Gebze Technical University
Department of Computer Engineering
CSE 241/505
Object Oriented Programming
Fall 2019
Homework # 8
Inheritance and Generics in Java
Due date
Jan 15th 2020

In this homework, you will write a generic Java class hierarchy for a simple container class hierarchy.

The class **GTUContainer** is an abstract class with the following abstract methods.

empty
Test whether container is empty
size
Return container size
max_size
Return maximum size
insert
Insert element, throws exception java.lang.IllegalArgumentException if there is a problem with insertion
erase
Erase element
clear
Clear all content
iterator
Return iterator to beginning
contains(**Object** o)
Returns true if this collection contains the specified element.

The class **GTUSet**<T> extends from the super class and implements all of the methods appropriately for a set class.
The class **GTUVector**<T> derives from the base class and implements all of the functions appropriately for a vector class. You may write other helper classes to make your work easier.

All classes will keep their data using Java arrays. Do not use Java collection classes.

The class **GTUIterator** implement these two iterator methods: next, hasNext as defined in https://docs.oracle.com/javase/7/docs/api/java/util/Iterator.html

Write your driver program to test the all the classes and all of their methods.

Notes

- Use appropriate comments for JavaDoc and submit your documentation files.
- Test each method of each class at least once by writing driver code.
- You should submit your work to the moodle page and follow all the submission rules that will be posted.