

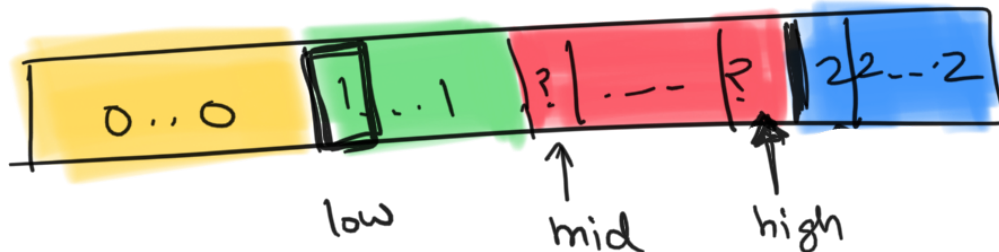
## Sorting : Sort Colours

Colours 0, 1, 2

Given array of coloured objects,  
sort them in place so that  
objects of same colour are adjacent  
and in order (red, white, blue)

$[2, 0, 2, 1, 1, 0] \rightarrow [0, 0, 1, 1, 2, 2]$

One pass solution with constant space?



$[0 : low] \rightarrow 0$

$[low : mid] \rightarrow 1$

$[mid : high+1] \rightarrow ??$  unknown

$[high+1 : ] \rightarrow 2$

mid = 0 : swap mid val and low val

Increment low  
Increment mid

mid = 1 : Increment mid

mid = 2 : swap mid val and high  
val

decrement high

repeat till [mid : high+1] is empty  
(ie) mid > high.

Start with low = 0

mid = 0

high = len(array) - 1 = n - 1

↑  
so initially full array is unknown

