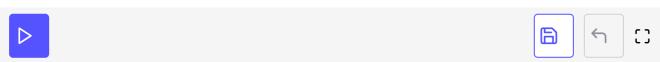
Weak Pointers

This is the last component of the smart pointer family. Its purpose is much more limited compared to the others.

To be honest, std::weak_ptr is not a smart pointer. std::weak_ptr supports no transparent access to the resource because it only borrows the resource from a std::shared_ptr. std::weak_ptr does not change the reference counter:

```
#include <iostream>
#include <memory>
int main(){
  auto sharedPtr= std::make shared<int>(2011);
  std::weak_ptr<int> weakPtr(sharedPtr);
                                                      // 1
  std::cout << weakPtr.use_count() << std::endl;</pre>
  std::cout << sharedPtr.use_count() << std::endl;</pre>
                                                         // 1
  std::cout << weakPtr.expired() << std::endl;  // false</pre>
  if( std::shared ptr<int> sharedPtr1= weakPtr.lock() ) {
   std::cout << *sharedPtr << std::endl; // 2011</pre>
  }
  else{
    std::cout << "Don't get it!" << std::endl;</pre>
  weakPtr.reset();
  if( std::shared ptr<int> sharedPtr1= weakPtr.lock() ) {
    std::cout << *sharedPtr << std::endl;</pre>
  }
  else{
    std::cout << "Don't get it!" << std::endl;  // Don't get it!</pre>
  return 0;
}
```



The table provides an overview of the methods of std::weak ptr.

expired	Checks if the resource was deleted.
lock	Creates a <pre>std::shared_ptr</pre> on the resource.
reset	Resets the resource
swap	Swaps the resources.
use_count	Returns the value of the reference counter.

Methods of `std::weak_ptr`

There is one reason for the existence of std::weak_ptr. It breaks the cycle of std::shared_ptr. We will discuss these cyclic references in detail in the next lesson.