Graph

0.3.0

Generated by Doxygen 1.8.17

Chapter 1

Class Index

1.1 Class List

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

Chapter 2

File Index

2.1 File List

Here is a list of all files with brief descriptions:

Chapter 3

Class Documentation

3.1 Graph Class Reference

Public Member Functions

- Graph (int input)
- void addEdge (int i, int j)
- void removeEdge (int i, int j)
- bool hasEdge (int i, int j)
- void displayMatrix ()
- void outEdges (int i, vector$<$ int $>$ &edges)
- void inEdges (int i, vector$<$ int $>$ &edges)
- int nVertices ()
- void bfs (Graph &g, int r)
- void dfs2 (Graph &g, int r)

Public Attributes

- int Matrix [10][10] = { 0 }

3.1.1 Detailed Description

Add two integers (brief)

Adds a and b, two integers (long description)

Parameters

a	integer
b	integer

Returns

integer sum of a and b

Definition at line 22 of file main.cpp.

3.1.2 Constructor & Destructor Documentation

3.1.2.1 Graph()

```
Graph::Graph (
              int input )  [inline]
```

Definition at line 28 of file main.cpp.

```
                       {
        n = input;
    }
```

3.1.3 Member Function Documentation

3.1.3.1 addEdge()

```
void Graph::addEdge (
              int i,
              int j )  [inline]
```

Definition at line 32 of file main.cpp.

```
                              {
    Matrix[i][j] = true;
}
```

3.1.3.2 bfs()

```
void Graph::bfs (
              Graph & g,
              int r )  [inline]
```

Definition at line 64 of file main.cpp.

```
                             {
    bool *seen = new bool[g.nVertices()];
    vector<int> q;
    q.push_back(r);
    seen[r] = true;
    while (q.size() > 0) {
        int i = q.back();
        cout « endl « i « " > " « "This is BFS" « endl;
        q.pop_back();
        vector<int> edges;
        g.outEdges(i, edges);
        for (int k = 0; k < edges.size(); k++) {
            int j = edges[k];
            if (!seen[j]) {
                q.push_back(j);
                seen[j] = true;
            }
        }
    }
    delete[] seen;
}
```

3.1.3.3 dfs2()

```
void Graph::dfs2 (
              Graph & g,
              int r )  [inline]
```

Definition at line 88 of file main.cpp.

```
88                         {
89     bool *c = new bool[g.nVertices()];
90     vector<int> s;
91     s.push_back(r);
92     while (s.size() > 0) {
93         int i = s.back();
94         cout « endl « i « " > " « "This is DFS"« endl;
95         s.pop_back();
96         if (c[i] == *c) {
97             c[i] = c;
98             vector<int> edges;
99             g.outEdges(i, edges);
100             for (int k = 0; k < edges.size(); k++)
101                 s.push_back(edges[k]);
102         }
103     }
104 delete[] c;
105 }
```

3.1.3.4 displayMatrix()

```
void Graph::displayMatrix ( )  [inline]
```

Definition at line 42 of file main.cpp.

```
42                       {
43    for(int i = 0; i < n; i++) {
44       for(int j = 0; j < n; j++) {
45          cout « Matrix[i][j];
46       }
47       cout « endl;
48    }
49 }
```

3.1.3.5 hasEdge()

```
bool Graph::hasEdge (
              int i,
              int j )  [inline]
```

Definition at line 38 of file main.cpp.

```
38                             {
39     return Matrix[i][j];
40 }
```

3.1.3.6 inEdges()

```
void Graph::inEdges (
              int i,
              vector< int > & edges )  [inline]
```

Definition at line 55 of file main.cpp.

```
55                                          {
56     for (int j = 0; j < n; j++)
57         if (Matrix[j][i]) edges.push_back(j);
58 }
```

3.1.3.7 nVertices()

```
int Graph::nVertices ( )  [inline]
```

Definition at line 60 of file main.cpp.

```
                   {
    return n * n;
}
```

3.1.3.8 outEdges()

```
void Graph::outEdges (
             int i,
             vector< int > & edges )  [inline]
```

Definition at line 51 of file main.cpp.

```
                                            {
    for (int j = 0; j < n; j++)
        if (Matrix[i][j]) edges.push_back(j);
}
```

3.1.3.9 removeEdge()

```
void Graph::removeEdge (
             int i,
             int j )  [inline]
```

Definition at line 35 of file main.cpp.

```
                                 {
    Matrix[i][j] = false;
}
```

3.1.4 Member Data Documentation

3.1.4.1 Matrix

```
int Graph::Matrix[10][10] = { 0 }
```

Definition at line 26 of file main.cpp.

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

- /home/addis/graph/src/main.cpp

Chapter 4

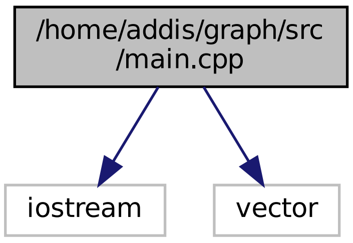
File Documentation

4.1 /home/addis/graph/src/main.cpp File Reference

This is a graph project.

```
#include <iostream>
#include <vector>
```

Include dependency graph for main.cpp:



Classes

- class Graph

Functions

- int main (int, char ∗∗)

4.1.1 Detailed Description

This is a graph project.

This is the long brief at the top of main.cpp.

Author

Addis Bogale

Date

4/2/2021

4.1.2 Function Documentation

4.1.2.1 main()

```
int main (
            int ,
            char **  )
```

Definition at line 110 of file main.cpp.

```
110                       {
111     Graph value(10);
112     value.addEdge(0,1);
113     value.addEdge(3,3);
114     value.displayMatrix();
115     value.bfs(value, 0);
116     value.removeEdge(3,3);
117     value.displayMatrix();
118 
119     value.addEdge(2,3);
120     value.addEdge(1,3);
121 
122     value.hasEdge(0,1);
123     value.dfs2(value, 2);
124     value.displayMatrix();
125 
126 
127 }
```

Index