



Priority Scheduler

- Extend Tunnel.java
- Collection of **BasicTunnels**
- Collection the can rank Vehicles based on priority (**PriorityQueue** with comparator).
- Keep track of which Vehicle in which Tunnel (**Map**)



BasicTunnel 1

BasicTunnel 2



BasicTunnel 1



BasicTunnel 2








2



BasicTunnel 1



BasicTunnel 2





PriorityScheduler.tryToEnterInner()

2



BasicTunnel1.tryToEnter()

\leq False

BasicTunnel2.tryToEnter()

\leq False

BasicTunnel 1



BasicTunnel 2





PriorityQueue

0 ²  await...

1

2

3

...

BasicTunnel 1

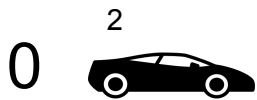


BasicTunnel 2





PriorityQueue



1

2

3

...

BasicTunnel 1

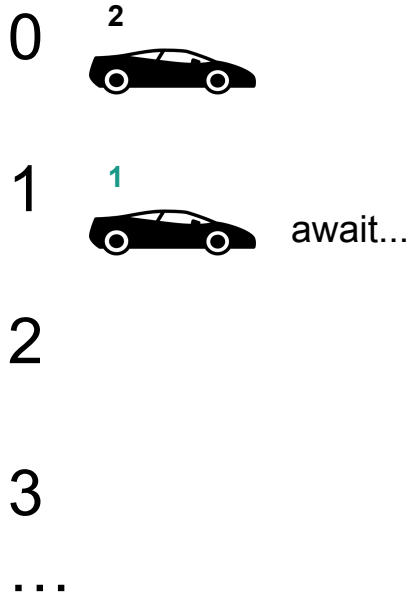


BasicTunnel 2





PriorityQueue



BasicTunnel 1



BasicTunnel 2





PriorityQueue

0

2



3



1

1



2

3

...

BasicTunnel 1



BasicTunnel 2



PriorityQueue

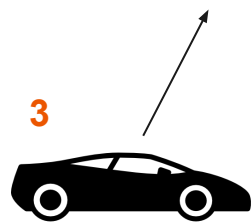
PriorityScheduler.tryToEnterInner()



2

3

...

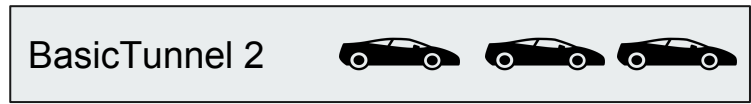
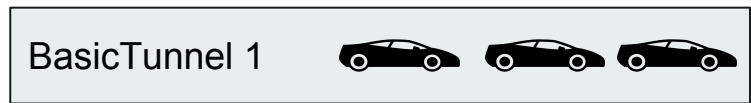


BasicTunnel1.tryToEnter()

<=False

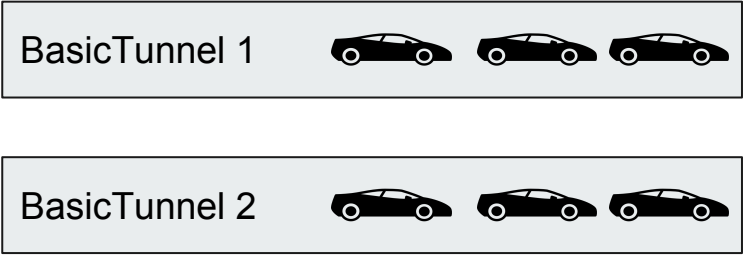
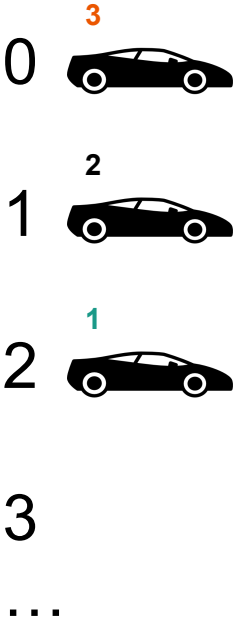
BasicTunnel2.tryToEnter()

<=False





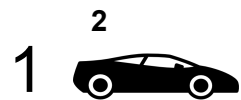
PriorityQueue





PriorityScheduler.exitTunnelInner()

PriorityQueue



3

...

signal

BasicTunnel 1



BasicTunnel 2



PriorityQueue

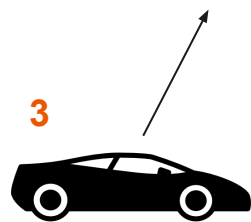
PriorityScheduler.tryToEnterInner()



2

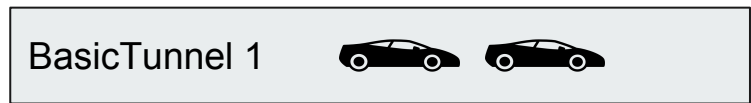
3

...



BasicTunnel1.tryToEnter()
≤ True

BasicTunnel2.tryToEnter()
≤ False





PriorityQueue



2


3

...





Preemptive Priority Scheduler (Extra Credit)

- Extend Tunnel.java
- Implement Ambulance.java
- Change tryToEnterInner and tryToExitInner for 



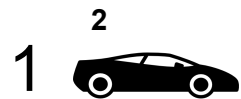
Change in Vehicle

for Preemptive Priority Scheduler

- Change `doWhileInTunnel()`
 - from `sleep` to `await()`
 - Get system time and continue wait after ambulance left



PriorityQueue



3

...



BasicTunnel 1






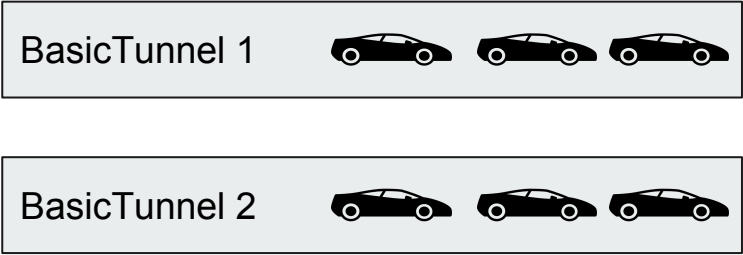
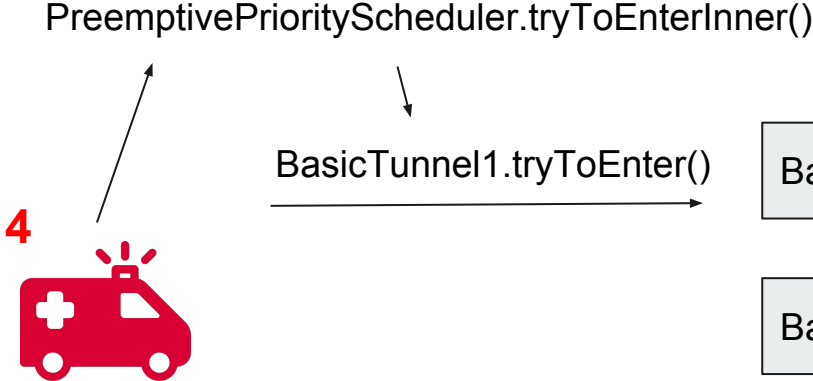
BasicTunnel 2





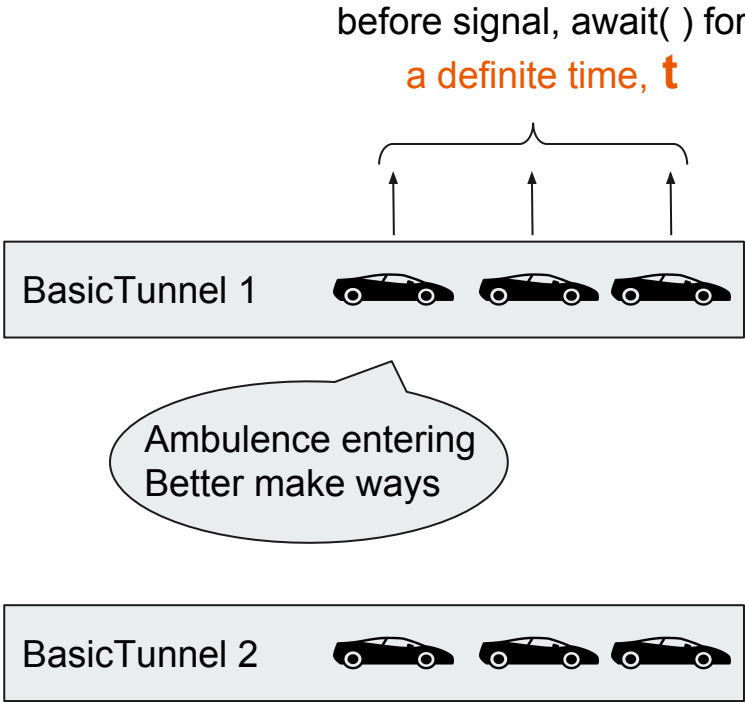
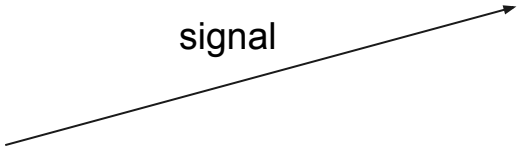
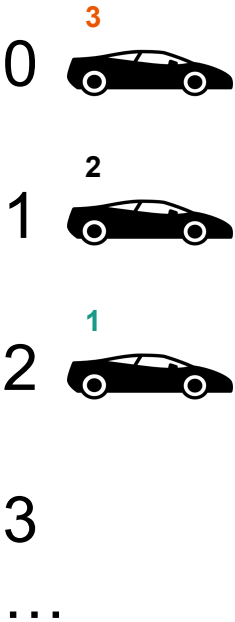
PriorityQueue

- 0  3
- 1  2
- 2  1
- 3
- ...





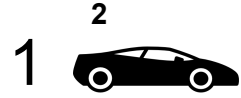
PriorityQueue



Time has passed -> t' ,
at the time ambulance arrived

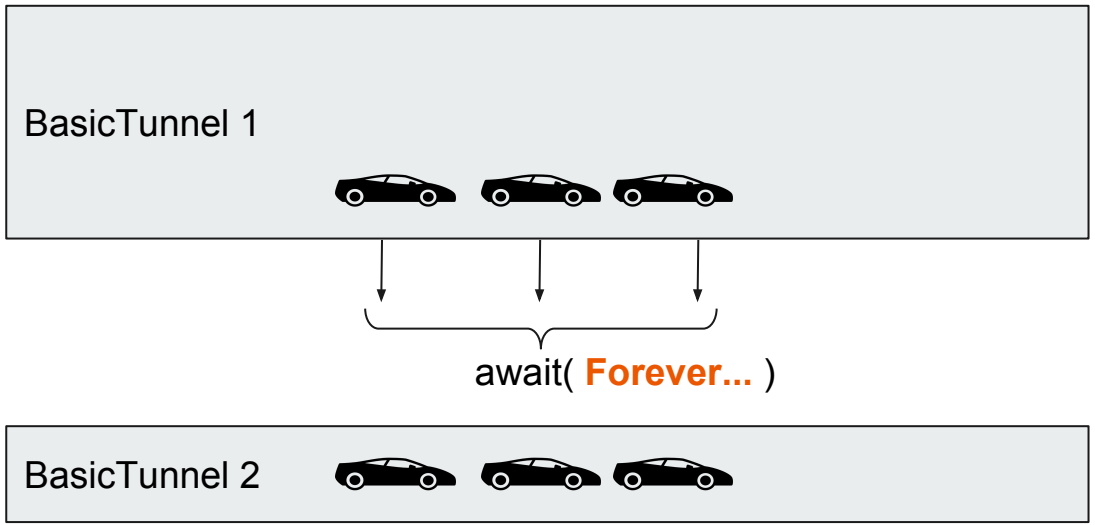


PriorityQueue

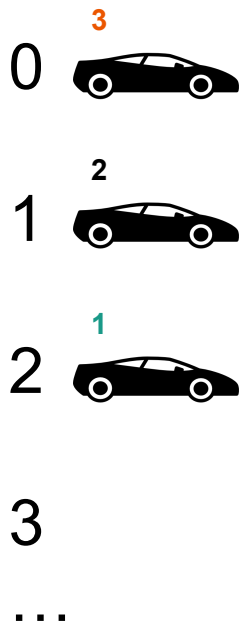


3

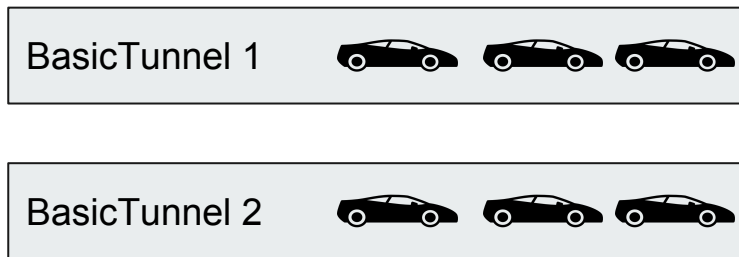
...



PriorityQueue



Ambulance existing
Start moving again



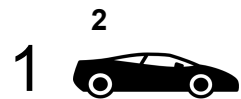
`PreemptivePriorityScheduler.exitTunnelInner()`

signal





PriorityQueue



3

...

continue to await() for
a definite time, $t - t'$

