**package** BankMid;

**class** DisJoin

{

**public int**[] **parent**;

**public int**[] **rank**;

**public int getLength**;

**public int getParent** =0;

**public int flag**;

**public** DisJoin(**int**[] parent, **int**[] rank,**int** length) {

**this**.**parent** = parent;

**this**.**rank** = rank;

**this**.**getLength** = length;

**flag** = 0;

}

**public void** makeSet(**int** length)

{

**for** (**int** i=0;i<length;i++)

{

**parent**[i] = i;

**rank**[i] = 0;

}

}

**public void** unionSet(**int** value1, **int** value2)

{

**int** parentValue1 = findParent(value1);

**int** parentValue2 = findParent(value2);

**if** (parentValue1 == parentValue2) {

**flag** = 1;

**return**;

}

**else if** (parentValue1 !=parentValue2)

{

**if** (**rank**[parentValue1] == **rank**[parentValue2])

{

**parent**[parentValue2] = value1;

**rank**[parentValue1] = **rank**[parentValue1] + 1;

}**else if** (**rank**[parentValue1]>**rank**[parentValue2])

{

**parent**[parentValue2] = value1;

}**else if** (**rank**[parentValue1]<**rank**[parentValue2])

{

**parent**[parentValue1] = value2;

}

}

}

**public int** findParent(**int** value)

{

**if** (value == **parent**[value])

{

**getParent** = **parent**[value];

}**else**

{

findParent(**parent**[value]);

}

**return getParent**;

}

**public void** print()

{

**for** (**int** i=0;i<**getLength**;i++)

{

System.***out***.println(i+**"th data parent = "**+**parent**[i]+**", and rank is = "**+**rank**[i]);

}

}

}

**public class** DisjoinSetAlgorithm {

**public static void** main(String[] args) {

**int**[] parent = **new int**[100];

**int**[] rank = **new int**[100];

DisJoin object = **new** DisJoin(parent,rank,5);

object.makeSet(object.**getLength**);

object.unionSet(0,1);

object.unionSet(1,2);

object.unionSet(1,3);

*// object.unionSet(2,3);*

object.print();

**if** (object.**flag** ==1)

{

System.***out***.println(**"Graph contains cycle: "**);

}**else**

{

System.***out***.println(**"not contains cycle: "**);

}

}

}