

Exercise 2

Collections

SKILLS:

After completing this exercise, you get knowledge about the efficiency of using different implementations of collections performing various operations.

GOALS AND OBJECTIVES:

The goal is to provide areas of application of different collections of type *Set* performing basic operations.

WORK STEPS:

- Conduct performance tests on known implementations of sets (*Set*) concerning operations:
 - adding elements
 - removing elements
 - browsing
 - checking if element exists
- Perform tests using benchmarks. Keep in mind common problems with micro-benchmarking and warm and the Java Virtual Machine. You can use classes created for previous exercises.
- Write results to file for documentation.
- Perform tests on sets of size:
 - 10
 - 100
 - 1 000
 - 10 000
 - ... - as long as the response times are reasonable
- We are interested in a the time of a single operation performed on the *Set* of a given size. In the lectures you find average times for different collection sizes.
- Construct tests so as to minimize the impact of the garbage collector on the measurement results.
- Write down also the ratio of the worst implementation to the best one.

Exercise 2

List and Queues

SKILLS:

After completing this exercise, you get knowledge about the efficiency of using different implementations of collections performing various operations.

GOALS AND OBJECTIVES:

The goal is to provide areas of application of different collections of type *List* and *Queue* performing basic operations.

WORK STEPS:

- Conduct performance tests on known implementations of lists and queues concerning operations:
 - adding at the beginning
 - adding at the end
 - adding at random place
 - removing from beginning
 - removing from end
 - removing from random place
 - browsing using indexes
 - browsing using iterator
- Perform tests using benchmarks. Keep in mind common problems with micro-benchmarking and warm and the Java Virtual Machine. You can use classes created for previous exercises.
- Write results to file for documentation.
- Perform tests on sets of size:
 - 10
 - 100
 - 1 000
 - 10 000
 - ... - as long as the response times are reasonable
- We are interested in a the time of a single operation performed on the *Set* of a given size. In the lectures you find average times for different collection sizes.
- Construct tests so as to minimize the impact of the garbage collector on the measurement results.
- Write also down the ration of the worst implementation to the best one.

