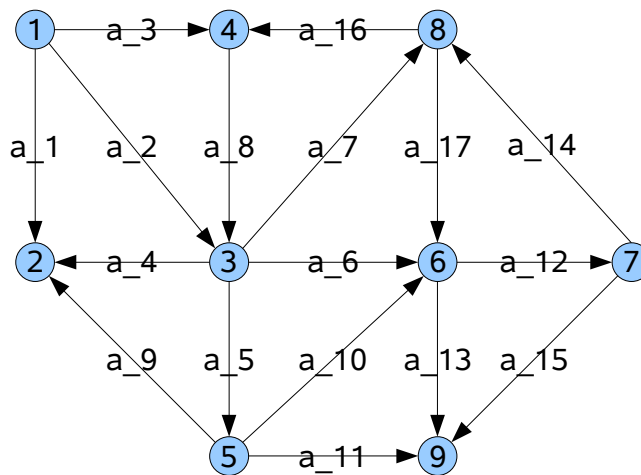


# 「グラフと組合せ」 課題 8 (解答例)

2008/6/16

## 1 グラフの探索

次のグラフ(前回の課題のグラフ)に対して深さ優先及び幅優先探索を行う Java プログラムを作成しなさい。



Main.java 中のグラフ定義の部分を示す。超点数を表す変数  $n$  は 9 である。

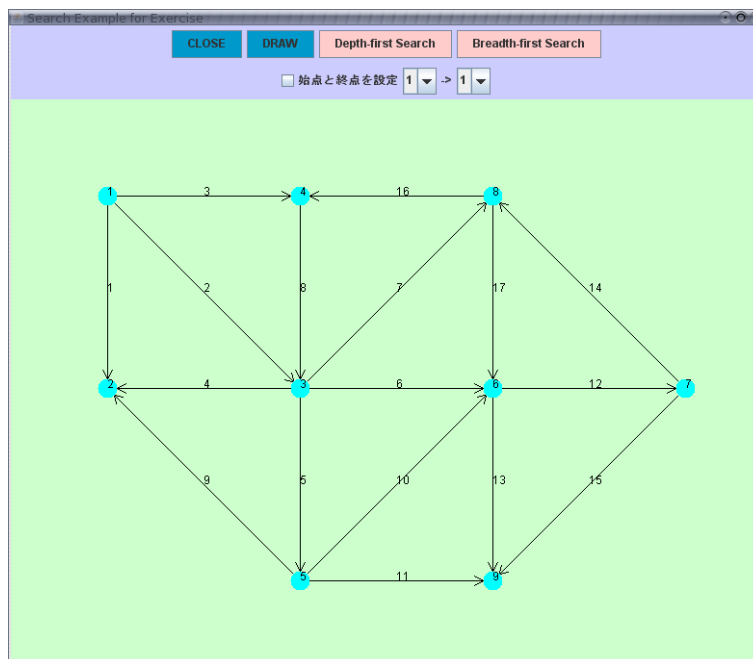
```
/**
 * グラフの作成
 */
private void mkGraph(){
    graphExample1 = new graphLib.Graph(title);
    //頂点の生成
    graphLib.Vertex vertexes[]=new graphLib.Vertex[n];
    for(int i=0;i<n;i++){
        vertexes[i]=new graphLib.Vertex(String.valueOf(i+1));
        graphExample1.addVertex(vertexes[i]);
        selectOrigin.addItem(vertexes[i]);
        selectDestination.addItem(vertexes[i]);
    }
    root=vertexes[0];
    //頂点の表示座標を設定
    vertexes[0].setPoint(100.,100.);
    vertexes[1].setPoint(100.,300.);
    vertexes[2].setPoint(300.,300.);
    vertexes[3].setPoint(300.,100.);
    vertexes[4].setPoint(300.,500.);
    vertexes[5].setPoint(500.,300.);
    vertexes[6].setPoint(700.,300.);
```

```

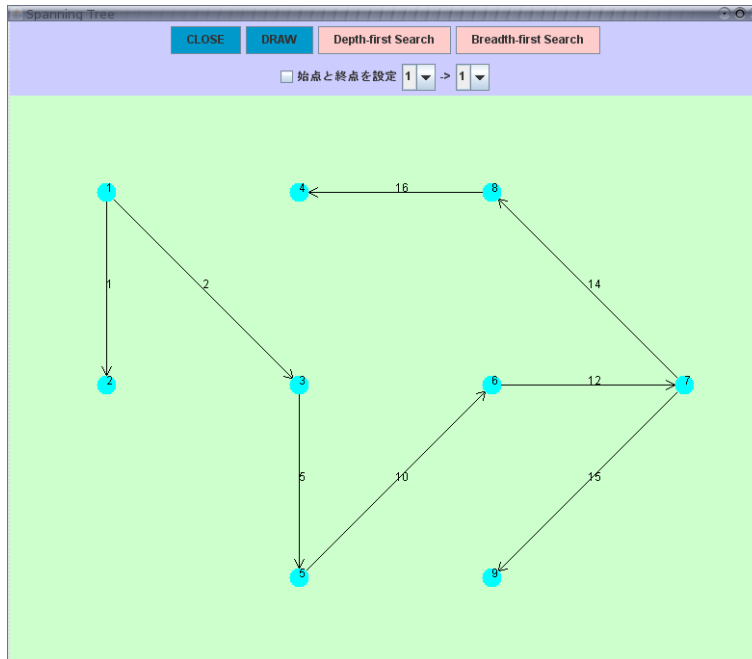
vertexes[7].setPoint(500.,100.);
vertexes[8].setPoint(500.,500.);
//弧の定義
graphExample1.addArc(vertexes[0],vertexes[1],"1");
graphExample1.addArc(vertexes[0],vertexes[2],"2");
graphExample1.addArc(vertexes[0],vertexes[3],"3");
graphExample1.addArc(vertexes[2],vertexes[1],"4");
graphExample1.addArc(vertexes[2],vertexes[4],"5");
graphExample1.addArc(vertexes[2],vertexes[5],"6");
graphExample1.addArc(vertexes[2],vertexes[7],"7");
graphExample1.addArc(vertexes[3],vertexes[2],"8");
graphExample1.addArc(vertexes[4],vertexes[1],"9");
graphExample1.addArc(vertexes[4],vertexes[5],"10");
graphExample1.addArc(vertexes[4],vertexes[8],"11");
graphExample1.addArc(vertexes[5],vertexes[6],"12");
graphExample1.addArc(vertexes[5],vertexes[8],"13");
graphExample1.addArc(vertexes[6],vertexes[7],"14");
graphExample1.addArc(vertexes[6],vertexes[8],"15");
graphExample1.addArc(vertexes[7],vertexes[3],"16");
graphExample1.addArc(vertexes[7],vertexes[5],"17");
}

```

起動時の画面



# 深さ優先探索



# 幅優先探索

