GHS Algorithm

0.1

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Chapter 1

File Index

1.1 File List

Here is a list of all documented files with brief descriptions:

Chapter 2

File Documentation

2.1 input_generator.cpp File Reference

Generates input for given number of nodes and probability of an edge between any two nodes.

```
#include <bits/stdc++.h>
```

Macros

- #define **MAX_NODES** 400
- #define **PRECISION** 1000000
- #define **MAX_WEIGHT** 50000000

Functions

- bool checkinputs (int N, double p)

  Checks validity of given inputs.
- void DFS (int node, int color_val, std::vector< std::set< int > > &adj_list, std::vector< int > &color, std::unordered_map< int, int > &colormap)

  Does DFS on the graph starting from a node.
- void DFS_Util (int N, std::set< int > &edge_weights, std::vector< std::tuple< int, int, int > > &edges, std::vector< std::set< int > > &adj_list, std::vector< int > &color, std::unordered_map< int, int > &colormap)

  Uses DFS to make the graph connected.
- int **main** ()

2.1.1 Detailed Description

Date

8/4/2021

Version

0.1

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2.1.2 Function Documentation

2.1.2.1 checkinputs()

```
bool checkinputs (
            int N,
            double p )
```

Parameters

N	Total number of vertices
p	probability of an edge between two vertices

Definition at line 20 of file input_generator.cpp.

2.1.2.2 DFS()

```
void DFS (
            int node,
            int color_val,
            std::vector< std::set< int > > & adj_list,
            std::vector< int > & color,
            std::unordered_map< int, int > & colormap )
```

Parameters

node	index of the current node
color_val	color of the connected component of which node is a part
adj_list	adjacency set of the graph
color	color of connected components of various nodes
colormap	a map from color to one of its representative node

Definition at line 41 of file input_generator.cpp.

2.1.2.3 DFS_Util()

```
void DFS_Util (
            int N,
            std::set< int > & edge_weights,
            std::vector< std::tuple< int, int, int > > & edges,
            std::vector< std::set< int > > & adj_list,
            std::vector< int > & color,
            std::unordered_map< int, int > & colormap )
```

Parameters

N	index of the current node
edge_weights	Set of edge weights of the graph
edges	Set of edges of the graph point to point
adj_list	adjacency set of the graph
color	color of connected components of various nodes
colormap	a map from color to one of its representative node

Definition at line 67 of file input_generator.cpp.

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