Gebze Technical University
Department of Computer Engineering
CSE 241/505
Object Oriented Programming
Fall 2022 Homework # 6
Iterators
Due date: Jan 5th 2023

In this homework, you will convert our templated PFArray class to a class below

- Your class will be fully dynamic, no limits for array size as long as there is memory
- It throws appropriate exceptions for errors
- It implements the all the iterator functions as described below

empty	
	Test whether container is empty
size	
	Return container size
erase	
	Erase element pointed by the given iterator
clear	
	Clear all content
begin	
	Return iterator to beginning
end	
	Return iterator to end
cbegin	
	Return a constant iterator to beginning
cend	
	Return a constant iterator to end

- It will keep their data using dynamic memory techniques with shared_ptr STL pointers. Do not use regular pointers or STL container classes as data members.
- It should implement move semantics functions.
- The returned iterators should implement iterator operators such as **`*, ->, ++, --, =, and ==.`**
- Your classes should be compatible with range based for loop, **`std::find, std::for_each`** and **`std::sort`**.

Write your driver program to test the all the class functions. Do not forget to test the compatibility with all std algorithms.

Notes

- Use separate header and implementation files for each class.
- Use name spaces.
- Do not forget to define and test exceptions.
- Submit your source file and makefile