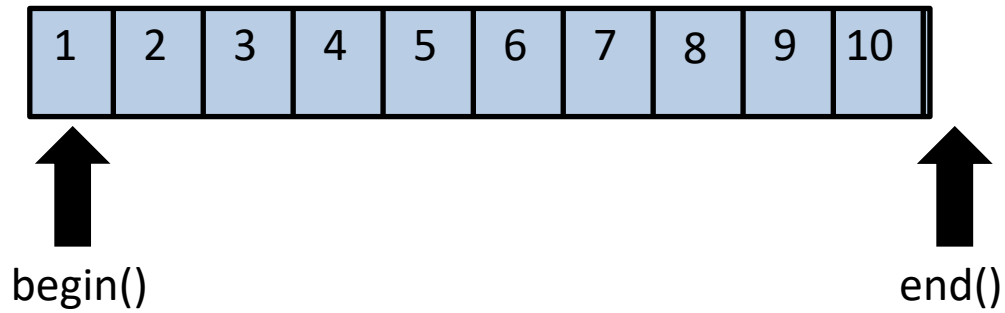
Iterators as Glue

- Iterators



  - point to a position into a container.
  - define half-open ranges, when used in the algorithm of the STL.
  - can be classified based on their functionality.

➡ Iterator categories

Algorithms are defined on iterator categories.

Iterator Categories

Iterator Category	Properties	Containers

Forward Iterator	`++It, It++, *It`
	`It == It2, It != It2`
		`std::unordered_set`
		`std::unordered_map`
		`std::unordered_multiset`
		`std::unordered_multimap`
		`std::forward_list`

Bidirectional Iterator	`--It, It--`	`std::set`
		`std::map`
		`std::multiset`
		`std::multimap`
		`std::list`

Random Access Iterator	`It[i]`
	`It += n, It -= n`
	`It + n, It - n`
	`n + It`
	`It - It2`
	`It < It2, It <= It2,`
	`It > It2, It >= It2`
		`std::array`
		`std::vector`
		`std::deque`
		`std::string`

Iterator Types

- **Iterators**
  - forward
    - `vec.begin(), vec.end()`
    - `std::begin(vec), std::end(vec)`
  - forward (`const`)
    - `vec.cbegin(), vec.cend())`
    - `std::cbegin(vec), std::cend(vec)`
  - backward
    - `vec.rbegin(), vec.rend()`
    - `std::rbegin(vec), std::rend(vec)`
  - backward (`const`)
    - `vec.crbegin(), vec.crend()`
    - `std::crbegin(vec), std::crend(vec)`