# PriorityQueue - 优先队列(堆)

优先队列(堆)的相关概念和简单实现

Press Space for next page  $\rightarrow$ 





# 优先队列的概念

简而言之,优先队列就是元素具有优先级的队列,同时它可以视为堆的一种实现。

#### ■ ぱ 优先队列是队列

- 具有队列的所有性质,如元素先进先出(first in, first out)等
- 可以认为优先队列实现了队列中的所有接口/方法

```
class PriorityQueue implements Queue {
    offer() {} // 向队尾添加一个元素
    poll() {} // 从队头弹出一个元素
    peek() {} // 查看队头元素(不会将元素从队列中弹出)
}
```

#### 

- 普通队列最为显著的特点就是元素先进先出,其实也可以视为具有一定的优先级:以进入队列的时间作为 出队的优先级
- 而优先队列则是提供了可以定制这个出队优先级的能力,优先队列可以传入一个比较器函数,来比较元素 之间的优先级,从而实现 first in, largest out(优先级最高的元素先出队)

```
const comparator = (a, b) => a - b; // 假定队列中存储的是数值
let queue = new PriorityQueue(comparator); // 那么在队列queue中, 数组最小的元素位于队首
```

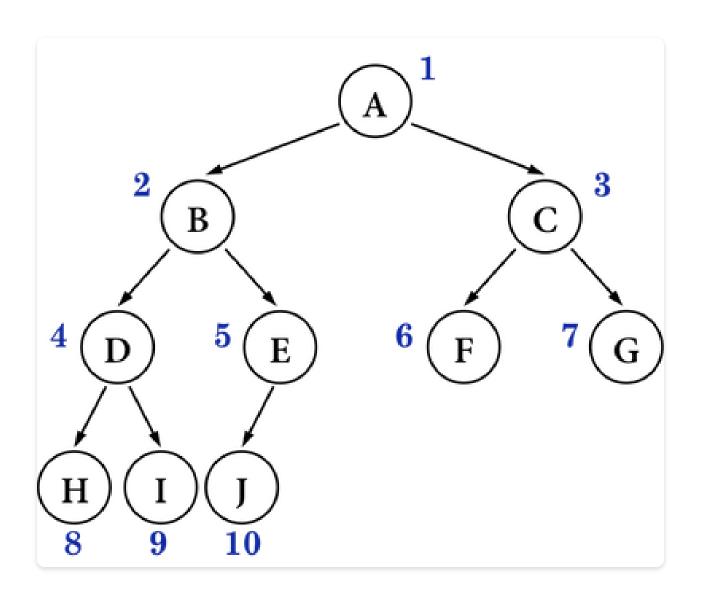
## 优先队列如何存储元素

优先队列通常使用完全二叉树作为存储结构

在百科中关于堆的定义是: **堆 (**heap**) 是计算机科学中一类特殊的数据结构的统称**。

堆总是满足下列性质:

- 1、堆总是一棵完全二叉树。
- 2、堆中某个结点的值总是小于等于或者是大于等于其父结点的值;
- 3、将根结点最大的堆叫做最大堆或大根堆,根结点最小的堆叫做最小堆或小根堆。

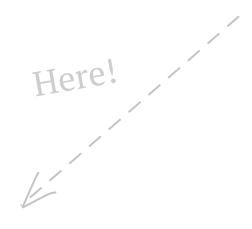


# Navigation

Hover on the bottom-left corner to see the navigation's controls panel, learn more

KEYBOARD SHORTCUTS

right / space	next animation or slide
left / shift space	previous animation or slide
up	previous slide
down	next slide



### Code

Use code snippets and get the highlighting directly! [1]

```
interface User {
   id: number
   firstName: string
   lastName: string
   role: string
}

function updateUser(id: number, update: User) {
   const user = getUser(id)
   const newUser = {...user...update}
   saveUser(id, newUser)
}
```

#### 1. Learn More



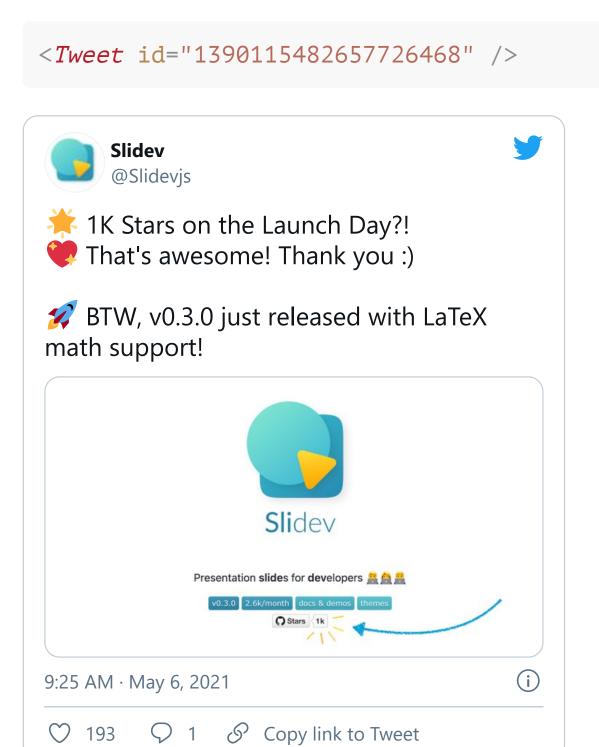
### Components

You can use Vue components directly inside your slides.

We have provided a few built-in components like `<Tweet/>` and `<Youtube/>` that you can use directly. And adding your custom components is also super easy.

```
<Counter :count="10" />
- 10 +
```

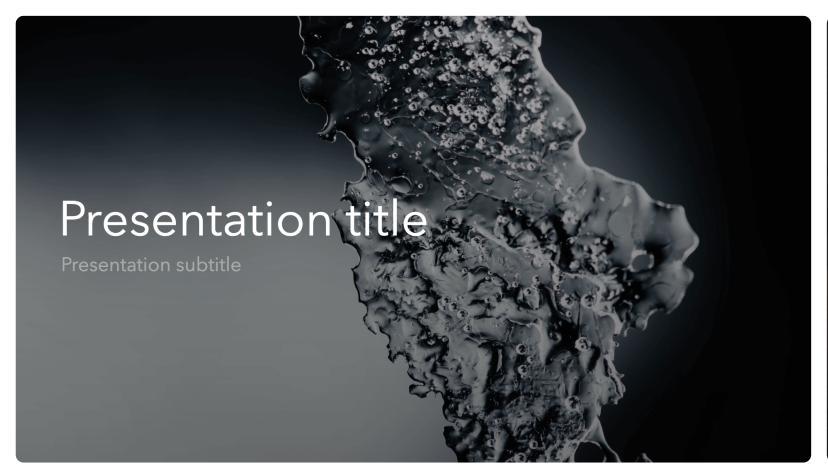
Check out the guides for more.



### Themes

Slidev comes with powerful theming support. Themes can provide styles, layouts, components, or even configurations for tools. Switching between themes by just **one edit** in your frontmatter:

```
theme: default theme: seriph
```





Read more about How to use a theme and check out the Awesome Themes Gallery.

### Animations

Animations are powered by @vueuse/motion.

```
<div
   v-motion
   :initial="{ x: -80 }"
   :enter="{ x: 0 }">
   Slidev
</div>
```



#### LaTeX

LaTeX is supported out-of-box powered by KaTeX.

Inline 
$$\sqrt{3x-1} + (1+x)^2$$

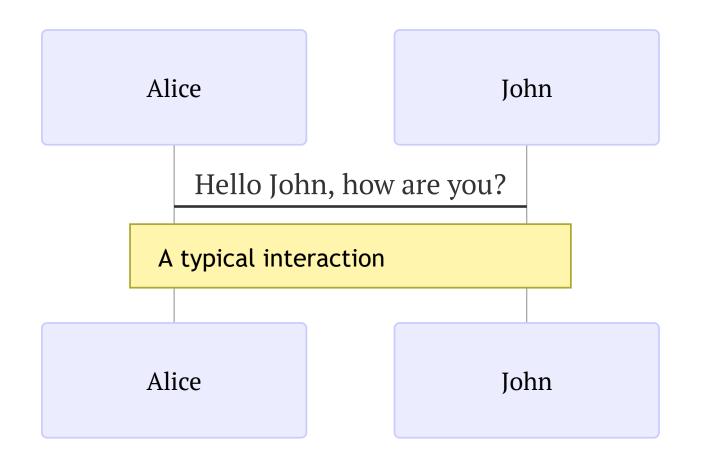
Block

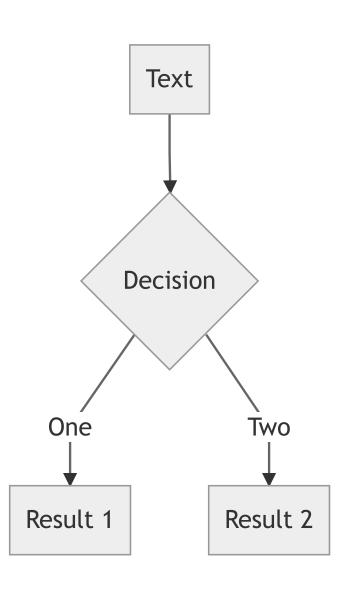
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#### Learn more

# Diagrams

You can create diagrams / graphs from textual descriptions, directly in your Markdown.





#### Learn More

### Learn More

 $Documentations \cdot GitHub \cdot Showcases$