

**NAME**

**cluster** – find clusters in a graph and augment the graph with this information.

**SYNOPSIS**

```
cluster [-v?] [-Ck] [-ck] [-o outfile] [ files ]
```

**DESCRIPTION**

**cluster** takes as input a graph in DOT format, finds node clusters and augments the graph with this information. The clusters are specified by the "cluster" attribute attached to nodes; cluster values are non-negative integers. **cluster** attempts to maximize the modularity of the clustering. If the edge attribute "weight" is defined, this will be used in computing the clustering.

**OPTIONS**

The following options are supported:

- Ck specifies a targeted number of clusters that should be generated. The specified number *k* is only a suggestion and may not be realisable. If *k* == 0, the default, the number of clusters that approximately optimizes the modularity is returned.
- ck specifies clustering method. If *k* == 0, the default, the modularity will be used. If *k* == 1 modularity quality will be used.
- o*outfile* Specifies that output should go into the file *outfile*. By default, *stdout* is used.
- v Verbose mode.

**EXAMPLES**

Applying **cluster** to the following graph,

```
graph {
  1--2 [weight=10.]
  2--3 [weight=1]
  3--4 [weight=10.]
  4--5 [weight=10]
  5--6 [weight=10]
  3--6 [weight=0.1]
  4--6 [weight=10.]
}
```

gives

```
graph {
  node [cluster="-1"];
  1 [cluster=1];
  2 [cluster=1];
  3 [cluster=2];
  4 [cluster=2];
  5 [cluster=2];
  6 [cluster=2];
  1 -- 2 [weight="10."];
  2 -- 3 [weight=1];
  3 -- 4 [weight="10."];
  4 -- 5 [weight=10];
  5 -- 6 [weight=10];
  3 -- 6 [weight="0.1"];
  4 -- 6 [weight="10."];
}
```

**AUTHOR**

Yifan Hu <yifanhu@research.att.com>

**SEE ALSO**

gvmap(1)

Blondel, V.D., Guillaume, J.L., Lambiotte, R., Lefebvre, E.: Fast unfolding of communities in large networks. *Journal of Statistical Mechanics: Theory and Experiment* (2008), P10008.