

23/9/23 Custom Comparator

C++  $\rightarrow$  STL

$\hookrightarrow$  sort ()

Vector  $\rightarrow$  `sort (v.begin(), v.end());`

array  $\rightarrow$  `sort (a, a+n)`

`sort (v.begin(), v.end(), custom fun)`

`mycom(int a, int b) {`  
    `return a > b;`  $\rightarrow$  Decreasing  
    `return a < b;`  $\rightarrow$  Increasing  
}

which tells  
what this func  
have to do

Vector of Vector  $\rightarrow$  2-D vector

[ [1, 44], [1, 55], [3, 22] ]

[ [1, 11], [5, 33] ]

Sort on the basis  
of 2<sup>nd</sup> element on vector

23/0/23 0 1

APCO  
Date: 25/3

0  $\rightarrow$  [1, 44]

Sort by 1<sup>st</sup> Index

1  $\rightarrow$  [1, 55]

2  $\rightarrow$  [3, 22]

3  $\rightarrow$  [4, 11]

4  $\rightarrow$  [5, 33]

$\Rightarrow$  [4, 11], [3, 22], [5, 33],  
[1, 44], [1, 55]

By Default  
 $a[0] < b[0]$

$\rightarrow$  sort(begin(), end());

[1, 44], [1, 55], [3, 22], [4, 11], [5, 33]

$\rightarrow$  1<sup>st</sup> Compare 0<sup>th</sup> Index  $\rightarrow$  if they are equal, then compare 1<sup>st</sup> Index

$\Rightarrow$  sort(begin(), end(), mycomp);

bool mycomp (vector<int> &a, vector<int> &b) {  
return a[1] > b[1];  $\rightarrow$  desc  
return a[1] < b[1];  $\rightarrow$  asc  
}

$a[1] < b[1]$	$a[0] < b[0]$	$a[0] > b[0]$	$a[1] > b[1]$
[4, 11]	[1, 44]	[5, 33]	[1, 55]
[3, 22]	[1, 55]	[4, 11]	[1, 44]
[5, 33]	[3, 22]	[3, 22]	[5, 33]
[1, 44]	[4, 11]	[1, 55]	[3, 22]
[1, 55]	[5, 33]	[1, 44]	[4, 11]