THE PIGEONHOLE PRINCIPLE

Pigeon Hole

1 . Overview

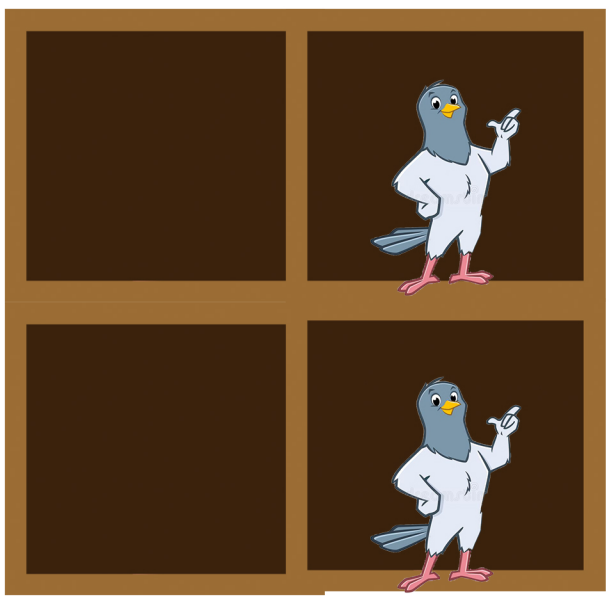
The pigeonhole principle (also sometimes called the Dirichlet drawer principle) is a simple yet powerful idea in mathematics that can be used to show some surprising things, as we'll see later. In this article, we'll first define what the pigeonhole principle is, followed by some examples to illustrate how it can be applied. Then we'll discuss the generalized version of the principle and give several examples that use the generalized version. Finally, we'll show some particularly clever applications that make use of the pigeonhole principle.

2.The Basic Pigeonhole Principle

In this section, we'll first define the basic pigeonhole principle and prove it. Then we'll show three examples that use this basic principle.. If n pigeonholes are occupied by n+1 or more pigeons, then at least one pigeonhole is occupied by greater than one pigeon. Generalized pigeonhole principle is: - If n pigeonholes are occupied by kn+1 or more pigeons, where k is a positive integer, then at least one pigeonhole is occupied by k+1 or more pigeons.

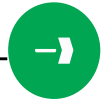
3.Some Examples of Pigeonhole

*)Two or more people reading this blog will have the same birthday.
*)If you pick five cards from a standard deck of 52 cards, then at least two will be of the same suit.
*)Sorting the numbers using Pigeon-hole



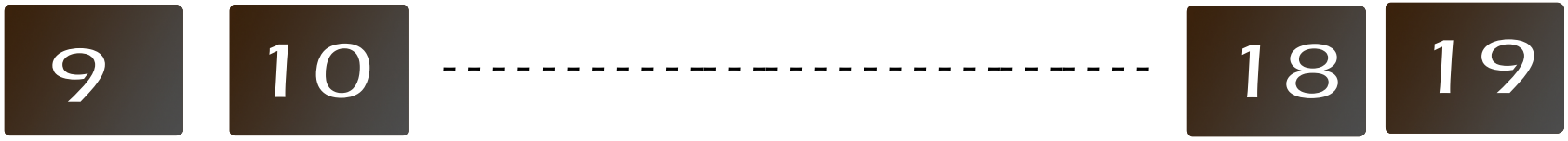
Implementation of pigeonhole principal
through pigeonhole sorting

enter how many numbers: _____ 

enter number _____ 

Using searching algorithem we have the highest and lowest number in the array

create a bucket array of range 9 to 19



Pigeon hole sorting