# ILLINOIS

# Disjoint Sets

# Learning Objectives

1. Understand what a disjoint set is

2. Understand the disjoint set ADT

# Disjoint Set Definition

**Disjoint Set** - a collection of elements partitioned into a number of disjoint (non-overlapping) subsets.
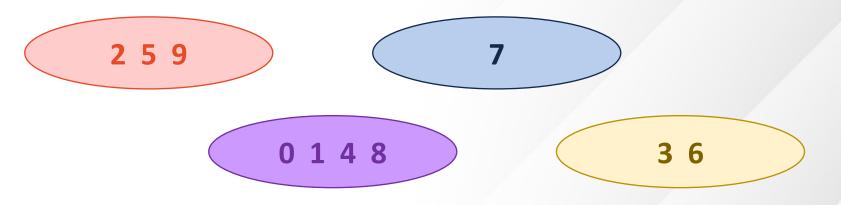
2 5 9

7

0 1 4 8

3 6

function: find(4)

function: find(4) == find(8)

function: find(4) == find(8)

**Key Idea:**

- Each element exists in exactly one set

# Disjoint Sets ADT

Maintain a collection S = $\{s_0, s_1, \ldots s_k\}$

Each set has a representative member.

API: **void makeSets(int number);**

**void union(int k1, int k2);**

**int find(int k);**