

# CS 445 Lab 8: Iterators

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## Introduction

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In this lab, you will implement several clients of the List data structure using iterators. You will first write two simple methods to iterate over lists, then you will implement a version of the *Sieve of Eratosthenes* (see Lab 7 for full details).

Your TA will overview the use of iterators.

## Exercise

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After the TA's lesson, complete the following steps:

1. Download the provided code and read it over.
2. In the class `ListUtils` within the `cs445.lab8` package, write the generic method `static <T> void printList (ListInterface<T> list)` which prints the contents of a List. You should rely entirely on iterators; don not use the List's `.get()` method. Test that your method works properly.
3. Within the same class, write the method `static void removeShortStrings(ListInterface<String> list, int limit)`, which removes all strings shorter than `limit`. Again, rely only on iterators for element access, and test that your method works. Do not use the List's `.get()` or `.remove(int)` methods.
4. Within `cs445.lab8.SieveofEratosthenes`, implement method `ListInterface<Integer> primesUpTo(int max)`. This method should use the Sieve of Eratosthenes to build and return a list of integers containing all of the primes up to `max`. Use instances from Lab 7 to test your program. Again, do not use `.get()` or `.remove(int)` from List in your method.

# Conclusion

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In this lab, you implemented several methods, including a *sieving technique* for determining all of the prime integers up to a threshold. More importantly, you practiced using iterators