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