

```

1  package graph;
2
3  import java.util.List;
4  import java.util.ArrayList;
5  import java.util.HashMap;
6
7  class AdjacencyMatrix {
8
9      ... private Integer[][] innerAdjacencyMatrix;
10     ... private HashMap<String, Integer> vertexNameAndIndexTable;
11     —> private HashMap<Integer, String> vertexIndexAndNameTable;
12
13     ... public AdjacencyMatrix(String[] vertex) {
14
15         ... innerAdjacencyMatrix = new Integer[vertex.length][vertex.length];
16         ... vertexNameAndIndexTable = new HashMap<>();
17         —> —> vertexIndexAndNameTable = new HashMap<>();
18
19         ... for (int i = 0; i < vertex.length; i++) {
20             ... vertexNameAndIndexTable.put(vertex[i], i);
21             —> —> vertexIndexAndNameTable.put(i, vertex[i]);
22             ... }
23         ... }
24
25     ... public void updateEdge(String srcEdge, String dstEdge, Integer weight) {
26
27         ... Integer srcIndex = vertexNameAndIndexTable.get(srcEdge);
28         ... Integer dstIndex = vertexNameAndIndexTable.get(dstEdge);
29
30         ... innerAdjacencyMatrix[srcIndex][dstIndex] = weight;
31         ... }
32
33
34     ... public void deleteEdge(String srcEdge, String dstEdge) {
35
36         ... Integer srcIndex = vertexNameAndIndexTable.get(srcEdge);
37         ... Integer dstIndex = vertexNameAndIndexTable.get(dstEdge);
38
39         ... innerAdjacencyMatrix[srcIndex][dstIndex] = null;
40         ... }
41
42     ... public Integer getWeight(String srcEdge, String dstEdge) {
43
44         ... Integer srcIndex = vertexNameAndIndexTable.get(srcEdge);
45         ... Integer dstIndex = vertexNameAndIndexTable.get(dstEdge);
46
47         ... return innerAdjacencyMatrix[srcIndex][dstIndex];
48         ... }
49     —>
50     —> public Integer[][] getInnerAdjacencyMatrix() {
51     —> —> return innerAdjacencyMatrix;
52     —> }
53     —>
54     —> public String getVertexName(Integer index) {
55     —> —>
56     —> —> return vertexIndexAndNameTable.get(index);
57     —> }
58
59     ... public static void main(String[] args) {
60
61         ... String[] vertex = {"A", "B", "C", "D"};
62
63         ... AdjacencyMatrix adjacencyMatrix = new AdjacencyMatrix(vertex);
64         ... adjacencyMatrix.updateEdge("A", "B", 1);
65         ... adjacencyMatrix.updateEdge("A", "C", 6);
66         ... adjacencyMatrix.updateEdge("B", "A", 3);
67         ... adjacencyMatrix.updateEdge("C", "A", 4);
68         ... adjacencyMatrix.updateEdge("C", "D", 9);
69         ... adjacencyMatrix.updateEdge("D", "A", 7);
70
71
72         ... System.out.println("haha");
73         ... }

```

