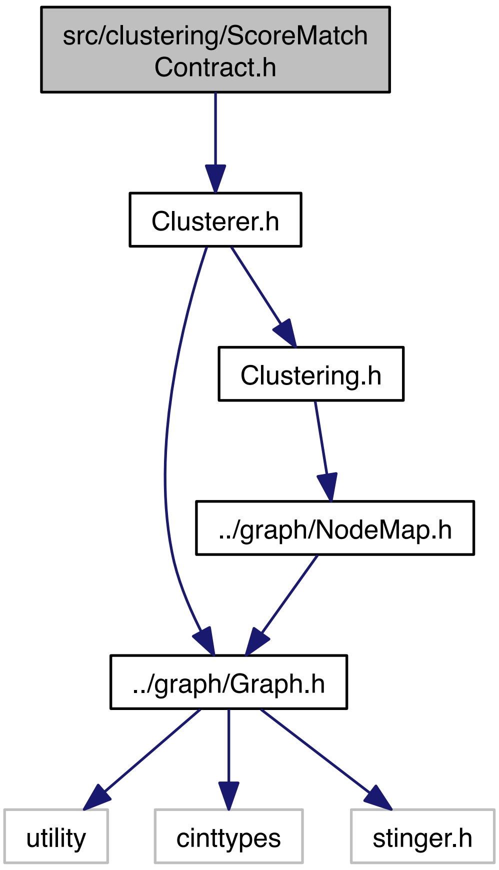
Namespaces

- namespace EnsembleClustering

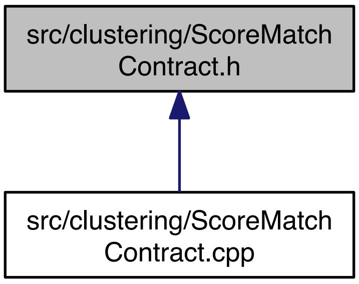
7.22 src/clustering/ScoreMatchContract.h File Reference

`#include "Clusterer.h"`

Include dependency graph for ScoreMatchContract.h:



This graph shows which files directly or indirectly include this file:


src/clustering/ScoreMatch Contract.h
src/clustering/ScoreMatch Contract.cpp

Classes

- class EnsembleClustering::ScoreMatchContract

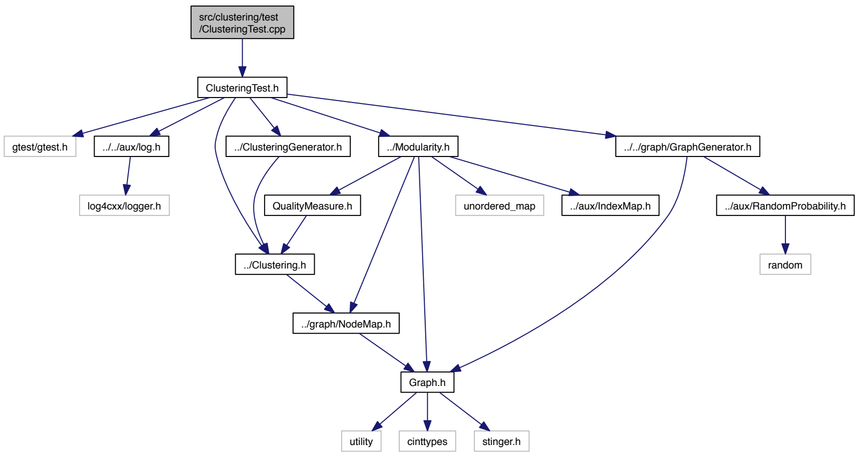
Namespaces

- namespace EnsembleClustering

7.23 src/clustering/test/ClusteringTest.cpp File Reference

```
#include "ClusteringTest.h"
```

Include dependency graph for ClusteringTest.cpp:



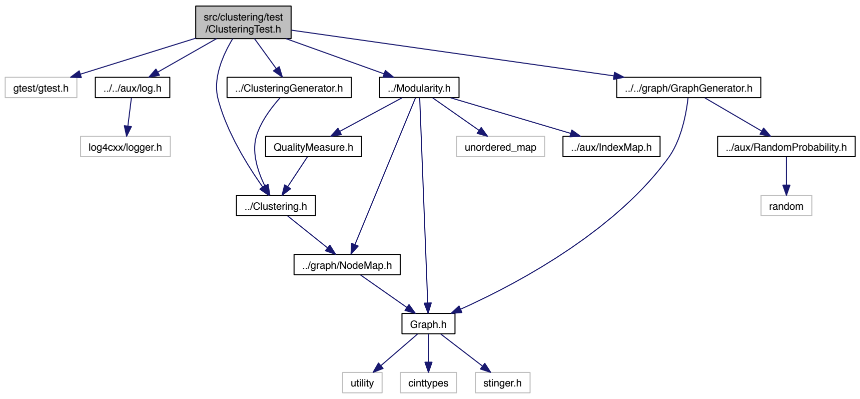
Namespaces

- namespace EnsembleClustering

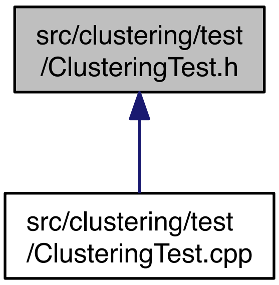
7.24 src/clustering/test/ClusteringTest.h File Reference

```
#include <gtest/gtest.h>
#include "../../aux/log.h"
#include "../Clustering.h"
#include "../Modularity.h"
#include "../ClusteringGenerator.h"
#include "../../graph/GraphGenerator.h"
```

Include dependency graph for ClusteringTest.h:



This graph shows which files directly or indirectly include this file:


src/clustering/test/ClusteringTest.h
src/clustering/test/ClusteringTest.cpp

Classes

- class EnsembleClustering::ClusteringTest

Namespaces

- namespace EnsembleClustering

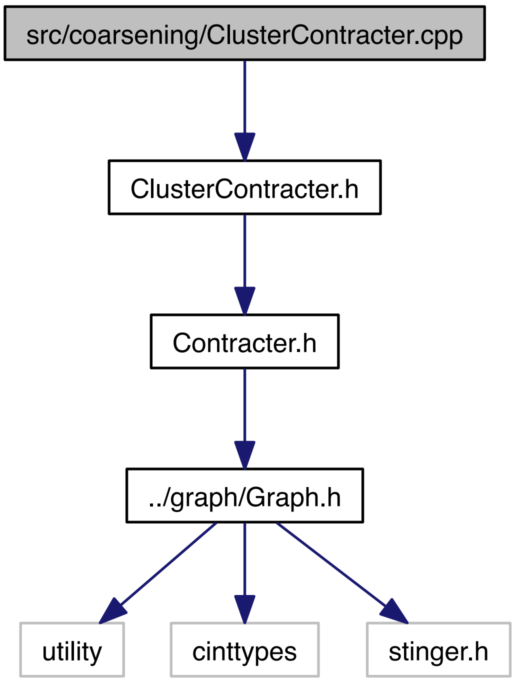
Functions

- EnsembleClustering::TEST_F (ClusteringTest, testModularity)

7.25 src/coarsening/ClusterContracter.cpp File Reference

```
#include "ClusterContracter.h"
```

Include dependency graph for ClusterContracter.cpp:



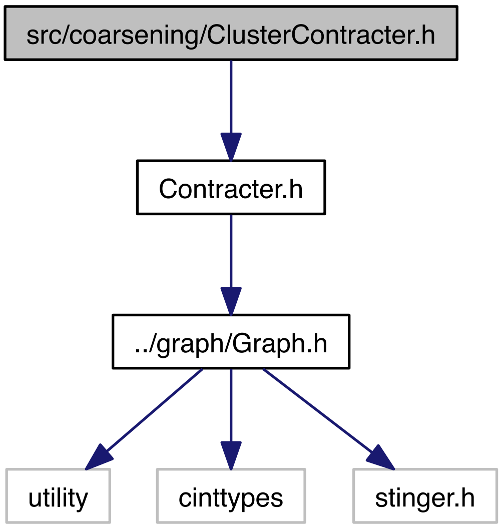
Namespaces

- namespace EnsembleClustering

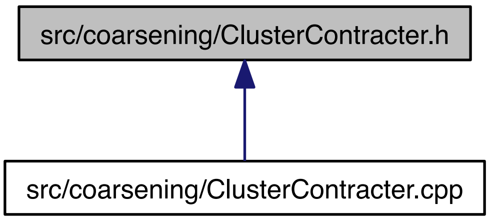
7.26 src/coarsening/ClusterContracter.h File Reference

```
#include "Contracter.h"
```

Include dependency graph for ClusterContracter.h:



This graph shows which files directly or indirectly include this file:


src/coarsening/ClusterContracter.h
src/coarsening/ClusterContracter.cpp

Classes

- class EnsembleClustering::ClusterContracter

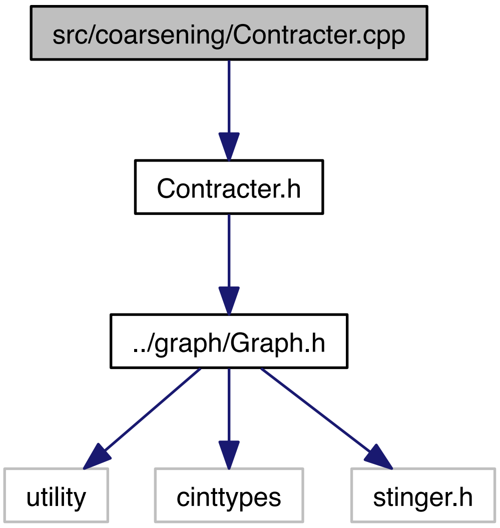
Namespaces

- namespace EnsembleClustering

7.27 src/coarsening/Contracter.cpp File Reference

```
#include "Contracter.h"
```

Include dependency graph for Contracter.cpp:



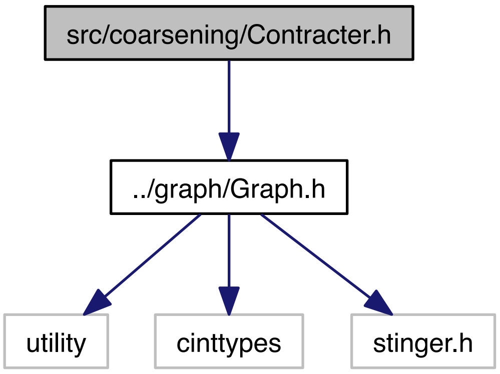
Namespaces

- namespace EnsembleClustering

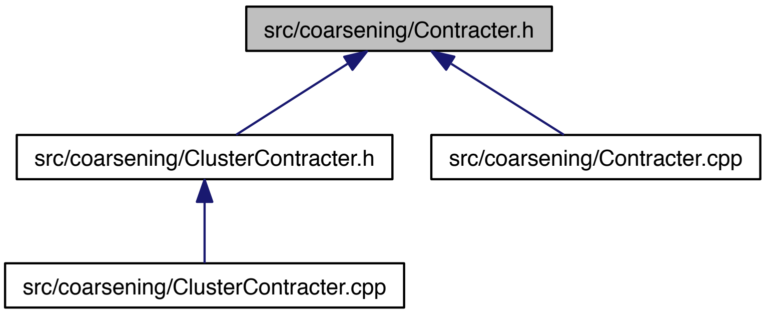
7.28 src/coarsening/Contracter.h File Reference

```
#include "../graph/Graph.h"
```

Include dependency graph for Contracter.h:



This graph shows which files directly or indirectly include this file:


src/coarsening/Contracter.h
src/coarsening/ClusterContracter.h
src/coarsening/Contracter.cpp
src/coarsening/ClusterContracter.cpp

Classes

- class EnsembleClustering::Contracter

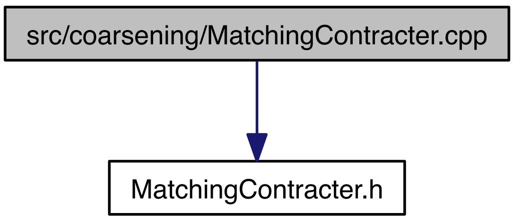
Namespaces

- namespace EnsembleClustering

7.29 src/coarsening/MatchingContracter.cpp File Reference

```
#include "MatchingContracter.h"
```

Include dependency graph for MatchingContracter.cpp:

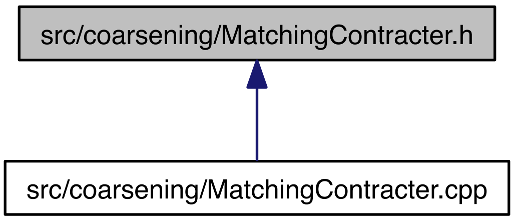


Namespaces

- namespace EnsembleClustering

7.30 src/coarsening/MatchingContracter.h File Reference

This graph shows which files directly or indirectly include this file:


src/coarsening/MatchingContracter.h
src/coarsening/MatchingContracter.cpp

Classes

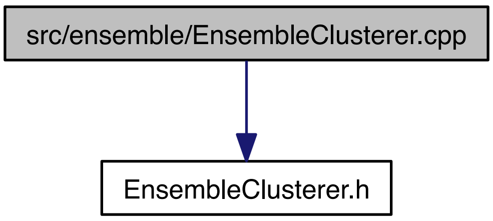
- class EnsembleClustering::MatchingContracter

Namespaces

- namespace EnsembleClustering

7.31 src/ensemble/EnsembleClusterer.cpp File Reference

```
#include "EnsembleClusterer.h"
```
Include dependency graph for EnsembleClusterer.cpp:

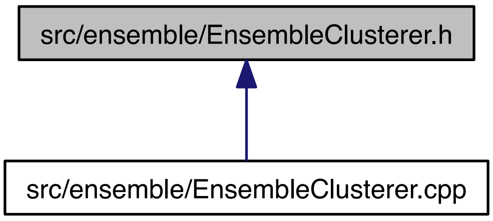


Namespaces

- namespace EnsembleClustering

7.32 src/ensemble/EnsembleClusterer.h File Reference

This graph shows which files directly or indirectly include this file:


src/ensemble/EnsembleClusterer.h
src/ensemble/EnsembleClusterer.cpp

Classes

- class EnsembleClustering::EnsembleClusterer

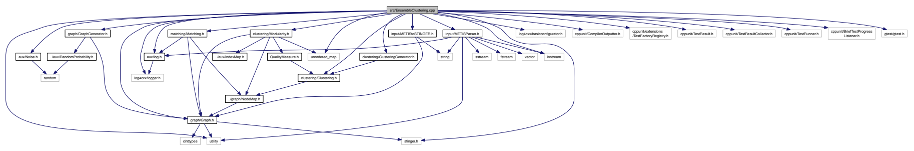
Namespaces

- namespace EnsembleClustering

7.33 src/EnsembleClustering.cpp File Reference

```
#include <iostream>
#include <utility>
#include <unordered_map>
#include "log4cxx/logger.h"
#include "log4cxx/basicconfigurator.h"
#include <cppunit/CompilerOutputter.h>
#include <cppunit/extensions/TestFactoryRegistry.h>
#include <cppunit/TestResult.h>
#include <cppunit/TestResultCollector.h>
#include <cppunit/TestRunner.h>
#include <cppunit/BriefTestProgressListener.h>
#include "gtest/gtest.h"
#include "aux/log.h"
#include "aux/Noise.h"
#include "graph/Graph.h"
#include "input/METISParser.h"
#include "input/METIStoSTINGER.h"
#include "matching/Matching.h"
#include "clustering/Clustering.h"
#include "clustering/ClusteringGenerator.h"
#include "graph/GraphGenerator.h"
#include "clustering/Modularity.h"
#include "stinger.h"
```

Include dependency graph for EnsembleClustering.cpp:



Functions

- void testMETIStoSTINGER ()
- void testMatching ()
- Graph & makeCompleteGraph (int n)

  Make a complete graph with n vertices.
- void configureLogging ()

  Call this first to configure logging output.
- int main (int argc, char ∗∗argv)

7.33.1 Function Documentation

7.33.1.1 void configureLogging ( )

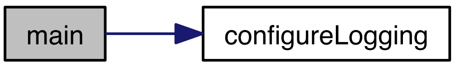
Call this first to configure logging output.

Definition at line 112 of file EnsembleClustering.cpp.

7.33.1.2 int main (int *argc,* char ∗∗ *argv*)

Definition at line 121 of file EnsembleClustering.cpp.

Here is the call graph for this function:

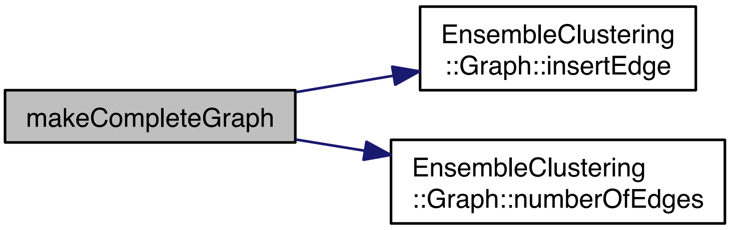


7.33.1.3 Graph& makeCompleteGraph (int *n*)

Make a complete graph with n vertices.

Definition at line 93 of file EnsembleClustering.cpp.

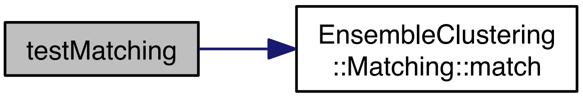
Here is the call graph for this function:


makeCompleteGraph
EnsembleClustering ::Graph::insertEdge
EnsembleClustering ::Graph::numberOfEdges

7.33.1.4 void testMatching ( )

Definition at line 70 of file EnsembleClustering.cpp.

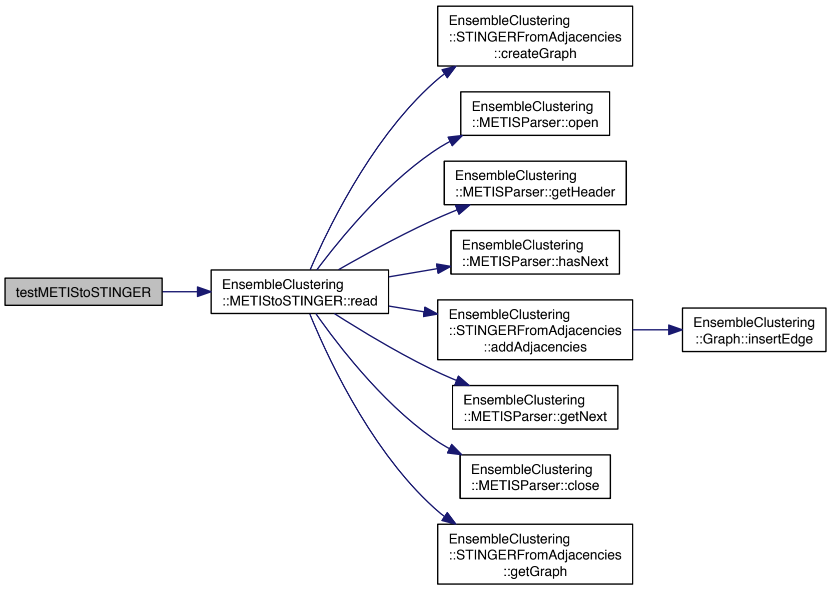
Here is the call graph for this function:



7.33.1.5 void testMETIStoSTINGER ( )

Definition at line 53 of file EnsembleClustering.cpp.

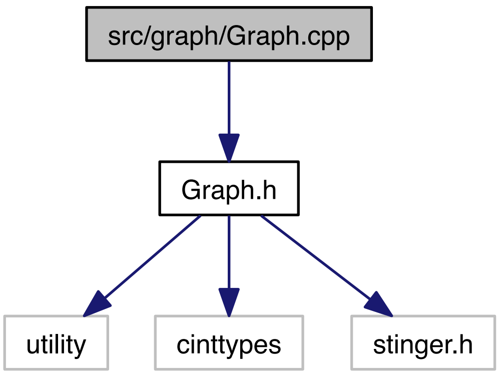
Here is the call graph for this function:


testMETIStoSTINGER
EnsembleClustering ::METIStoSTINGER::read
EnsembleClustering ::STINGERFromAdjacencies ::createGraph
EnsembleClustering ::METISParser::open
EnsembleClustering ::METISParser::getHeader
EnsembleClustering ::METISParser::hasNext
EnsembleClustering ::STINGERFromAdjacencies ::addAdjacencies
EnsembleClustering ::Graph::insertEdge
EnsembleClustering ::METISParser::getNext
EnsembleClustering ::METISParser::close
EnsembleClustering ::STINGERFromAdjacencies ::getGraph

7.34 src/graph/Graph.cpp File Reference

```
#include "Graph.h"
```

Include dependency graph for Graph.cpp:



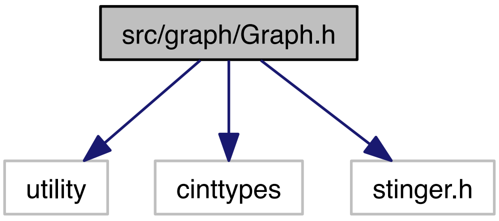
Namespaces

- namespace EnsembleClustering

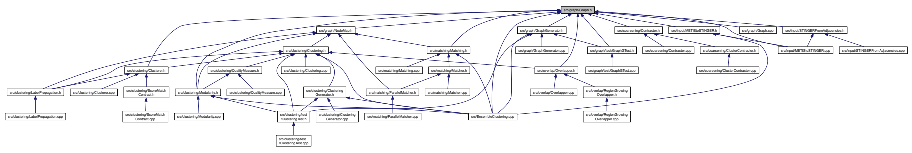
7.35 src/graph/Graph.h File Reference

```
#include <utility>
#include <cinttypes>
#include "stinger.h"
```

Include dependency graph for Graph.h:



This graph shows which files directly or indirectly include this file:



Classes

- class EnsembleClustering::Graph

  Graph interface.

Namespaces

- namespace EnsembleClustering

Macros

- #define FORALL_EDGES_BEGIN(G) STINGER_FORALL_EDGES_BEGIN(G.asSTINGER(), G.defaultEdgeType)

  Traversal macros.
- #define FORALL_EDGES_END() STINGER_FORALL_EDGES_END()
- #define PARALLEL_FORALL_EDGES_BEGIN(G) STINGER_PARALLEL_FORALL_EDGES_BEGIN(G.asSTINGER(), G.defaultEdgeType)
- #define PARALLEL_FORALL_EDGES_END() STINGER_PARALLEL_FORALL_EDGES_END()
- #define READ_ONLY_FORALL_EDGES_BEGIN(G) STINGER_READ_ONLY_FORALL_EDGES_BEGIN(G.asSTINGER(), G.defaultEdgeType)
- #define READ_ONLY_FORALL_EDGES_END() STINGER_READ_ONLY_FORALL_EDGES_END()
- #define READ_ONLY_PARALLEL_FORALL_EDGES_BEGIN(G) STINGER_READ_ONLY_PARALLEL_FORALL_EDGES_BEGIN(G.asSTINGER(), G.defaultEdgeType)

- #define READ_ONLY_PARALLEL_FORALL_EDGES_END() STINGER_READ_ONLY_PARALLEL_FORALL_EDGES_END()
- #define EDGE_SOURCE STINGER_EDGE_SOURCE
- #define EDGE_DEST STINGER_EDGE_DEST
- #define FORALL_EDGES_OF_NODE_BEGIN(G, V) STINGER_FORALL_EDGES_OF_VTX_BEGIN(G.asSTINGER(), V)
- #define FORALL_EDGES_OF_NODE_END() STINGER_FORALL_EDGES_OF_VTX_END()
- #define READ_ONLY_FORALL_EDGES_OF_NODE_BEGIN(G, V) STINGER_READ_ONLY_FORALL_EDGES_OF_VTX_BEGIN(G.asSTINGER(), V)
- #define READ_ONLY_FORALL_EDGES_OF_NODE_END() STINGER_READ_ONLY_FORALL_EDGES_OF_VTX_END()

Typedefs

- typedef int64_t EnsembleClustering::node

    Typedefs.
- typedef std::pair< node, node > EnsembleClustering::edge

    an undirected edge is a pair of nodes (indices)

7.35.1 Macro Definition Documentation

7.35.1.1 #define EDGE_DEST STINGER_EDGE_DEST

Definition at line 51 of file Graph.h.

7.35.1.2 #define EDGE_SOURCE STINGER_EDGE_SOURCE

Definition at line 50 of file Graph.h.

7.35.1.3 #define FORALL_EDGES_BEGIN(*G*) STINGER_FORALL_EDGES_BEGIN(G.asSTINGER(), G.defaultEdgeType)

Traversal macros.

These are modified versions of the macros defined in stinger/include/stinger-traversal.h

Definition at line 38 of file Graph.h.

7.35.1.4 #define FORALL_EDGES_END( ) STINGER_FORALL_EDGES_END()

Definition at line 39 of file Graph.h.

7.35.1.5 #define FORALL_EDGES_OF_NODE_BEGIN(*G,* *V*) STINGER_FORALL_EDGES_OF_VTX_BEGIN(G.asSTINGER(), V)

Definition at line 53 of file Graph.h.

7.35.1.6 #define FORALL_EDGES_OF_NODE_END( ) STINGER_FORALL_EDGES_OF_VTX_END()

Definition at line 54 of file Graph.h.

7.35.1.7 #define PARALLEL_FORALL_EDGES_BEGIN(*G*) STINGER_PARALLEL_FORALL_EDGES_BEGIN(G.asSTINGER(), G.defaultEdgeType)

Definition at line 41 of file Graph.h.

7.35.1.8 #define PARALLEL_FORALL_EDGES_END( ) STINGER_PARALLEL_FORALL_EDGES_END()

Definition at line 42 of file Graph.h.

7.35.1.9 #define READ_ONLY_FORALL_EDGES_BEGIN(*G*) STINGER_READ_ONLY_FORALL_EDGES_BEGIN(G.asSTINGER(), G.defaultEdgeType)

Definition at line 44 of file Graph.h.

7.35.1.10 #define READ_ONLY_FORALL_EDGES_END( ) STINGER_READ_ONLY_FORALL_EDGES_END()

Definition at line 45 of file Graph.h.

7.35.1.11 #define READ_ONLY_FORALL_EDGES_OF_NODE_BEGIN(*G, V*) STINGER_READ_ONLY_FORALL_EDGES_OF_VTX_-BEGIN(G.asSTINGER(), V)

Definition at line 56 of file Graph.h.

7.35.1.12 #define READ_ONLY_FORALL_EDGES_OF_NODE_END( ) STINGER_READ_ONLY_FORALL_EDGES_OF_VTX_END()

Definition at line 57 of file Graph.h.

7.35.1.13 #define READ_ONLY_PARALLEL_FORALL_EDGES_BEGIN(*G*) STINGER_READ_ONLY_PARALLEL_FORALL_EDGES-_BEGIN(G.asSTINGER(), G.defaultEdgeType)

Definition at line 47 of file Graph.h.

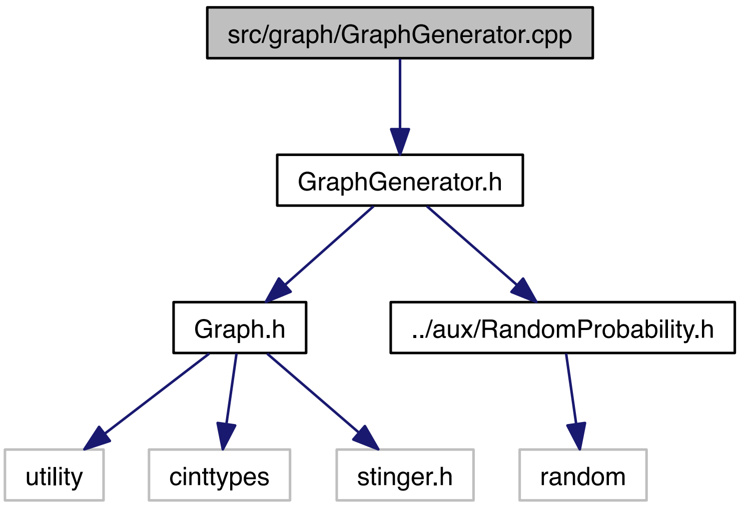
7.35.1.14 #define READ_ONLY_PARALLEL_FORALL_EDGES_END( ) STINGER_READ_ONLY_PARALLEL_FORALL_EDGES_EN-D()

Definition at line 48 of file Graph.h.

7.36 src/graph/GraphGenerator.cpp File Reference

```
#include "GraphGenerator.h"
```

Include dependency graph for GraphGenerator.cpp:



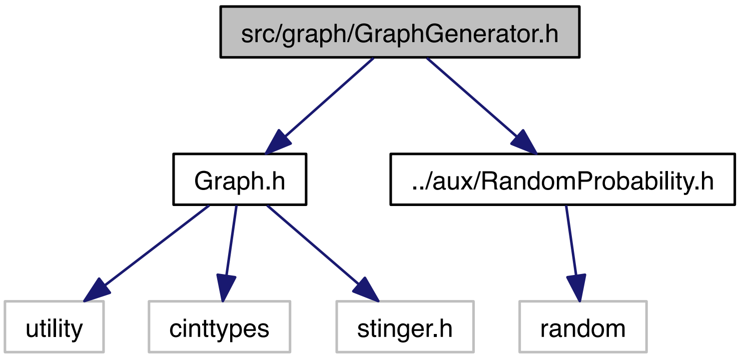
Namespaces

- namespace EnsembleClustering

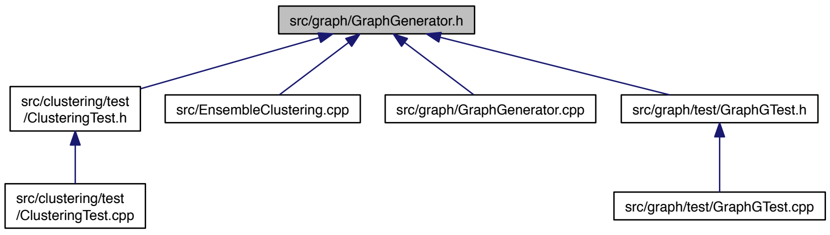
7.37 src/graph/GraphGenerator.h File Reference

```
#include "Graph.h"
#include "../aux/RandomProbability.h"
```

Include dependency graph for GraphGenerator.h:



This graph shows which files directly or indirectly include this file:


src/graph/GraphGenerator.h
src/clustering/test /ClusteringTest.h
src/EnsembleClustering.cpp
src/graph/GraphGenerator.cpp
src/graph/test/GraphGTest.h
src/clustering/test /ClusteringTest.cpp
src/graph/test/GraphGTest.cpp

Classes

- class EnsembleClustering::GraphGenerator

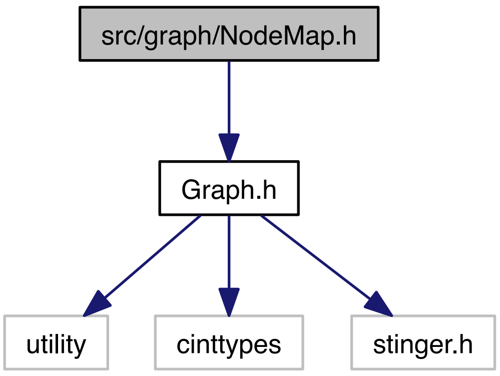
Namespaces

- namespace EnsembleClustering

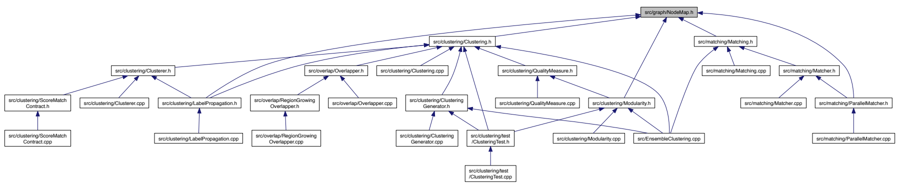
7.38 src/graph/NodeMap.h File Reference

```
#include "Graph.h"
```

Include dependency graph for NodeMap.h:



This graph shows which files directly or indirectly include this file:


src/graph/NodeMap.h
src/clustering/Clustering.h
src/matching/Matching.h
src/clustering/Clusterer.h
src/overlap/Overlapper.h
src/clustering/Clustering.cpp
src/clustering/QualityMeasure.h
src/matching/Matching.cpp
src/matching/Matcher.h
src/clustering/ScoreMatch Contract.h
src/clustering/Clusterer.cpp
src/clustering/LabelPropagation.h
src/overlap/RegionGrowing Overlapper.h
src/overlap/Overlapper.cpp
src/clustering/Clustering Generator.h
src/clustering/QualityMeasure.cpp
src/clustering/Modularity.h
src/matching/Matcher.cpp
src/matching/ParallelMatcher.h
src/clustering/ScoreMatch Contract.cpp
src/clustering/LabelPropagation.cpp
src/overlap/RegionGrowing Overlapper.cpp
src/clustering/Clustering Generator.cpp
src/clustering/test /ClusteringTest.h
src/clustering/Modularity.cpp
src/EnsembleClustering.cpp
src/matching/ParallelMatcher.cpp
src/clustering/test /ClusteringTest.cpp

Classes

- class EnsembleClustering::NodeMap< T >

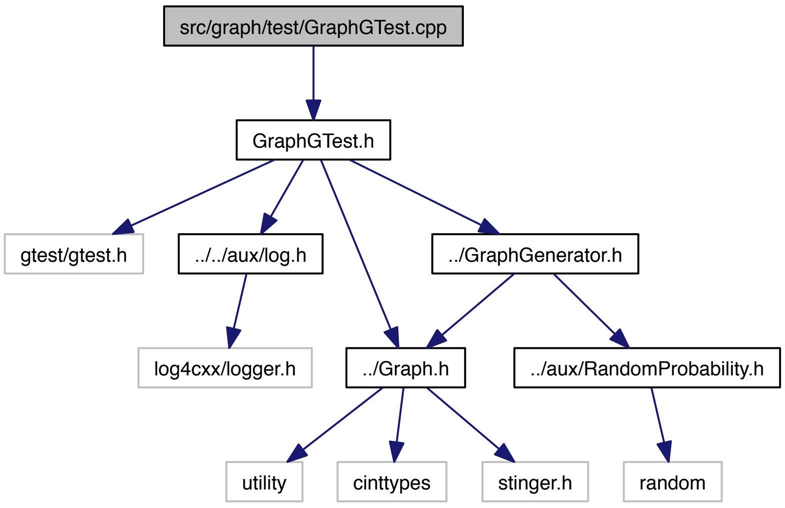
Namespaces

- namespace EnsembleClustering

7.39 src/graph/test/GraphGTest.cpp File Reference

```
#include "GraphGTest.h"
```

Include dependency graph for GraphGTest.cpp:



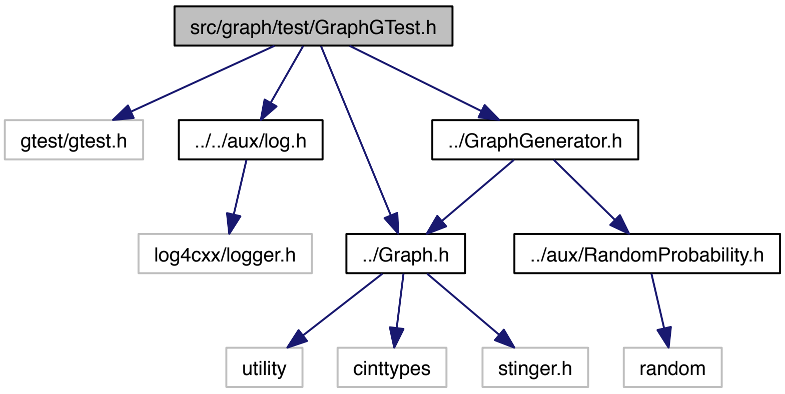
Namespaces

- namespace EnsembleClustering

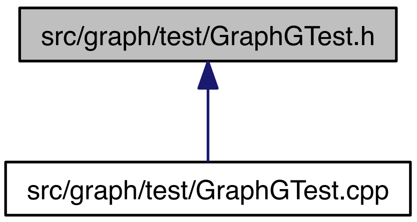
7.40 src/graph/test/GraphGTest.h File Reference

```
#include <gtest/gtest.h>
#include "../../aux/log.h"
#include "../Graph.h"
#include "../GraphGenerator.h"
```

Include dependency graph for GraphGTest.h:



This graph shows which files directly or indirectly include this file:



Classes

- class EnsembleClustering::GraphGTest

Namespaces

- namespace EnsembleClustering

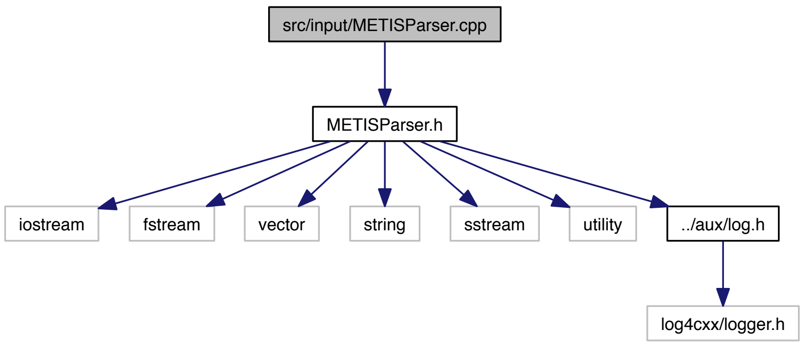
Functions

- EnsembleClustering::TEST_F (GraphGTest, testIteration)

7.41 src/input/METISParser.cpp File Reference

```
#include "METISParser.h"
```

Include dependency graph for METISParser.cpp:



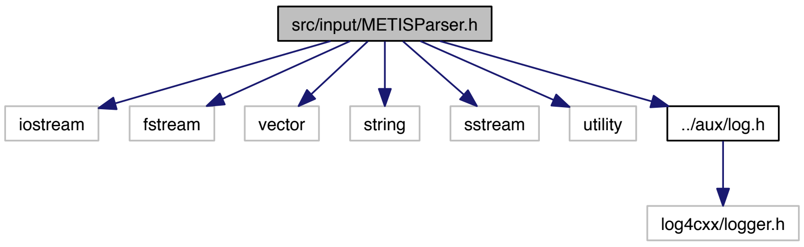
Namespaces

- namespace EnsembleClustering

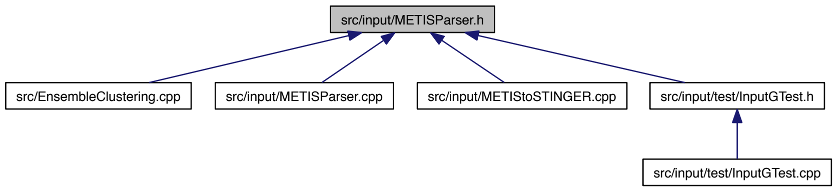
7.42 src/input/METISParser.h File Reference

```
#include <iostream>
#include <fstream>
#include <vector>
#include <string>
#include <sstream>
#include <utility>
#include "../aux/log.h"
```

Include dependency graph for METISParser.h:



This graph shows which files directly or indirectly include this file:


src/input/METISParser.h
src/EnsembleClustering.cpp
src/input/METISParser.cpp
src/input/METIStoSTINGER.cpp
src/input/test/InputGTest.h
src/input/test/InputGTest.cpp

Classes

- class EnsembleClustering::METISParser

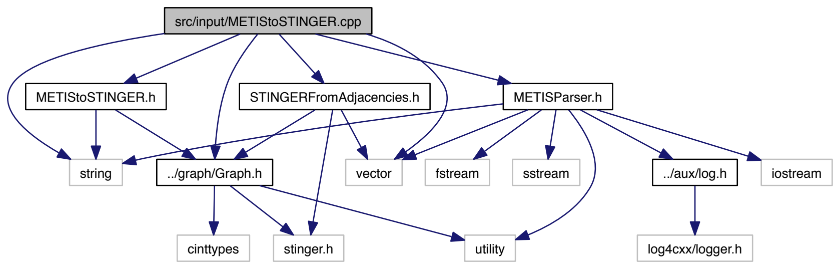
Namespaces

- namespace EnsembleClustering

7.43 src/input/METIStoSTINGER.cpp File Reference

```
#include "METIStoSTINGER.h"
#include <string>
#include <vector>
#include "../graph/Graph.h"
#include "STINGERFromAdjacencies.h"
#include "METISParser.h"
```

Include dependency graph for METIStoSTINGER.cpp:



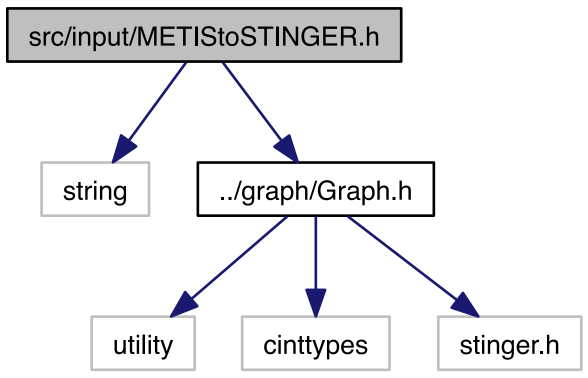
Namespaces

- namespace EnsembleClustering

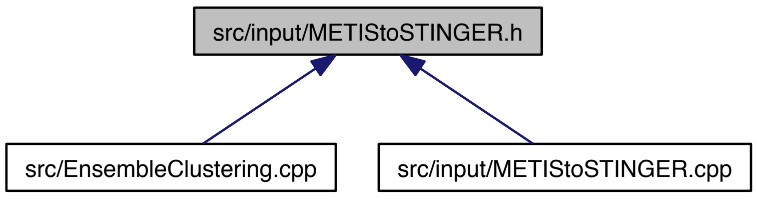
7.44 src/input/METIStoSTINGER.h File Reference

```
#include <string>
#include "../graph/Graph.h"
```

Include dependency graph for METIStoSTINGER.h:



This graph shows which files directly or indirectly include this file:


src/input/METISToSTINGER.h
src/EnsembleClustering.cpp
src/input/METISToSTINGER.cpp

Classes

- class EnsembleClustering::METISToSTINGER

    This class provides a user interface for reading a METIS graph file and returning a STINGER-based graph object.

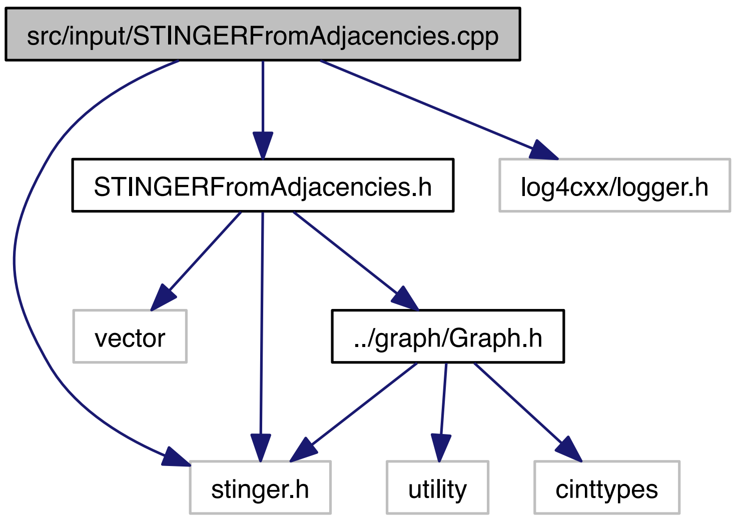
Namespaces

- namespace EnsembleClustering

7.45 src/input/STINGERFromAdjacencies.cpp File Reference

```
#include "STINGERFromAdjacencies.h"
#include "log4cxx/logger.h"
#include "stinger.h"
```

Include dependency graph for STINGERFromAdjacencies.cpp:

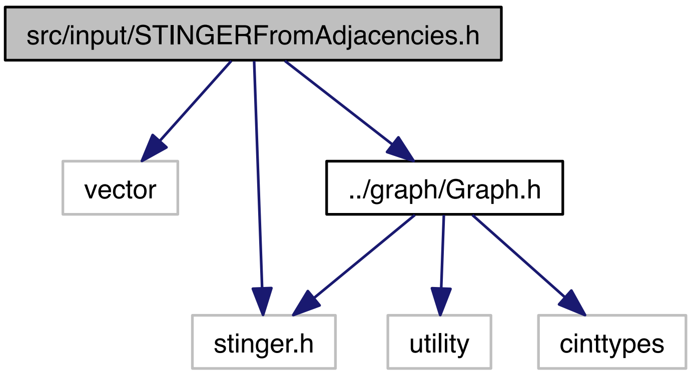


Namespaces

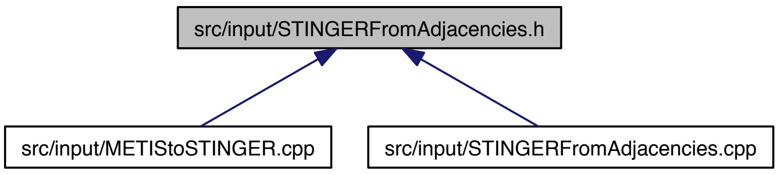
- namespace EnsembleClustering

7.46 src/input/STINGERFromAdjacencies.h File Reference

```
#include <vector>
#include "stinger.h"
#include "../graph/Graph.h"
```
Include dependency graph for STINGERFromAdjacencies.h:



This graph shows which files directly or indirectly include this file:


src/input/STINGERFromAdjacencies.h
src/input/METISToSTINGER.cpp
src/input/STINGERFromAdjacencies.cpp

Classes

- class EnsembleClustering::STINGERFromAdjacencies

  A 'builder' which constructs a STINGER-based graph from adjacencies.

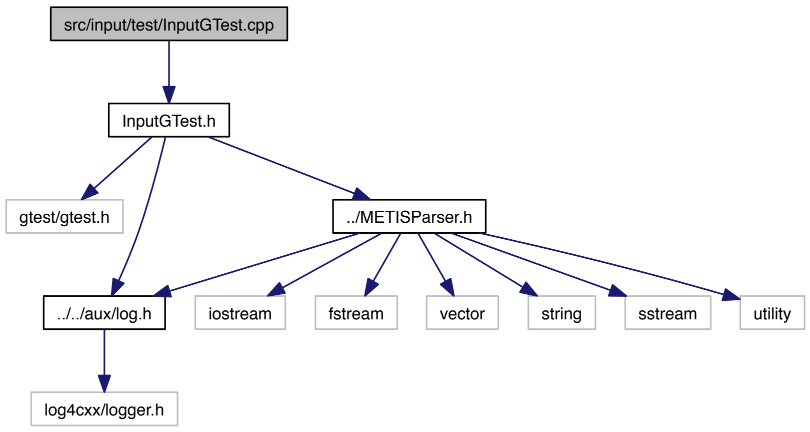
Namespaces

- namespace EnsembleClustering

7.47 src/input/test/InputGTest.cpp File Reference

```
#include "InputGTest.h"
```

Include dependency graph for InputGTest.cpp:



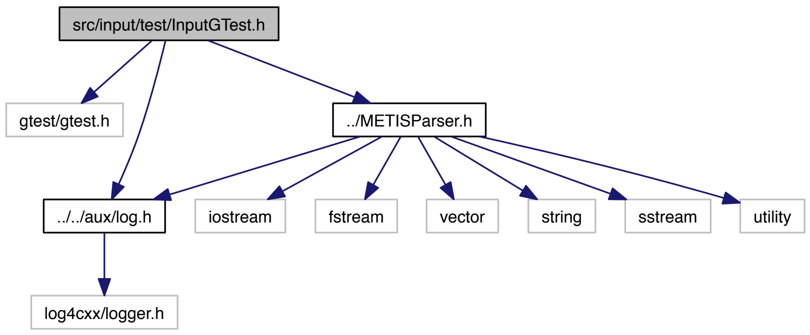
Namespaces

- namespace EnsembleClustering

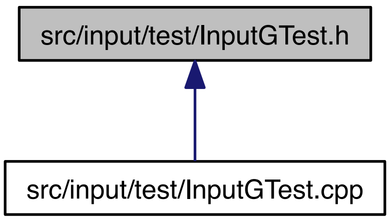
7.48 src/input/test/InputGTest.h File Reference

```
#include <gtest/gtest.h>
#include "../../aux/log.h"
#include "../METISParser.h"
```

Include dependency graph for InputGTest.h:



This graph shows which files directly or indirectly include this file:



Classes

- class EnsembleClustering::InputGTest

Namespaces

- namespace EnsembleClustering

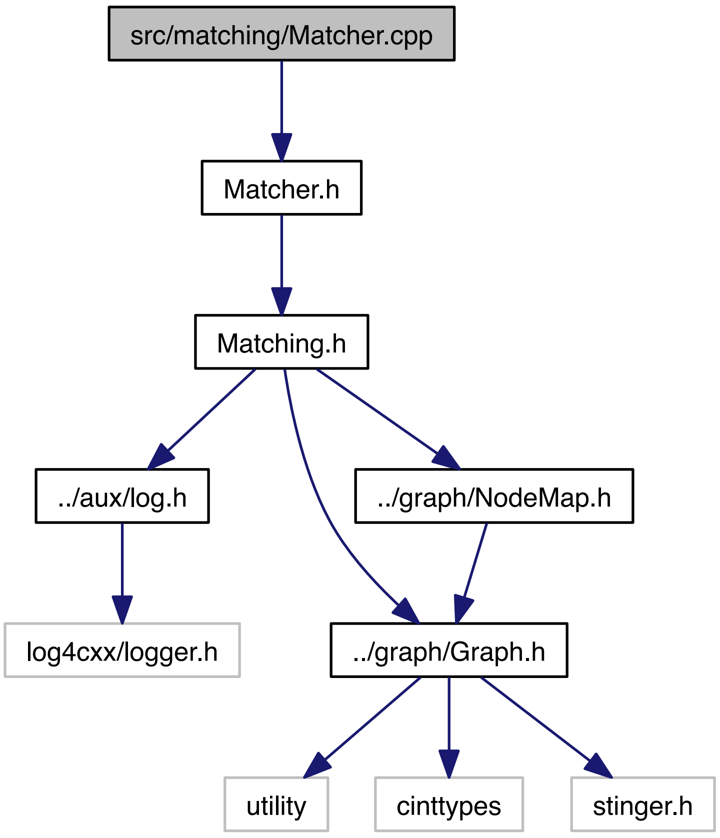
Functions

- EnsembleClustering::TEST_F (InputGTest, testMETISParser)

7.49 src/matching/Matcher.cpp File Reference

```
#include "Matcher.h"
```

Include dependency graph for Matcher.cpp:



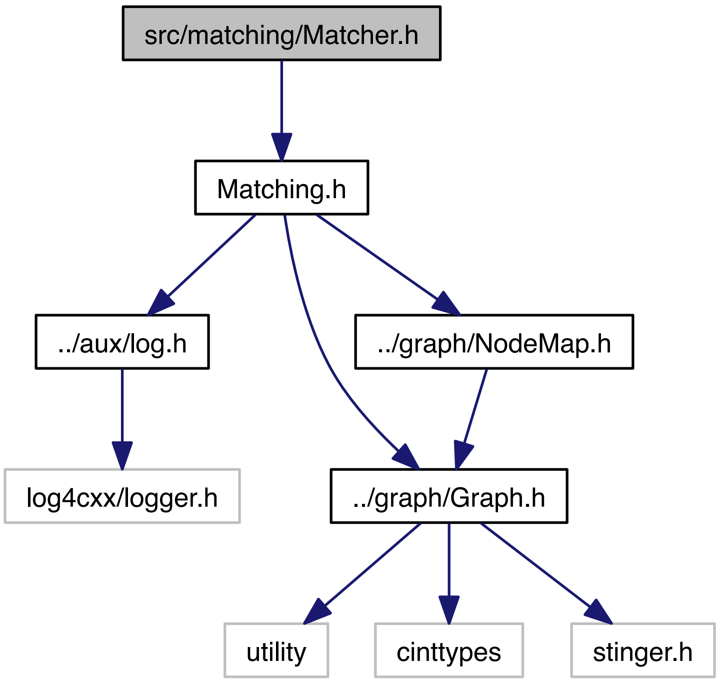
Namespaces

- namespace EnsembleClustering

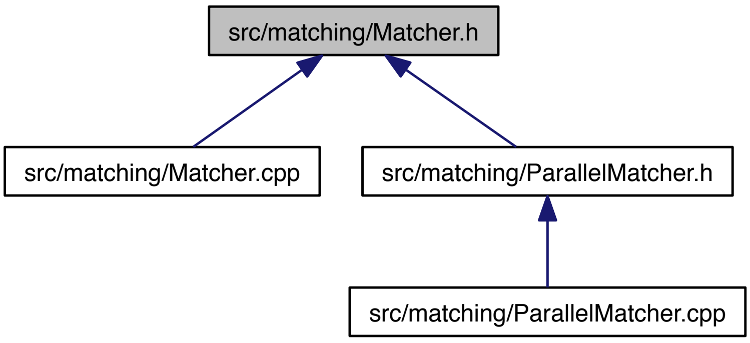
7.50 src/matching/Matcher.h File Reference

```
#include "Matching.h"
```

Include dependency graph for Matcher.h:



This graph shows which files directly or indirectly include this file:


src/matching/Matcher.h
src/matching/Matcher.cpp
src/matching/ParallelMatcher.h
src/matching/ParallelMatcher.cpp

Classes

- class EnsembleClustering::Matcher

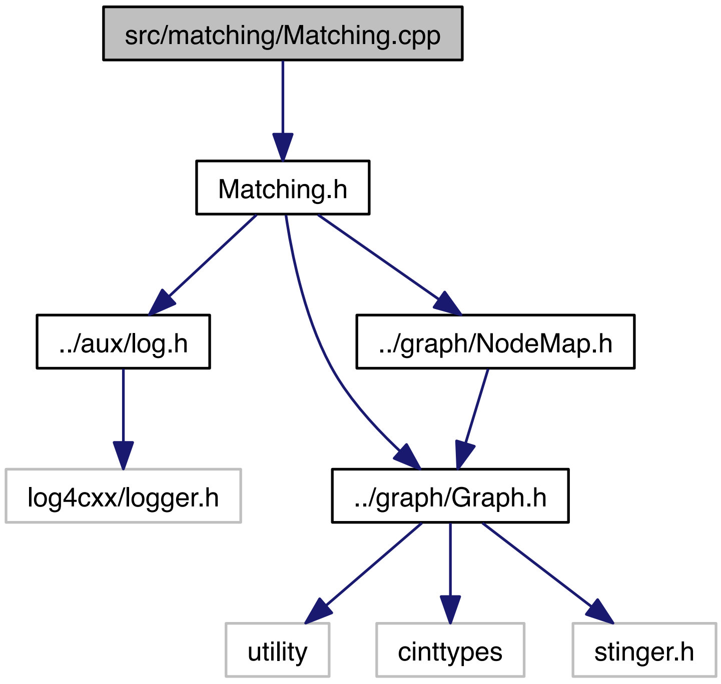
Namespaces

- namespace EnsembleClustering

7.51 src/matching/Matching.cpp File Reference

```
#include "Matching.h"
```

Include dependency graph for Matching.cpp:



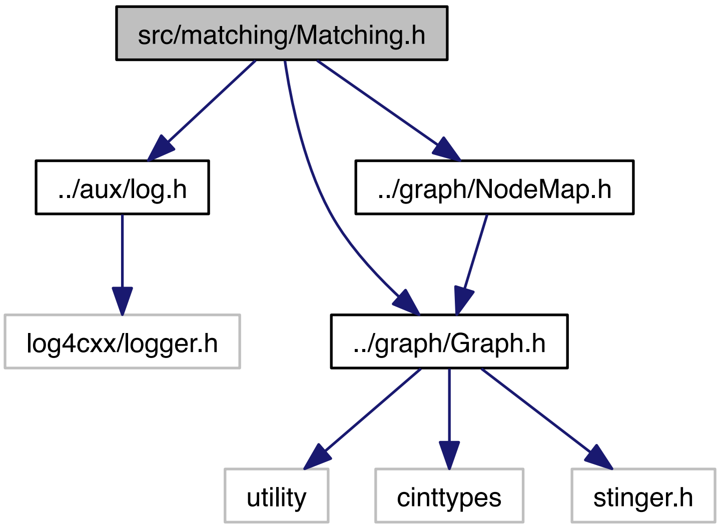
Namespaces

- namespace EnsembleClustering

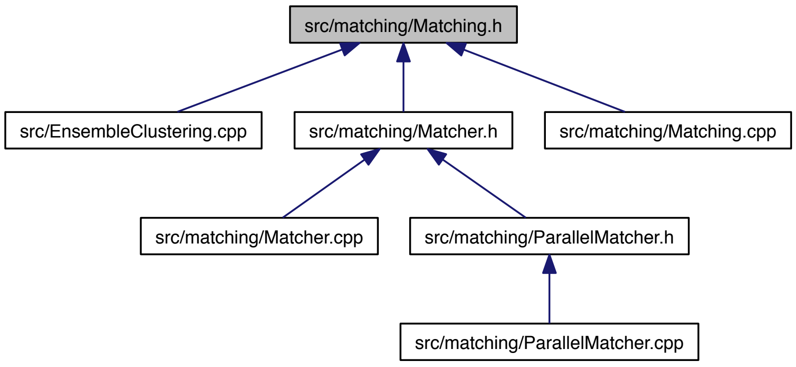
7.52 src/matching/Matching.h File Reference

```
#include "../aux/log.h"
#include "../graph/Graph.h"
#include "../graph/NodeMap.h"
```

Include dependency graph for Matching.h:



This graph shows which files directly or indirectly include this file:


src/matching/Matching.h
src/EnsembleClustering.cpp
src/matching/Matcher.h
src/matching/Matching.cpp
src/matching/Matcher.cpp
src/matching/ParallelMatcher.h
src/matching/ParallelMatcher.cpp

Classes

- class EnsembleClustering::Matching

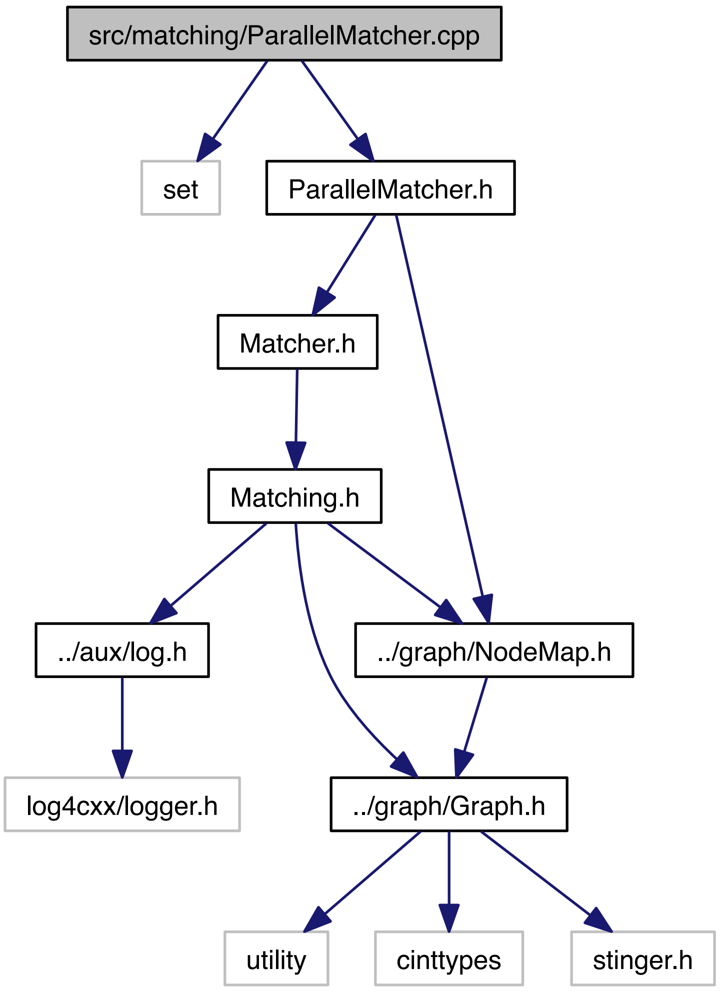
Namespaces

- namespace EnsembleClustering

7.53 src/matching/ParallelMatcher.cpp File Reference

```
#include <set>
#include "ParallelMatcher.h"
```

Include dependency graph for ParallelMatcher.cpp:



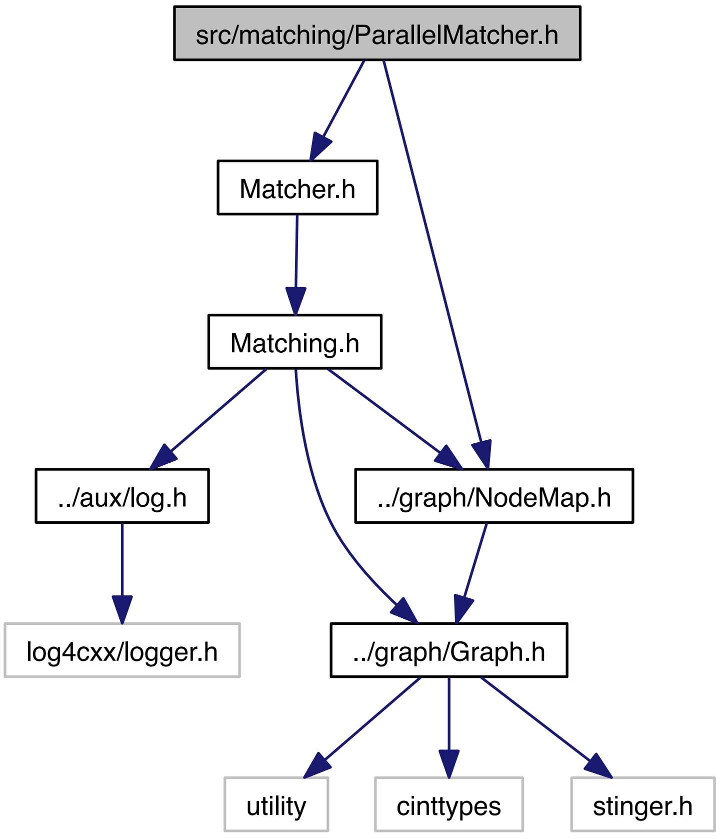
Namespaces

- namespace EnsembleClustering

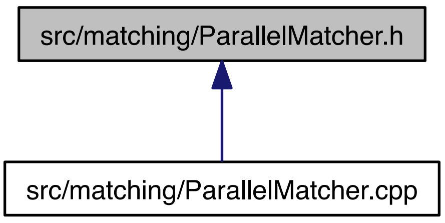
7.54 src/matching/ParallelMatcher.h File Reference

```
#include "Matcher.h"
#include "../graph/NodeMap.h"
```

Include dependency graph for ParallelMatcher.h:



This graph shows which files directly or indirectly include this file:


src/matching/ParallelMatcher.h
src/matching/ParallelMatcher.cpp

Classes

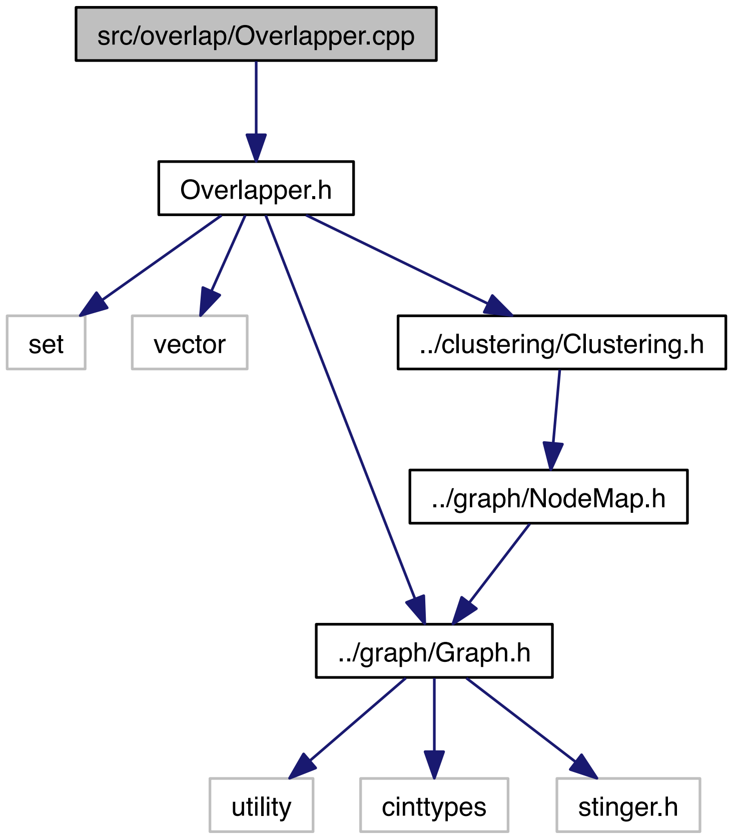
- class EnsembleClustering::ParallelMatcher

Namespaces

- namespace EnsembleClustering

7.55 src/overlap/Overlapper.cpp File Reference

```
#include "Overlapper.h"
```
Include dependency graph for Overlapper.cpp:



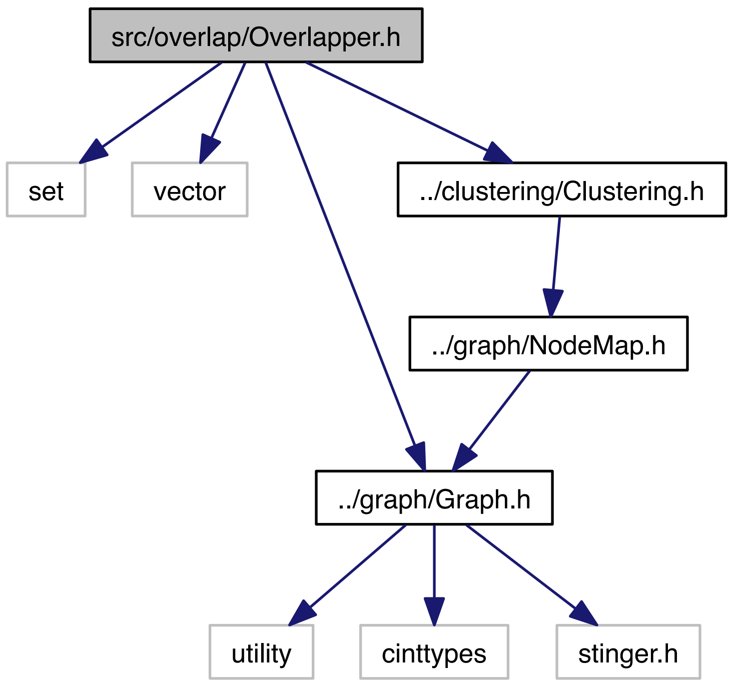
Namespaces

- namespace EnsembleClustering

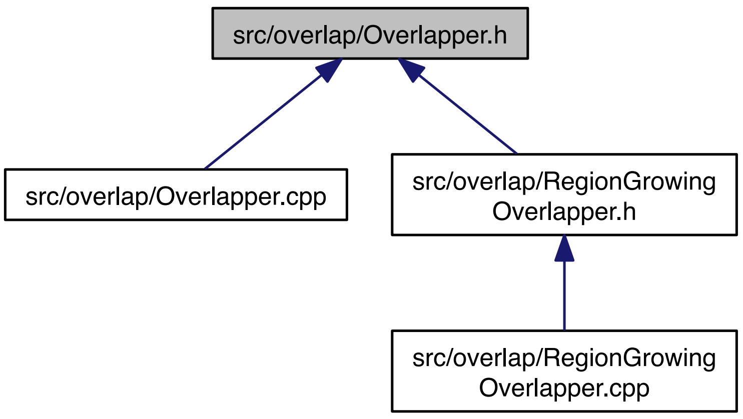
7.56 src/overlap/Overlapper.h File Reference

```
#include <set>
#include <vector>
#include "../graph/Graph.h"
#include "../clustering/Clustering.h"
```

Include dependency graph for Overlapper.h:



This graph shows which files directly or indirectly include this file:


src/overlap/Overlapper.h
src/overlap/Overlapper.cpp
src/overlap/RegionGrowing Overlapper.h
src/overlap/RegionGrowing Overlapper.cpp

Classes

- class EnsembleClustering::Overlapper

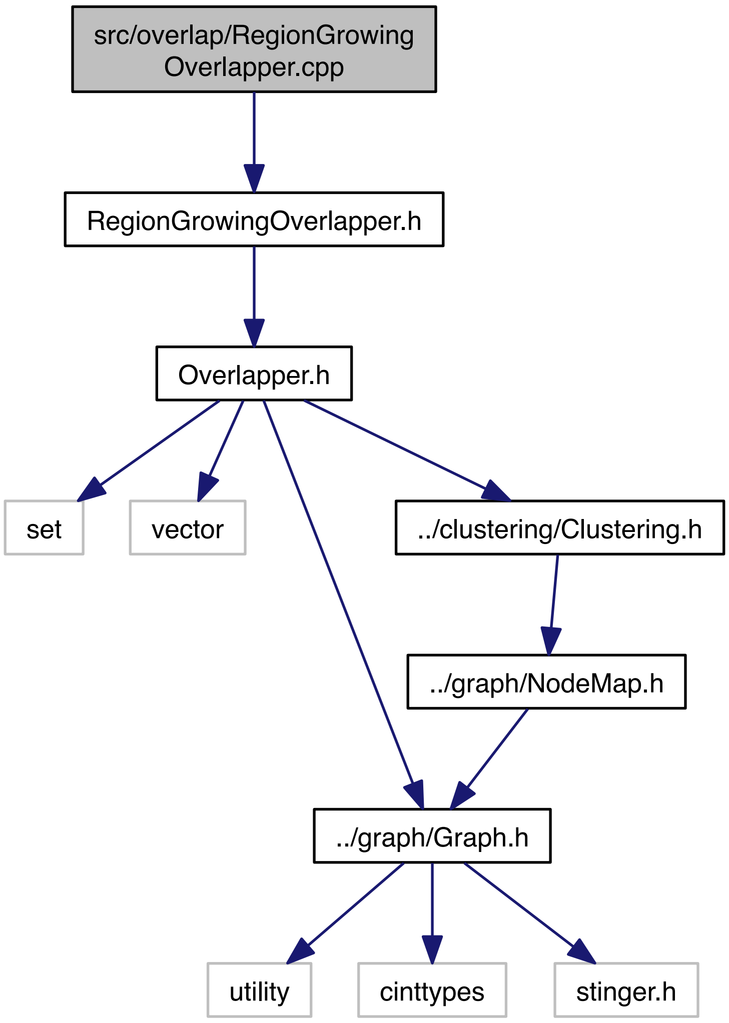
Namespaces

- namespace EnsembleClustering

7.57 src/overlap/RegionGrowingOverlapper.cpp File Reference

```
#include "RegionGrowingOverlapper.h"
```

Include dependency graph for RegionGrowingOverlapper.cpp:


src/overlap/RegionGrowing Overlapper.cpp
RegionGrowingOverlapper.h
Overlapper.h
set
vector
../clustering/Clustering.h
../graph/NodeMap.h
../graph/Graph.h
utility
cinttypes
stinger.h

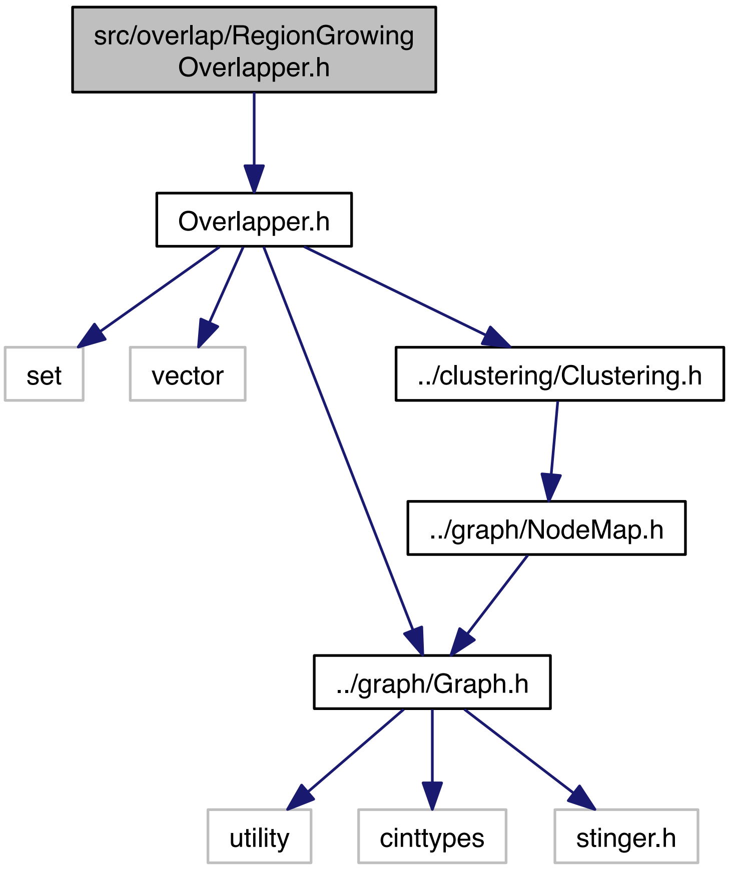
Namespaces

- namespace EnsembleClustering

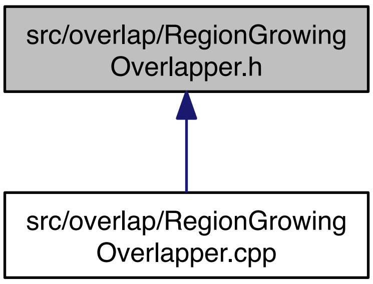
7.58 src/overlap/RegionGrowingOverlapper.h File Reference

```
#include "Overlapper.h"
```

Include dependency graph for RegionGrowingOverlapper.h:



This graph shows which files directly or indirectly include this file:


src/overlap/RegionGrowing Overlapper.h
src/overlap/RegionGrowing Overlapper.cpp

Classes

- class EnsembleClustering::RegionGrowingOverlapper

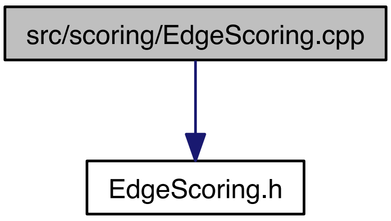
Namespaces

- namespace EnsembleClustering

7.59 src/scoring/EdgeScoring.cpp File Reference

```
#include "EdgeScoring.h"
```

Include dependency graph for EdgeScoring.cpp:

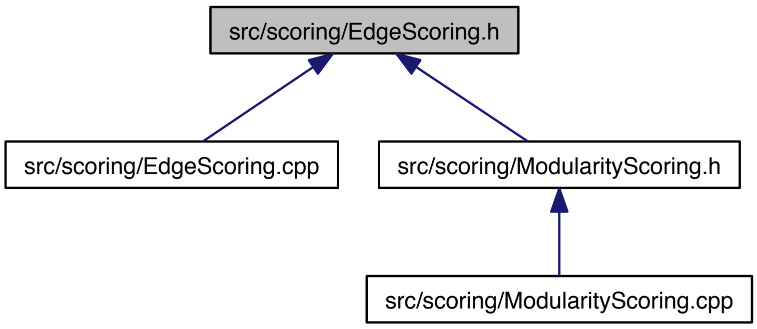


Namespaces

- namespace EnsembleClustering

7.60 src/scoring/EdgeScoring.h File Reference

This graph shows which files directly or indirectly include this file:


src/scoring/EdgeScoring.h
src/scoring/EdgeScoring.cpp
src/scoring/ModularityScoring.h
src/scoring/ModularityScoring.cpp

Classes

- class EnsembleClustering::EdgeScoring

Namespaces

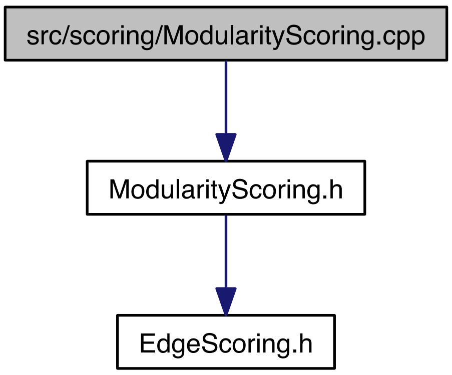
- namespace EnsembleClustering

Typedefs

- typedef int EnsembleClustering::Node

7.61 src/scoring/ModularityScoring.cpp File Reference

```
#include "ModularityScoring.h"
```
Include dependency graph for ModularityScoring.cpp:

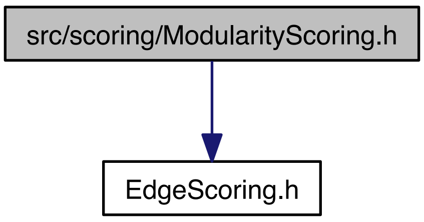


Namespaces

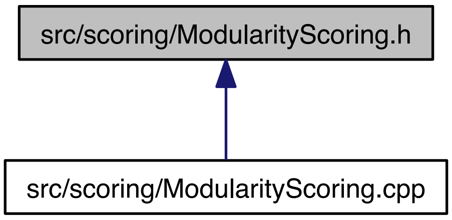
- namespace EnsembleClustering

7.62 src/scoring/ModularityScoring.h File Reference

```
#include "EdgeScoring.h"
```
Include dependency graph for ModularityScoring.h:



This graph shows which files directly or indirectly include this file:


src/scoring/ModularityScoring.h
src/scoring/ModularityScoring.cpp

Classes

- class EnsembleClustering::ModularityScoring

Namespaces

- namespace EnsembleClustering

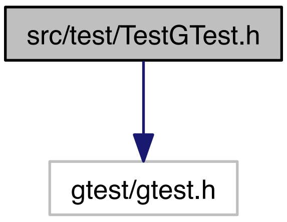
Typedefs

- typedef int EnsembleClustering::Edge
- typedef int EnsembleClustering::Clustering
- typedef int EnsembleClustering::Cluster

7.63 src/test/TestGTest.h File Reference

```
#include "gtest/gtest.h"
```

Include dependency graph for TestGTest.h:



Classes

- class GTestTest

Functions

- TEST_F (GTestTest, myFirstTest)

7.63.1 Function Documentation

7.63.1.1 TEST_F (GTestTest , myFirstTest)

Definition at line 23 of file TestGTest.h.

Index