

Jagged Array

Jagged Array: Irregular 2D array

- Rows of the array has variable sizes

$A = [[a,b],[c],[d,e,f],[g],[h,i,j,k]]$

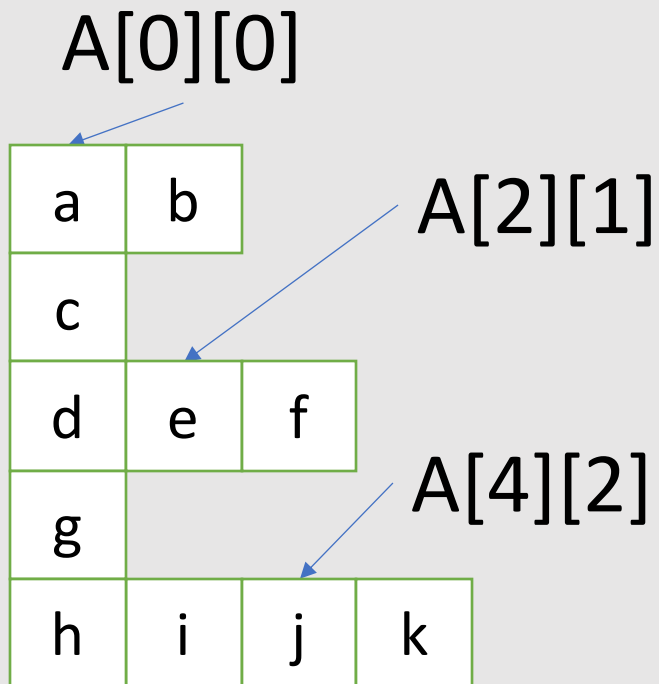


At the low-level, computer can only handle 1D array

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Array of array is inefficient !

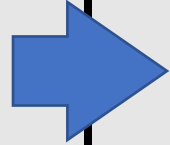
```
std::vector< std::vector<int> > arrayOfArray;
```

Jagged Array: Irregular 2D array

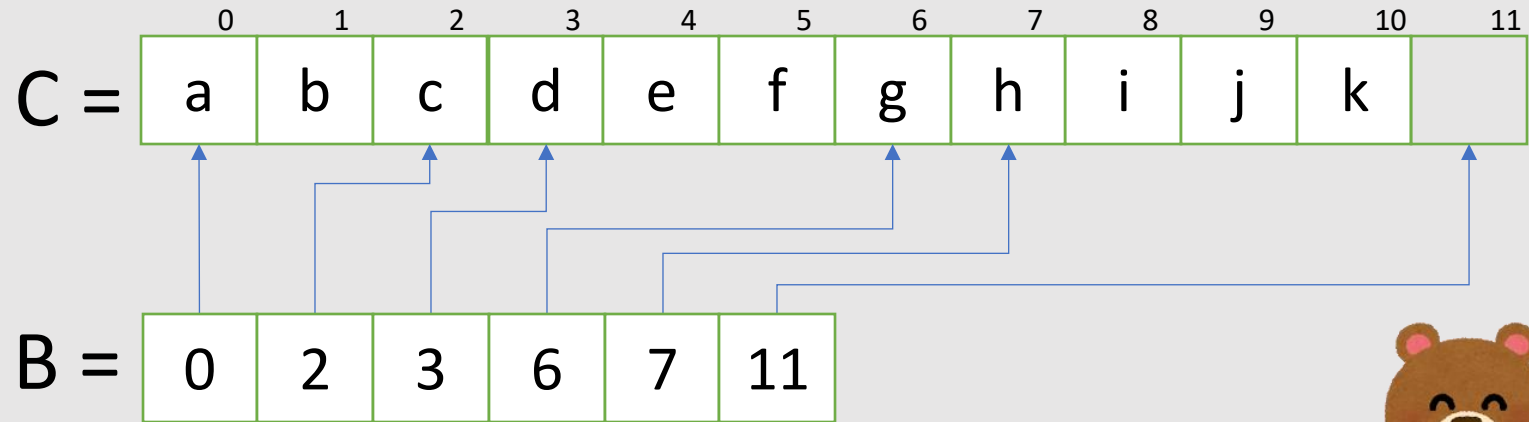
- A jagged array can be expressed by two 1D arrays

$A = [[5,7],[1],[9,3,4],[3],[5,5,4,3]]$

0	a	b		
1	c			
2	d	e	f	
3	g			
4	h	i	j	k



$$A[i][j] = C[B[i]+j]$$

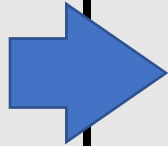


Array of stating indexes for each row



Loop Over Jagged Array

0	a	b		
1	c			
2	d	e	f	
3	g			
4	h	i	j	k



	0	1	2	3	4	5	6	7	8	9	10	11
C =	a	b	c	d	e	f	g	h	i	j	k	
B =	0	2	3	6	7	11						

```
for(int i=0;i<5;++i){  
  for(int j=B[i];j<B[i+1];++j){  
    float v = C[j];  
  }  
}
```