1. *initial array ordering situation: random*

```
InsertionSort
InsertionSortBasic
InsertionSortOpt
IntroSort
MergeSortBasic
MergeSortDecisionTree
Partition
Partitioner
QuickSort
QuickSort_3way
QuickSort_DualPivot
SelectionSort
ShellSort
Solution
TimSort
```

```java
35  public static void main(String[] args) throws IOException {
36      Config config = Config.load(SortBenchmark.class);
37      logger.info("SortBenchmark.main: " + config.get( sectionName: "huskysort"
38      if (args.length == 0) logger.warn("No word counts specified on the comma
39      SortBenchmark benchmark = new SortBenchmark(config);
40      //benchmark.sortIntegers(100000);
41      benchmark.sortIntegers( n: 50);
42      //benchmark.sortStrings(Arrays.stream(args).map(Integer::parseInt));
43      //benchmark.sortLocalDateTimes(100000);
44  }
45
46      // CONSIDER generifying common code (but it's difficult if not impossible)
47      private void sortIntegers(final int n) {
48          final Random random = new Random();
```

SortBenchmark > main()

```
SortBenchmark ×
E:\Java\jdk1.8.0_131\bin\java.exe ...
2020-09-21 21:24:25 DEBUG Config - Config.get(huskysort, version) = null
2020-09-21 21:24:25 INFO  SortBenchmark - SortBenchmark.main: null with word counts: []
2020-09-21 21:24:25 WARN  SortBenchmark - No word counts specified on the command line
2020-09-21 21:24:25 INFO  Benchmark_Timer - Begin run: intArraysorter with 100 runs
---------------------------------
---------------------------------
2020-09-21 21:24:25 INFO  TimeLogger - Raw time per run (mSec):  .13
2020-09-21 21:24:25 INFO  TimeLogger - Normalized time per run (n log n):  101.15
2020-09-21 21:24:25 INFO  Benchmark_Timer - Begin run: integerArraysorter with 100 runs
---------------------------------
---------------------------------
```

```
InsertionSort
InsertionSortBasic
InsertionSortOpt
IntroSort
MergeSortBasic
MergeSortDecisionTree
Partition
Partitioner
QuickSort
QuickSort_3way
QuickSort_DualPivot
SelectionSort
ShellSort
Solution
TimSort
```

```java
35  public static void main(String[] args) throws IOException {
36      Config config = Config.load(SortBenchmark.class);
37      logger.info("SortBenchmark.main: " + config.get( sectionName: "
38      if (args.length == 0) logger.warn("No word counts specified o
39      SortBenchmark benchmark = new SortBenchmark(config);
40      //benchmark.sortIntegers(100000);
41      benchmark.sortIntegers( n: 100);
42      //benchmark.sortStrings(Arrays.stream(args).map(Integer::pars
43      //benchmark.sortLocalDateTimes(100000);
44  }
45
46      // CONSIDER generifying common code (but it's difficult if not im
47      private void sortIntegers(final int n) {
48          final Random random = new Random();
```

SortBenchmark > main()

```
SortBenchmark ×
E:\Java\jdk1.8.0_131\bin\java.exe ...
2020-09-21 21:27:10 DEBUG Config - Config.get(huskysort, version) = null
2020-09-21 21:27:10 INFO  SortBenchmark - SortBenchmark.main: null with word counts: []
2020-09-21 21:27:10 WARN  SortBenchmark - No word counts specified on the command line
2020-09-21 21:27:10 INFO  Benchmark_Timer - Begin run: intArraysorter with 100 runs
---------------------------------
---------------------------------
2020-09-21 21:27:10 INFO  TimeLogger - Raw time per run (mSec):  .14
2020-09-21 21:27:10 INFO  TimeLogger - Normalized time per run (n log n):  44.46
2020-09-21 21:27:10 INFO  Benchmark_Timer - Begin run: integerArraysorter with 100 runs
---------------------------------
---------------------------------
```

```
InsertionSort
InsertionSortBasic
InsertionSortOpt
IntroSort
MergeSortBasic
MergeSortDecisionTree
Partition
Partitioner
QuickSort
QuickSort_3way
QuickSort_DualPivot
SelectionSort
ShellSort
Solution
TimSort
```

```java
35  public static void main(String[] args) throws IOException {
36      Config config = Config.load(SortBenchmark.class);
37      logger.info("SortBenchmark.main: " + config.get( sectionName: "huskysort
38      if (args.length == 0) logger.warn("No word counts specified on the com
39      SortBenchmark benchmark = new SortBenchmark(config);
40      //benchmark.sortIntegers(100000);
41      benchmark.sortIntegers( n: 200);
42      //benchmark.sortStrings(Arrays.stream(args).map(Integer::parseInt));
43      //benchmark.sortLocalDateTimes(100000);
44  }
45
46      // CONSIDER generifying common code (but it's difficult if not impossible)
47      private void sortIntegers(final int n) {
48          final Random random = new Random();
```

SortBenchmark > main()

```
SortBenchmark ×
E:\Java\jdk1.8.0_131\bin\java.exe ...
2020-09-21 21:27:49 DEBUG Config - Config.get(huskysort, version) = null
2020-09-21 21:27:49 INFO  SortBenchmark - SortBenchmark.main: null with word counts: []
2020-09-21 21:27:49 WARN  SortBenchmark - No word counts specified on the command line
2020-09-21 21:27:49 INFO  Benchmark_Timer - Begin run: intArraysorter with 100 runs
---------------------------------
---------------------------------
2020-09-21 21:27:49 INFO  TimeLogger - Raw time per run (mSec):  .17
2020-09-21 21:27:49 INFO  TimeLogger - Normalized time per run (n log n):  22.75
2020-09-21 21:27:49 INFO  Benchmark_Timer - Begin run: integerArraysorter with 100 runs
---------------------------------
---------------------------------
```

```
InsertionSort
  InsertionSortBasic              35 ▶    public static void main(String[] args) throws IOException {
  InsertionSortOpt                36          Config config = Config.load(SortBenchmark.class);
  IntroSort                       37          logger.info("SortBenchmark.main: " + config.get( sectionName: "husky
  MergeSortBasic                  38          if (args.length == 0) logger.warn("No word counts specified on the
  MergeSortDecisionTree           39          SortBenchmark benchmark = new SortBenchmark(config);
  Partition                       40          //benchmark.sortIntegers(100000);
  Partitioner                     41          benchmark.sortIntegers( n: 400);
  QuickSort                       42          //benchmark.sortStrings(Arrays.stream(args).map(Integer::parseInt)
  QuickSort_3way                  43          //benchmark.sortLocalDateTimes(100000);
  QuickSort_DualPivot             44      }
  SelectionSort                   45
  ShellSort                       46          // CONSIDER generifying common code (but it's difficult if not impossi
  Solution                        47      private void sortIntegers(final int n) {
  TimSort                         48          final Random random = new Random();
                                           SortBenchmark › main()
```

```
n:    SortBenchmark ✕
      E:\Java\jdk1.8.0_131\bin\java.exe ...
      2020-09-21 21:28:27 DEBUG Config - Config.get(huskysort, version) = null
      2020-09-21 21:28:27 INFO  SortBenchmark - SortBenchmark.main: null with word counts: []
      2020-09-21 21:28:27 WARN  SortBenchmark - No word counts specified on the command line
      2020-09-21 21:28:27 INFO  Benchmark_Timer - Begin run: intArraysorter with 100 runs
      --------------------------------
      --------------------------------
      2020-09-21 21:28:27 INFO  TimeLogger - Raw time per run (mSec):  .22
      2020-09-21 21:28:27 INFO  TimeLogger - Normalized time per run (n log n):  12.70
      2020-09-21 21:28:27 INFO  Benchmark_Timer - Begin run: integerArraysorter with 100 runs
      --------------------------------
      --------------------------------
```

```
  InsertionSort
  InsertionSortBasic              35 ▶    public static void main(String[] args) throws IOException {
  InsertionSortOpt                36          Config config = Config.load(SortBenchmark.class);
  IntroSort                       37          logger.info("SortBenchmark.main: " + config.get( sectionName: "huskysort",
  MergeSortBasic                  38          if (args.length == 0) logger.warn("No word counts specified on the command
  MergeSortDecisionTree           39          SortBenchmark benchmark = new SortBenchmark(config);
  Partition                       40          //benchmark.sortIntegers(100000);
  Partitioner                     41          benchmark.sortIntegers( n: 800);
  QuickSort                       42          //benchmark.sortStrings(Arrays.stream(args).map(Integer::parseInt));
  QuickSort_3way                  43          //benchmark.sortLocalDateTimes(100000);
  QuickSort_DualPivot             44      }
  SelectionSort                   45
  ShellSort                       46          // CONSIDER generifying common code (but it's difficult if not impossible)
  Solution                        47      private void sortIntegers(final int n) {
  TimSort                         48          final Random random = new Random();
                                           SortBenchmark › main()
```

```
n:    SortBenchmark ✕
      E:\Java\jdk1.8.0_131\bin\java.exe ...
      2020-09-21 21:28:59 DEBUG Config - Config.get(huskysort, version) = null
      2020-09-21 21:28:59 INFO  SortBenchmark - SortBenchmark.main: null with word counts: []
      2020-09-21 21:28:59 WARN  SortBenchmark - No word counts specified on the command line
      2020-09-21 21:28:59 INFO  Benchmark_Timer - Begin run: intArraysorter with 100 runs
      --------------------------------
      --------------------------------
      2020-09-21 21:28:59 INFO  TimeLogger - Raw time per run (mSec):  .47
      2020-09-21 21:28:59 INFO  TimeLogger - Normalized time per run (n log n):  11.93
      2020-09-21 21:28:59 INFO  Benchmark_Timer - Begin run: integerArraysorter with 100 runs
      --------------------------------
      --------------------------------
```

```
  InsertionSort
  InsertionSortBasic              35 ▶    public static void main(String[] args) throws IOException {
  InsertionSortOpt                36          Config config = Config.load(SortBenchmark.class);
  IntroSort                       37          logger.info("SortBenchmark.main: " + config.get( sectionName: "huskyso
  MergeSortBasic                  38          if (args.length == 0) logger.warn("No word counts specified on the c
  MergeSortDecisionTree           39          SortBenchmark benchmark = new SortBenchmark(config);
  Partition                       40          //benchmark.sortIntegers(100000);
  Partitioner                     41          benchmark.sortIntegers( n: 1600);
  QuickSort                       42          //benchmark.sortStrings(Arrays.stream(args).map(Integer::parseInt));
  QuickSort_3way                  43          //benchmark.sortLocalDateTimes(100000);
  QuickSort_DualPivot             44      }
  SelectionSort                   45
  ShellSort                       46          // CONSIDER generifying common code (but it's difficult if not impossibl
  Solution                        47      private void sortIntegers(final int n) {
  TimSort                         48          final Random random = new Random();
                                           SortBenchmark › main()
```

```
      SortBenchmark ✕
      E:\Java\jdk1.8.0_131\bin\java.exe ...
      2020-09-21 21:29:32 DEBUG Config - Config.get(huskysort, version) = null
      2020-09-21 21:29:32 INFO  SortBenchmark - SortBenchmark.main: null with word counts: []
      2020-09-21 21:29:32 WARN  SortBenchmark - No word counts specified on the command line
      2020-09-21 21:29:32 INFO  Benchmark_Timer - Begin run: intArraysorter with 100 runs
      --------------------------------
      --------------------------------
      2020-09-21 21:29:32 INFO  TimeLogger - Raw time per run (mSec):  1.55
      2020-09-21 21:29:32 INFO  TimeLogger - Normalized time per run (n log n):  17.54
      2020-09-21 21:29:32 INFO  Benchmark_Timer - Begin run: integerArraysorter with 100 runs
      --------------------------------
      --------------------------------
```

Screenshot 1

Class list:
- InsertionSort
- InsertionSortBasic
- InsertionSortOpt
- IntroSort
- MergeSortBasic
- MergeSortDecisionTree
- Partition
- Partitioner
- QuickSort
- QuickSort_3way
- QuickSort_DualPivot
- SelectionSort
- ShellSort
- Solution
- TimSort

```java
35   public static void main(String[] args) throws IOException {
36       Config config = Config.load(SortBenchmark.class);
37       Logger.info("SortBenchmark.main: " + config.get( sectionName: "husky
38       if (args.length == 0) Logger.warn("No word counts specified on the
39       SortBenchmark benchmark = new SortBenchmark(config);
40       //benchmark.sortIntegers(100000);
41       benchmark.sortIntegers( n: 3200);
42       //benchmark.sortStrings(Arrays.stream(args).map(Integer::parseInt)
43       //benchmark.sortLocalDateTimes(100000);
44   }
45
46       // CONSIDER generifying common code (but it's difficult if not impossi
47   private void sortIntegers(final int n) {
48       final Random random = new Random();
```

SortBenchmark › main()

SortBenchmark

```
E:\Java\jdk1.8.0_131\bin\java.exe ...
2020-09-21 21:30:03 DEBUG Config - Config.get(huskysort, version) = null
2020-09-21 21:30:03 INFO  SortBenchmark - SortBenchmark.main: null with word counts: []
2020-09-21 21:30:03 WARN  SortBenchmark - No word counts specified on the command line
2020-09-21 21:30:03 INFO  Benchmark_Timer - Begin run: intArraysorter with 100 runs
----------------------------------
----------------------------------
2020-09-21 21:30:04 INFO  TimeLogger - Raw time per run (mSec):  5.28
2020-09-21 21:30:04 INFO  TimeLogger - Normalized time per run (n log n):  26.95
2020-09-21 21:30:04 INFO  Benchmark_Timer - Begin run: integerArraysorter with 100 runs
----------------------------------
----------------------------------
```

Screenshot 2

Class list:
- InsertionSort
- InsertionSortBasic
- InsertionSortOpt
- IntroSort
- MergeSortBasic
- MergeSortDecisionTree
- Partition
- Partitioner
- QuickSort
- QuickSort_3way
- QuickSort_DualPivot
- SelectionSort
- ShellSort
- Solution
- TimSort

```java
35   public static void main(String[] args) throws IOException {
36       Config config = Config.load(SortBenchmark.class);
37       Logger.info("SortBenchmark.main: " + config.get( sectionName: "husky
38       if (args.length == 0) Logger.warn("No word counts specified on the
39       SortBenchmark benchmark = new SortBenchmark(config);
40       //benchmark.sortIntegers(100000);
41       benchmark.sortIntegers( n: 6400);
42       //benchmark.sortStrings(Arrays.stream(args).map(Integer::parseInt),
43       //benchmark.sortLocalDateTimes(100000);
44   }
45
46       // CONSIDER generifying common code (but it's difficult if not impossi
47   private void sortIntegers(final int n) {
48       final Random random = new Random();
```

SortBenchmark › main()

SortBenchmark

```
E:\Java\jdk1.8.0_131\bin\java.exe ...
2020-09-21 21:30:37 DEBUG Config - Config.get(huskysort, version) = null
2020-09-21 21:30:37 INFO  SortBenchmark - SortBenchmark.main: null with word counts: []
2020-09-21 21:30:37 WARN  SortBenchmark - No word counts specified on the command line
2020-09-21 21:30:37 INFO  Benchmark_Timer - Begin run: intArraysorter with 100 runs
----------------------------------
----------------------------------
2020-09-21 21:30:39 INFO  TimeLogger - Raw time per run (mSec):  21.30
2020-09-21 21:30:39 INFO  TimeLogger - Normalized time per run (n log n):  49.52
2020-09-21 21:30:39 INFO  Benchmark_Timer - Begin run: integerArraysorter with 100 runs
----------------------------------
----------------------------------
```

Screenshot 3

Class list:
- InsertionSort
- InsertionSortBasic
- InsertionSortOpt
- IntroSort
- MergeSortBasic
- MergeSortDecisionTree
- Partition
- Partitioner
- QuickSort
- QuickSort_3way
- QuickSort_DualPivot
- SelectionSort
- ShellSort
- Solution
- TimSort

```java
35   public static void main(String[] args) throws IOException {
36       Config config = Config.load(SortBenchmark.class);
37       Logger.info("SortBenchmark.main: " + config.get( sectionName: "h
38       if (args.length == 0) Logger.warn("No word counts specified on
39       SortBenchmark benchmark = new SortBenchmark(config);
40       //benchmark.sortIntegers(100000);
41       benchmark.sortIntegers( n: 12800);
42       //benchmark.sortStrings(Arrays.stream(args).map(Integer::parse
43       //benchmark.sortLocalDateTimes(100000);
44   }
45
46       // CONSIDER generifying common code (but it's difficult if not imp
47   private void sortIntegers(final int n) {
48       final Random random = new Random();
```

SortBenchmark › main()

SortBenchmark

```
E:\Java\jdk1.8.0_131\bin\java.exe ...
2020-09-21 21:31:22 DEBUG Config - Config.get(huskysort, version) = null
2020-09-21 21:31:22 INFO  SortBenchmark - SortBenchmark.main: null with word counts: []
2020-09-21 21:31:22 WARN  SortBenchmark - No word counts specified on the command line
2020-09-21 21:31:22 INFO  Benchmark_Timer - Begin run: intArraysorter with 100 runs
----------------------------------
----------------------------------
2020-09-21 21:31:30 INFO  TimeLogger - Raw time per run (mSec):  78.41
2020-09-21 21:31:30 INFO  TimeLogger - Normalized time per run (n log n):  83.67
2020-09-21 21:31:30 INFO  Benchmark_Timer - Begin run: integerArraysorter with 100 runs
----------------------------------
----------------------------------
```

```java
35   public static void main(String[] args) throws IOException {
36       Config config = Config.load(SortBenchmark.class);
37       Logger.info("SortBenchmark.main: " + config.get( sectionName
38       if (args.length == 0) Logger.warn("No word counts specified
39       SortBenchmark benchmark = new SortBenchmark(config);
40       //benchmark.sortIntegers(100000);
41       benchmark.sortIntegers( n: 25600);
42       //benchmark.sortStrings(Arrays.stream(args).map(Integer::pa
43       //benchmark.sortLocalDateTimes(100000);
44   }
45
46       // CONSIDER generifying common code (but it's difficult if not
47       private void sortIntegers(final int n) {
48           final Random random = new Random();
49
50           // sort int[]
```

```
E:\Java\jdk1.8.0_131\bin\java.exe ...
2020-09-21 22:41:57 DEBUG Config - Config.get(huskysort, version) = null
2020-09-21 22:41:57 INFO  SortBenchmark - SortBenchmark.main: null with word counts: []
2020-09-21 22:41:57 WARN  SortBenchmark - No word counts specified on the command line
2020-09-21 22:41:57 INFO  Benchmark_Timer - Begin run: intArraysorter with 100 runs
---------------------------------
---------------------------------
2020-09-21 22:42:36 INFO  TimeLogger - Raw time per run (mSec):  355.46
2020-09-21 22:42:36 INFO  TimeLogger - Normalized time per run (n^2):  .36
2020-09-21 22:42:36 INFO  Benchmark_Timer - Begin run: integerArraysorter with 100 runs
---------------------------------
```



```java
35   public static void main(String[] args) throws IOException {
36       Config config = Config.load(SortBenchmark.class);
37       Logger.info("SortBenchmark.main: " + config.get( sectionName: "hus
38       if (args.length == 0) Logger.warn("No word counts specified on t
39       SortBenchmark benchmark = new SortBenchmark(config);
40       //benchmark.sortIntegers(100000);
41       benchmark.sortIntegers( n: 51200);
42       //benchmark.sortStrings(Arrays.stream(args).map(Integer::parseIn
43       //benchmark.sortLocalDateTimes(100000);
44   }
45
46       // CONSIDER generifying common code (but it's difficult if not impos
47       private void sortIntegers(final int n) {
48           final Random random = new Random();
```

```
E:\Java\jdk1.8.0_131\bin\java.exe ...
2020-09-21 22:45:28 DEBUG Config - Config.get(huskysort, version) = null
2020-09-21 22:45:28 INFO  SortBenchmark - SortBenchmark.main: null with word counts: []
2020-09-21 22:45:28 WARN  SortBenchmark - No word counts specified on the command line
2020-09-21 22:45:28 INFO  Benchmark_Timer - Begin run: intArraysorter with 100 runs
---------------------------------
---------------------------------
2020-09-21 22:48:30 INFO  TimeLogger - Raw time per run (mSec):  1653.74
2020-09-21 22:48:30 INFO  TimeLogger - Normalized time per run (n^2):  .42
2020-09-21 22:48:30 INFO  Benchmark_Timer - Begin run: integerArraysorter with 100 runs
---------------------------------
```

2. *initial array ordering situation: ordered*


```java
35   public static void main(String[] args) throws IOException {
36       Config config = Config.load(SortBenchmark.class);
37       Logger.info("SortBenchmark.main: " + config.get( sectionName: "hus
38       if (args.length == 0) Logger.warn("No word counts specified on t
39       SortBenchmark benchmark = new SortBenchmark(config);
40       //benchmark.sortIntegers(100000);
41       benchmark.sortIntegers( n: 50);
42       //benchmark.sortStrings(Arrays.stream(args).map(Integer::parseIn
43       //benchmark.sortLocalDateTimes(100000);
44   }
45
46       // CONSIDER generifying common code (but it's difficult if not impos
47       private void sortIntegers(final int n) {
48           final Random random = new Random();
```

```
Java\jdk1.8.0_131\bin\java.exe ...
)-09-21 23:17:55 DEBUG Config - Config.get(huskysort, version) = null
)-09-21 23:17:55 INFO  SortBenchmark - SortBenchmark.main: null with word counts: []
)-09-21 23:17:55 WARN  SortBenchmark - No word counts specified on the command line
)-09-21 23:17:55 INFO  Benchmark_Timer - Begin run: intArraysorter with 100 runs
---------------------------------
)-09-21 23:17:55 INFO  TimeLogger - Raw time per run (mSec):  .08
)-09-21 23:17:55 INFO  TimeLogger - Normalized time per run (n^2):  21.77
)-09-21 23:17:55 INFO  Benchmark_Timer - Begin run: integerArraysorter with 100 runs
---------------------------------
```

First screenshot

Project tree:
- InsertionSort
- InsertionSortBasic
- InsertionSortOpt
- IntroSort
- MergeSortBasic
- MergeSortDecisionTree
- Partition
- Partitioner
- QuickSort
- QuickSort_3way
- QuickSort_DualPivot
- SelectionSort
- ShellSort
- Solution

```java
36    Config config = Config.load(SortBenchmark.class);
37    logger.info("SortBenchmark.main: " + config.get( section
38    if (args.length == 0) logger.warn("No word counts spec
39    SortBenchmark benchmark = new SortBenchmark(config);
40    //benchmark.sortIntegers(100000);
41    benchmark.sortIntegers( n: 100);
42    //benchmark.sortStrings(Arrays.stream(args).map(Intege
43    //benchmark.sortLocalDateTimes(100000);
44  }
45
46    // CONSIDER generifying common code (but it's difficult if
47    private void sortIntegers(final int n) {
48        final Random random = new Random();
```

SortBenchmark > main()

SortBenchmark ×

```
E:\Java\jdk1.8.0_131\bin\java.exe ...
2020-09-21 23:18:59 DEBUG Config - Config.get(huskysort, version) = null
2020-09-21 23:18:59 INFO  SortBenchmark - SortBenchmark.main: null with word counts: []
2020-09-21 23:18:59 WARN  SortBenchmark - No word counts specified on the command line
2020-09-21 23:18:59 INFO  Benchmark_Timer - Begin run: intArraysorter with 100 runs
--------------------------------
--------------------------------
2020-09-21 23:18:59 INFO  TimeLogger - Raw time per run (mSec):  .15
2020-09-21 23:18:59 INFO  TimeLogger - Normalized time per run (n^2):  10.10
2020-09-21 23:18:59 INFO  Benchmark_Timer - Begin run: integerArraysorter with 100 runs
--------------------------------
--------------------------------
```

Second screenshot

Project tree:
- InsertionSort
- InsertionSortBasic
- InsertionSortOpt
- IntroSort
- MergeSortBasic
- MergeSortDecisionTree
- Partition
- Partitioner
- QuickSort
- QuickSort_3way
- QuickSort_DualPivot
- SelectionSort
- ShellSort
- Solution

```java
      public static void main(String[] args) throws IOException
36    Config config = Config.load(SortBenchmark.class);
37    logger.info("SortBenchmark.main: " + config.get( section
38    if (args.length == 0) logger.warn("No word counts spec
39    SortBenchmark benchmark = new SortBenchmark(config);
40    //benchmark.sortIntegers(100000);
41    benchmark.sortIntegers( n: 200);
42    //benchmark.sortStrings(Arrays.stream(args).map(Intege
43    //benchmark.sortLocalDateTimes(100000);
44  }
45
46    // CONSIDER generifying common code (but it's difficult if
47    private void sortIntegers(final int n) {
48        final Random random = new Random();
```

SortBenchmark > main()

SortBenchmark ×

```
E:\Java\jdk1.8.0_131\bin\java.exe ...
2020-09-21 23:19:27 DEBUG Config - Config.get(huskysort, version) = null
2020-09-21 23:19:27 INFO  SortBenchmark - SortBenchmark.main: null with word counts: []
2020-09-21 23:19:27 WARN  SortBenchmark - No word counts specified on the command line
2020-09-21 23:19:27 INFO  Benchmark_Timer - Begin run: intArraysorter with 100 runs
--------------------------------
--------------------------------
2020-09-21 23:19:27 INFO  TimeLogger - Raw time per run (mSec):  .11
2020-09-21 23:19:27 INFO  TimeLogger - Normalized time per run (n^2):  1.84
2020-09-21 23:19:27 INFO  Benchmark_Timer - Begin run: integerArraysorter with 100 runs
--------------------------------
--------------------------------
```

Third screenshot

Project tree:
- BucketSort
- InsertionSort
- InsertionSortBasic
- InsertionSortOpt
- IntroSort
- MergeSortBasic
- MergeSortDecisionTree
- Partition
- Partitioner
- QuickSort
- QuickSort_3way
- QuickSort_DualPivot
- SelectionSort
- ShellSort
- Solution

```java
35    public static void main(String[] args) throws IOException {
36        Config config = Config.load(SortBenchmark.class);
37        logger.info("SortBenchmark.main: " + config.get( sectionName
38        if (args.length == 0) logger.warn("No word counts specified
39        SortBenchmark benchmark = new SortBenchmark(config);
40        //benchmark.sortIntegers(100000);
41        benchmark.sortIntegers( n: 400);
42        //benchmark.sortStrings(Arrays.stream(args).map(Integer::pa
43        //benchmark.sortLocalDateTimes(100000);
44    }
45
46        // CONSIDER generifying common code (but it's difficult if not
47        private void sortIntegers(final int n) {
48            final Random random = new Random();
```

SortBenchmark > main()

SortBenchmark ×

```
E:\Java\jdk1.8.0_131\bin\java.exe ...
2020-09-21 23:20:01 DEBUG Config - Config.get(huskysort, version) = null
2020-09-21 23:20:01 INFO  SortBenchmark - SortBenchmark.main: null with word counts: []
2020-09-21 23:20:01 WARN  SortBenchmark - No word counts specified on the command line
2020-09-21 23:20:01 INFO  Benchmark_Timer - Begin run: intArraysorter with 100 runs
--------------------------------
--------------------------------
2020-09-21 23:20:01 INFO  TimeLogger - Raw time per run (mSec):  .19
2020-09-21 23:20:01 INFO  TimeLogger - Normalized time per run (n^2):  .79
2020-09-21 23:20:01 INFO  Benchmark_Timer - Begin run: integerArraysorter with 100 runs
--------------------------------
--------------------------------
```

First section

Project tree:
- InsertionSort
- InsertionSortBasic
- InsertionSortOpt
- IntroSort
- MergeSortBasic
- MergeSortDecisionTree
- Partition
- Partitioner
- QuickSort
- QuickSort_3way
- QuickSort_DualPivot
- SelectionSort
- ShellSort
- Solution

```java
36      Config config = Config.load(SortBenchmark.class);
37      logger.info("SortBenchmark.main: " + config.get( sectionName: "h
38      if (args.length == 0) logger.warn("No word counts specified on
39      SortBenchmark benchmark = new SortBenchmark(config);
40      //benchmark.sortIntegers(100000);
41      benchmark.sortIntegers( n: 800);
42      //benchmark.sortStrings(Arrays.stream(args).map(Integer::parse
43      //benchmark.sortLocalDateTimes(100000);
44  }
45
46      // CONSIDER generifying common code (but it's difficult if not imp
47      private void sortIntegers(final int n) {
48          final Random random = new Random();
```

SortBenchmark > main()

SortBenchmark

```
E:\Java\jdk1.8.0_131\bin\java.exe ...
2020-09-21 23:20:40 DEBUG Config - Config.get(huskysort, version) = null
2020-09-21 23:20:40 INFO  SortBenchmark - SortBenchmark.main: null with word counts: []
2020-09-21 23:20:40 WARN  SortBenchmark - No word counts specified on the command line
2020-09-21 23:20:40 INFO  Benchmark_Timer - Begin run: intArraysorter with 100 runs
--------------------------------
--------------------------------
2020-09-21 23:20:40 INFO  TimeLogger - Raw time per run (mSec):  .32
2020-09-21 23:20:40 INFO  TimeLogger - Normalized time per run (n^2):  .33
2020-09-21 23:20:40 INFO  Benchmark_Timer - Begin run: integerArraysorter with 100 runs
--------------------------------
--------------------------------
```

Second section

Project tree:
- InsertionSort
- InsertionSortBasic
- InsertionSortOpt
- IntroSort
- MergeSortBasic
- MergeSortDecisionTree
- Partition
- Partitioner
- QuickSort
- QuickSort_3way
- QuickSort_DualPivot
- SelectionSort
- ShellSort
- Solution

```java
35      public static void main(String[] args) throws IOException {
36          Config config = Config.load(SortBenchmark.class);
37          logger.info("SortBenchmark.main: " + config.get( sectionName: "husk
38          if (args.length == 0) logger.warn("No word counts specified on th
39          SortBenchmark benchmark = new SortBenchmark(config);
40          //benchmark.sortIntegers(100000);
41          benchmark.sortIntegers( n: 1600);
42          //benchmark.sortStrings(Arrays.stream(args).map(Integer::parseInt
43          //benchmark.sortLocalDateTimes(100000);
44      }
45
46          // CONSIDER generifying common code (but it's difficult if not imposs
47          private void sortIntegers(final int n) {
48              final Random random = new Random();
```

SortBenchmark > main()

SortBenchmark

```
E:\Java\jdk1.8.0_131\bin\java.exe ...
2020-09-21 23:21:06 DEBUG Config - Config.get(huskysort, version) = null
2020-09-21 23:21:06 INFO  SortBenchmark - SortBenchmark.main: null with word counts: []
2020-09-21 23:21:06 WARN  SortBenchmark - No word counts specified on the command line
2020-09-21 23:21:06 INFO  Benchmark_Timer - Begin run: intArraysorter with 100 runs
--------------------------------
--------------------------------
2020-09-21 23:21:06 INFO  TimeLogger - Raw time per run (mSec):  .34
2020-09-21 23:21:06 INFO  TimeLogger - Normalized time per run (n^2):  .09
2020-09-21 23:21:06 INFO  Benchmark_Timer - Begin run: integerArraysorter with 100 runs
--------------------------------
--------------------------------
```

Third section

Project tree:
- InsertionSort
- InsertionSortBasic
- InsertionSortOpt
- IntroSort
- MergeSortBasic
- MergeSortDecisionTree
- Partition
- Partitioner
- QuickSort
- QuickSort_3way
- QuickSort_DualPivot
- SelectionSort
- ShellSort
- Solution

```java
36      Config config = Config.load(SortBenchmark.class);
37      logger.info("SortBenchmark.main: " + config.get( sectionName: "huskysort"
38      if (args.length == 0) logger.warn("No word counts specified on the comma
39      SortBenchmark benchmark = new SortBenchmark(config);
40      //benchmark.sortIntegers(100000);
41      benchmark.sortIntegers( n: 3200);
42      //benchmark.sortStrings(Arrays.stream(args).map(Integer::parseInt));
43      //benchmark.sortLocalDateTimes(100000);
44  }
45
46      // CONSIDER generifying common code (but it's difficult if not impossible)
47      private void sortIntegers(final int n) {
48          final Random random = new Random();
```

SortBenchmark > main()

SortBenchmark

```
E:\Java\jdk1.8.0_131\bin\java.exe ...
2020-09-21 23:21:32 DEBUG Config - Config.get(huskysort, version) = null
2020-09-21 23:21:32 INFO  SortBenchmark - SortBenchmark.main: null with word counts: []
2020-09-21 23:21:32 WARN  SortBenchmark - No word counts specified on the command line
2020-09-21 23:21:32 INFO  Benchmark_Timer - Begin run: intArraysorter with 100 runs
--------------------------------
--------------------------------
2020-09-21 23:21:32 INFO  TimeLogger - Raw time per run (mSec):  .31
2020-09-21 23:21:32 INFO  TimeLogger - Normalized time per run (n^2):  .02
2020-09-21 23:21:32 INFO  Benchmark_Timer - Begin run: integerArraysorter with 100 runs
--------------------------------
--------------------------------
```

```
InsertionSort
InsertionSortBasic
InsertionSortOpt
IntroSort
MergeSortBasic
MergeSortDecisionTree
Partition
Partitioner
QuickSort
QuickSort_3way
QuickSort_DualPivot
SelectionSort
ShellSort
Solution
```

```java
36        Config config = Config.load(SortBenchmark.class);
37        logger.info("SortBenchmark.main: " + config.get( sectionName: "huskyso
38        if (args.length == 0) logger.warn("No word counts specified on the co
39        SortBenchmark benchmark = new SortBenchmark(config);
40        //benchmark.sortIntegers(100000);
41        benchmark.sortIntegers( n: 6400);
42        //benchmark.sortStrings(Arrays.stream(args).map(Integer::parseInt));
43        //benchmark.sortLocalDateTimes(100000);
44    }
45
46    // CONSIDER generifying common code (but it's difficult if not impossible
47    private void sortIntegers(final int n) {
48        final Random random = new Random();
```

SortBenchmark > main()

SortBenchmark

```
E:\Java\jdk1.8.0_131\bin\java.exe ...
2020-09-21 23:21:54 DEBUG Config - Config.get(huskysort, version) = null
2020-09-21 23:21:54 INFO  SortBenchmark - SortBenchmark.main: null with word counts: []
2020-09-21 23:21:54 WARN  SortBenchmark - No word counts specified on the command line
2020-09-21 23:21:54 INFO  Benchmark_Timer - Begin run: intArraysorter with 100 runs
--------------------------------
--------------------------------
2020-09-21 23:21:55 INFO  TimeLogger - Raw time per run (mSec):  .39
2020-09-21 23:21:55 INFO  TimeLogger - Normalized time per run (n^2):  .01
2020-09-21 23:21:55 INFO  Benchmark_Timer - Begin run: integerArraysorter with 100 runs
--------------------------------
--------------------------------
```

```
BucketSort
InsertionSort
InsertionSortBasic
InsertionSortOpt
IntroSort
MergeSortBasic
MergeSortDecisionTree
Partition
Partitioner
QuickSort
QuickSort_3way
QuickSort_DualPivot
SelectionSort
ShellSort
Solution
```

```java
35 ▶    public static void main(String[] args) throws IOException {
36        Config config = Config.load(SortBenchmark.class);
37        logger.info("SortBenchmark.main: " + config.get( sectionName: "hus
38        if (args.length == 0) logger.warn("No word counts specified on th
39        SortBenchmark benchmark = new SortBenchmark(config);
40        //benchmark.sortIntegers(100000);
41        benchmark.sortIntegers( n: 12800);
42        //benchmark.sortStrings(Arrays.stream(args).map(Integer::parseIn
43        //benchmark.sortLocalDateTimes(100000);
44    }
45
46    // CONSIDER generifying common code (but it's difficult if not impos
47    private void sortIntegers(final int n) {
48        final Random random = new Random();
```

SortBenchmark > main()

SortBenchmark

```
E:\Java\jdk1.8.0_131\bin\java.exe ...
2020-09-21 23:22:19 DEBUG Config - Config.get(huskysort, version) = null
2020-09-21 23:22:19 INFO  SortBenchmark - SortBenchmark.main: null with word counts: []
2020-09-21 23:22:19 WARN  SortBenchmark - No word counts specified on the command line
2020-09-21 23:22:19 INFO  Benchmark_Timer - Begin run: intArraysorter with 100 runs
--------------------------------
--------------------------------
2020-09-21 23:22:19 INFO  TimeLogger - Raw time per run (mSec):  .58
2020-09-21 23:22:19 INFO  TimeLogger - Normalized time per run (n^2):  .00
2020-09-21 23:22:19 INFO  Benchmark_Timer - Begin run: integerArraysorter with 100 runs
--------------------------------
--------------------------------
```

```
InsertionSort
InsertionSortBasic
InsertionSortOpt
IntroSort
MergeSortBasic
MergeSortDecisionTree
Partition
Partitioner
QuickSort
QuickSort_3way
QuickSort_DualPivot
SelectionSort
ShellSort
Solution
```

```java
35 ▶    public static void main(String[] args) throws IOException {
36        Config config = Config.load(SortBenchmark.class);
37        logger.info("SortBenchmark.main: " + config.get( sectionName: "huskysort",
38        if (args.length == 0) logger.warn("No word counts specified on the command
39        SortBenchmark benchmark = new SortBenchmark(config);
40        //benchmark.sortIntegers(100000);
41        benchmark.sortIntegers( n: 25600);
42        //benchmark.sortStrings(Arrays.stream(args).map(Integer::parseInt));
43        //benchmark.sortLocalDateTimes(100000);
44    }
45
46    // CONSIDER generifying common code (but it's difficult if not impossible)
47    private void sortIntegers(final int n) {
48        final Random random = new Random();
```

SortBenchmark > main()

SortBenchmark

```
E:\Java\jdk1.8.0_131\bin\java.exe ...
2020-09-21 23:22:47 DEBUG Config - Config.get(huskysort, version) = null
2020-09-21 23:22:47 INFO  SortBenchmark - SortBenchmark.main: null with word counts: []
2020-09-21 23:22:47 WARN  SortBenchmark - No word counts specified on the command line
2020-09-21 23:22:47 INFO  Benchmark_Timer - Begin run: intArraysorter with 100 runs
--------------------------------
--------------------------------
2020-09-21 23:22:47 INFO  TimeLogger - Raw time per run (mSec):  .77
2020-09-21 23:22:47 INFO  TimeLogger - Normalized time per run (n^2):  .00
2020-09-21 23:22:47 INFO  Benchmark_Timer - Begin run: integerArraysorter with 100 runs
--------------------------------
```

```
36        Config config = Config.load(SortBenchmark.class);
37        Logger.info("SortBenchmark.main: " + config.get( sectionName: "
38        if (args.length == 0) Logger.warn("No word counts specified on
39        SortBenchmark benchmark = new SortBenchmark(config);
40        //benchmark.sortIntegers(100000);
41        benchmark.sortIntegers( n: 51200);
42        //benchmark.sortStrings(Arrays.stream(args).map(Integer::parse
43        //benchmark.sortLocalDateTimes(100000);
44    }
45
46    // CONSIDER generifying common code (but it's difficult if not imp
47    private void sortIntegers(final int n) {
48        final Random random = new Random();
```

SortBenchmark ⟩ main()

SortBenchmark ✕

```
E:\Java\jdk1.8.0_131\bin\java.exe ...
2020-09-21 23:25:07 DEBUG Config - Config.get(huskysort, version) = null
2020-09-21 23:25:07 INFO  SortBenchmark - SortBenchmark.main: null with word counts: []
2020-09-21 23:25:07 WARN  SortBenchmark - No word counts specified on the command line
2020-09-21 23:25:07 INFO  Benchmark_Timer - Begin run: intArraysorter with 100 runs
---------------------------------
---------------------------------
2020-09-21 23:25:07 INFO  TimeLogger - Raw time per run (mSec):  1.07
2020-09-21 23:25:07 INFO  TimeLogger - Normalized time per run (n^2):  .00
2020-09-21 23:25:07 INFO  Benchmark_Timer - Begin run: integerArraysorter with 100 runs
---------------------------------
```

3. *initial array ordering situation: partially ordered*

```
35  ►  public static void main(String[] args) throws IOException {
36        Config config = Config.load(SortBenchmark.class);
37        Logger.info("SortBenchmark.main: " + config.get( sectionName: "huskysort",  op
38        if (args.length == 0) Logger.warn("No word counts specified on the command l
39        SortBenchmark benchmark = new SortBenchmark(config);
40        //benchmark.sortIntegers(100000);
41        benchmark.sortIntegers( n: 50);
42        //benchmark.sortStrings(Arrays.stream(args).map(Integer::parseInt));
43        //benchmark.sortLocalDateTimes(100000);
44    }
45
46    // CONSIDER generifying common code (but it's difficult if not impossible)
47    private void sortIntegers(final int n) {
48        final Random random = new Random();
```

SortBenchmark ⟩ main()

SortBenchmark ✕

```
E:\Java\jdk1.8.0_131\bin\java.exe ...
2020-09-22 11:14:50 DEBUG Config - Config.get(huskysort, version) = null
2020-09-22 11:14:50 INFO  SortBenchmark - SortBenchmark.main: null with word counts: []
2020-09-22 11:14:50 WARN  SortBenchmark - No word counts specified on the command line
2020-09-22 11:14:50 INFO  Benchmark_Timer - Begin run: intArraysorter with 100 runs
---------------------------------
---------------------------------
2020-09-22 11:14:50 INFO  TimeLogger - Raw time per run (mSec):  .10
2020-09-22 11:14:50 INFO  TimeLogger - Normalized time per run (n^2):  27.21
2020-09-22 11:14:50 INFO  Benchmark_Timer - Begin run: integerArraysorter with 100 runs
---------------------------------
```

```
public static void main(String[] args) throws IOException {
    Config config = Config.load(SortBenchmark.class);
    Logger.info("SortBenchmark.main: " + config.get( sectionName: "huskysort",  c
    if (args.length == 0) Logger.warn("No word counts specified on the command
    SortBenchmark benchmark = new SortBenchmark(config);
    //benchmark.sortIntegers(100000);
    benchmark.sortIntegers( n: 100);
    //benchmark.sortStrings(Arrays.stream(args).map(Integer::parseInt));
    //benchmark.sortLocalDateTimes(100000);
}

    // CONSIDER generifying common code (but it's difficult if not impossible)
    private void sortIntegers(final int n) {
        final Random random = new Random();
```

SortBenchmark › main()

SortBenchmark ×

```
E:\Java\jdk1.8.0_131\bin\java.exe ...
2020-09-22 11:16:08 DEBUG Config - Config.get(huskysort, version) = null
2020-09-22 11:16:08 INFO  SortBenchmark - SortBenchmark.main: null with word counts: []
2020-09-22 11:16:08 WARN  SortBenchmark - No word counts specified on the command line
2020-09-22 11:16:08 INFO  Benchmark_Timer - Begin run: intArraysorter with 100 runs
--------------------------------
--------------------------------
2020-09-22 11:16:08 INFO  TimeLogger - Raw time per run (mSec):  .17
2020-09-22 11:16:08 INFO  TimeLogger - Normalized time per run (n^2):  11.45
2020-09-22 11:16:08 INFO  Benchmark_Timer - Begin run: integerArraysorter with 100 runs
--------------------------------
--------------------------------
```

```
    Config config = Config.load(SortBenchmark.class);
    Logger.info("SortBenchmark.main: " + config.get( sectionName: "huskysort",  optionName:
    if (args.length == 0) Logger.warn("No word counts specified on the command line");
    SortBenchmark benchmark = new SortBenchmark(config);
    //benchmark.sortIntegers(100000);
    benchmark.sortIntegers( n: 200);
    //benchmark.sortStrings(Arrays.stream(args).map(Integer::parseInt));
    //benchmark.sortLocalDateTimes(100000);
}

    // CONSIDER generifying common code (but it's difficult if not impossible)
    private void sortIntegers(final int n) {
        final Random random = new Random();
```

SortBenchmark › main()

SortBenchmark ×

```
E:\Java\jdk1.8.0_131\bin\java.exe ...
2020-09-22 11:16:32 DEBUG Config - Config.get(huskysort, version) = null
2020-09-22 11:16:32 INFO  SortBenchmark - SortBenchmark.main: null with word counts: []
2020-09-22 11:16:32 WARN  SortBenchmark - No word counts specified on the command line
2020-09-22 11:16:32 INFO  Benchmark_Timer - Begin run: intArraysorter with 100 runs
--------------------------------
--------------------------------
2020-09-22 11:16:32 INFO  TimeLogger - Raw time per run (mSec):  .16
2020-09-22 11:16:32 INFO  TimeLogger - Normalized time per run (n^2):  2.68
2020-09-22 11:16:32 INFO  Benchmark_Timer - Begin run: integerArraysorter with 100 runs
--------------------------------
```

```java
35    public static void main(String[] args) throws IOException {
36        Config config = Config.load(SortBenchmark.class);
37        logger.info("SortBenchmark.main: " + config.get( sectionName: "huskysort",  optionNa
38        if (args.length == 0) logger.warn("No word counts specified on the command line");
39        SortBenchmark benchmark = new SortBenchmark(config);
40        //benchmark.sortIntegers(100000);
41        benchmark.sortIntegers( n: 400);
42        //benchmark.sortStrings(Arrays.stream(args).map(Integer::parseInt));
43        //benchmark.sortLocalDateTimes(100000);
44    }
45
46    // CONSIDER generifying common code (but it's difficult if not impossible)
47    private void sortIntegers(final int n) {
48        final Random random = new Random();
```

SortBenchmark > main()

SortBenchmark ×

```
:\Java\jdk1.8.0_131\bin\java.exe ...
020-09-22 11:17:00 DEBUG Config - Config.get(huskysort, version) = null
020-09-22 11:17:00 INFO  SortBenchmark - SortBenchmark.main: null with word counts: []
020-09-22 11:17:00 WARN  SortBenchmark - No word counts specified on the command line
020-09-22 11:17:00 INFO  Benchmark_Timer - Begin run: intArraysorter with 100 runs
-------------------------------
-------------------------------
020-09-22 11:17:00 INFO  TimeLogger - Raw time per run (mSec):  .25
020-09-22 11:17:00 INFO  TimeLogger - Normalized time per run (n^2):  1.04
020-09-22 11:17:00 INFO  Benchmark_Timer - Begin run: integerArraysorter with 100 runs
-------------------------------
```

```java
35    public static void main(String[] args) throws IOException {
36        Config config = Config.load(SortBenchmark.class);
37        logger.info("SortBenchmark.main: " + config.get( sectionName: "huskysort",  optionName: "ve
38        if (args.length == 0) logger.warn("No word counts specified on the command line");
39        SortBenchmark benchmark = new SortBenchmark(config);
40        //benchmark.sortIntegers(100000);
41        benchmark.sortIntegers( n: 800);
42        //benchmark.sortStrings(Arrays.stream(args).map(Integer::parseInt));
43        //benchmark.sortLocalDateTimes(100000);
44    }
45
46    // CONSIDER generifying common code (but it's difficult if not impossible)
47    private void sortIntegers(final int n) {
48        final Random random = new Random();
```

SortBenchmark > main()

SortBenchmark ×

```
E:\Java\jdk1.8.0_131\bin\java.exe ...
2020-09-22 11:17:29 DEBUG Config - Config.get(huskysort, version) = null
2020-09-22 11:17:29 INFO  SortBenchmark - SortBenchmark.main: null with word counts: []
2020-09-22 11:17:29 WARN  SortBenchmark - No word counts specified on the command line
2020-09-22 11:17:29 INFO  Benchmark_Timer - Begin run: intArraysorter with 100 runs
-------------------------------
-------------------------------
2020-09-22 11:17:29 INFO  TimeLogger - Raw time per run (mSec):  .51
2020-09-22 11:17:29 INFO  TimeLogger - Normalized time per run (n^2):  .53
2020-09-22 11:17:29 INFO  Benchmark_Timer - Begin run: integerArraysorter with 100 runs
-------------------------------
```

```java
35    public static void main(String[] args) throws IOException {
36        Config config = Config.load(SortBenchmark.class);
37        logger.info("SortBenchmark.main: " + config.get( sectionName: "huskysort",  optionName: "version")
38        if (args.length == 0) logger.warn("No word counts specified on the command line");
39        SortBenchmark benchmark = new SortBenchmark(config);
40        //benchmark.sortIntegers(100000);
41        benchmark.sortIntegers( n: 1600);
42        //benchmark.sortStrings(Arrays.stream(args).map(Integer::parseInt));
43        //benchmark.sortLocalDateTimes(100000);
44    }
45
46    // CONSIDER generifying common code (but it's difficult if not impossible)
47    private void sortIntegers(final int n) {
48        final Random random = new Random();
```

SortBenchmark > main()

SortBenchmark ×

```
E:\Java\jdk1.8.0_131\bin\java.exe ...
2020-09-22 11:18:01 DEBUG Config - Config.get(huskysort, version) = null
2020-09-22 11:18:01 INFO  SortBenchmark - SortBenchmark.main: null with word counts: []
2020-09-22 11:18:01 WARN  SortBenchmark - No word counts specified on the command line
2020-09-22 11:18:01 INFO  Benchmark_Timer - Begin run: intArraysorter with 100 runs
-------------------------------
-------------------------------
2020-09-22 11:18:01 INFO  TimeLogger - Raw time per run (mSec):  1.51
2020-09-22 11:18:01 INFO  TimeLogger - Normalized time per run (n^2):  .39
2020-09-22 11:18:01 INFO  Benchmark_Timer - Begin run: integerArraysorter with 100 runs
-------------------------------
-------------------------------
```

```java
public static void main(String[] args) throws IOException {
    Config config = Config.load(SortBenchmark.class);
    logger.info("SortBenchmark.main: " + config.get( sectionName: "huskysort",  optionName: "ver
    if (args.length == 0) logger.warn("No word counts specified on the command line");
    SortBenchmark benchmark = new SortBenchmark(config);
    //benchmark.sortIntegers(100000);
    benchmark.sortIntegers( n: 3200);
    //benchmark.sortStrings(Arrays.stream(args).map(Integer::parseInt));
    //benchmark.sortLocalDateTimes(100000);
}

// CONSIDER generifying common code (but it's difficult if not impossible)
private void sortIntegers(final int n) {
    final Random random = new Random();
```

SortBenchmark › main()

SortBenchmark

```
E:\Java\jdk1.8.0_131\bin\java.exe ...
2020-09-22 11:18:24 DEBUG Config - Config.get(huskysort, version) = null
2020-09-22 11:18:24 INFO  SortBenchmark - SortBenchmark.main: null with word counts: []
2020-09-22 11:18:24 WARN  SortBenchmark - No word counts specified on the command line
2020-09-22 11:18:24 INFO  Benchmark_Timer - Begin run: intArraysorter with 100 runs
----------------------------------
----------------------------------
2020-09-22 11:18:25 INFO  TimeLogger - Raw time per run (mSec):  6.71
2020-09-22 11:18:25 INFO  TimeLogger - Normalized time per run (n^2):  .44
2020-09-22 11:18:25 INFO  Benchmark_Timer - Begin run: integerArraysorter with 100 runs
----------------------------------
----------------------------------
```

```java
public static void main(String[] args) throws IOException {
    Config config = Config.load(SortBenchmark.class);
    logger.info("SortBenchmark.main: " + config.get( sectionName: "huskysort",  optionName: "ve
    if (args.length == 0) logger.warn("No word counts specified on the command line");
    SortBenchmark benchmark = new SortBenchmark(config);
    //benchmark.sortIntegers(100000);
    benchmark.sortIntegers( n: 6400);
    //benchmark.sortStrings(Arrays.stream(args).map(Integer::parseInt));
    //benchmark.sortLocalDateTimes(100000);
}

// CONSIDER generifying common code (but it's difficult if not impossible)
private void sortIntegers(final int n) {
    final Random random = new Random();
```

SortBenchmark › main()

SortBenchmark

```
E:\Java\jdk1.8.0_131\bin\java.exe ...
2020-09-22 11:18:52 DEBUG Config - Config.get(huskysort, version) = null
2020-09-22 11:18:52 INFO  SortBenchmark - SortBenchmark.main: null with word counts: []
2020-09-22 11:18:52 WARN  SortBenchmark - No word counts specified on the command line
2020-09-22 11:18:52 INFO  Benchmark_Timer - Begin run: intArraysorter with 100 runs
----------------------------------
----------------------------------
2020-09-22 11:18:54 INFO  TimeLogger - Raw time per run (mSec):  20.68
2020-09-22 11:18:54 INFO  TimeLogger - Normalized time per run (n^2):  .34
2020-09-22 11:18:54 INFO  Benchmark_Timer - Begin run: integerArraysorter with 100 runs
----------------------------------
----------------------------------
```

```java
public static void main(String[] args) throws IOException {
    Config config = Config.load(SortBenchmark.class);
    logger.info("SortBenchmark.main: " + config.get( sectionName: "huskysort",  optionName: "version"
    if (args.length == 0) logger.warn("No word counts specified on the command line");
    SortBenchmark benchmark = new SortBenchmark(config);
    //benchmark.sortIntegers(100000);
    benchmark.sortIntegers( n: 12800);
    //benchmark.sortStrings(Arrays.stream(args).map(Integer::parseInt));
    //benchmark.sortLocalDateTimes(100000);
}

// CONSIDER generifying common code (but it's difficult if not impossible)
private void sortIntegers(final int n) {
    final Random random = new Random();
```

SortBenchmark › main()

SortBenchmark

```
E:\Java\jdk1.8.0_131\bin\java.exe ...
2020-09-22 11:19:21 DEBUG Config - Config.get(huskysort, version) = null
2020-09-22 11:19:21 INFO  SortBenchmark - SortBenchmark.main: null with word counts: []
2020-09-22 11:19:21 WARN  SortBenchmark - No word counts specified on the command line
2020-09-22 11:19:21 INFO  Benchmark_Timer - Begin run: intArraysorter with 100 runs
----------------------------------
----------------------------------
2020-09-22 11:19:30 INFO  TimeLogger - Raw time per run (mSec):  80.62
2020-09-22 11:19:30 INFO  TimeLogger - Normalized time per run (n^2):  .33
2020-09-22 11:19:30 INFO  Benchmark_Timer - Begin run: integerArraysorter with 100 runs
----------------------------------
----------------------------------
```

```
35 ▶      public static void main(String[] args) throws IOException {
36            Config config = Config.load(SortBenchmark.class);
37            logger.info("SortBenchmark.main: " + config.get( sectionName: "huskysort",  optionName: "vers
38            if (args.length == 0) logger.warn("No word counts specified on the command line");
39            SortBenchmark benchmark = new SortBenchmark(config);
40            //benchmark.sortIntegers(100000);
41            benchmark.sortIntegers( n: 25600);
42            //benchmark.sortStrings(Arrays.stream(args).map(Integer::parseInt));
43            //benchmark.sortLocalDateTimes(100000);
44        }
45
46        // CONSIDER generifying common code (but it's difficult if not impossible)
47        private void sortIntegers(final int n) {
48            final Random random = new Random();
```

SortBenchmark › main()

SortBenchmark

```
E:\Java\jdk1.8.0_131\bin\java.exe ...
2020-09-22 11:20:04 DEBUG Config - Config.get(huskysort, version) = null
2020-09-22 11:20:04 INFO  SortBenchmark - SortBenchmark.main: null with word counts: []
2020-09-22 11:20:04 WARN  SortBenchmark - No word counts specified on the command line
2020-09-22 11:20:04 INFO  Benchmark_Timer - Begin run: intArraysorter with 100 runs
--------------------------------
--------------------------------
2020-09-22 11:20:42 INFO  TimeLogger - Raw time per run (mSec):  338.37
2020-09-22 11:20:42 INFO  TimeLogger - Normalized time per run (n^2):  .34
2020-09-22 11:20:42 INFO  Benchmark_Timer - Begin run: integerArraysorter with 100 runs
--------------------------------
```

4.   initial array ordering situation: reverse-ordered

```
35 ▶      public static void main(String[] args) throws IOException {
36            Config config = Config.load(SortBenchmark.class);
37            logger.info("SortBenchmark.main: " + config.get( sectionName: "huskysort",  optionName: "versic
38            if (args.length == 0) logger.warn("No word counts specified on the command line");
39            SortBenchmark benchmark = new SortBenchmark(config);
40            //benchmark.sortIntegers(100000);
41            benchmark.sortIntegers( n: 50);
42            //benchmark.sortStrings(Arrays.stream(args).map(Integer::parseInt));
43            //benchmark.sortLocalDateTimes(100000);
44        }
45
46        // CONSIDER generifying common code (but it's difficult if not impossible)
47        private void sortIntegers(final int n) {
```

SortBenchmark › main()

SortBenchmark

```
E:\Java\jdk1.8.0_131\bin\java.exe ...
2020-09-22 11:36:05 DEBUG Config - Config.get(huskysort, version) = null
2020-09-22 11:36:05 INFO  SortBenchmark - SortBenchmark.main: null with word counts: []
2020-09-22 11:36:05 WARN  SortBenchmark - No word counts specified on the command line
2020-09-22 11:36:05 INFO  Benchmark_Timer - Begin run: intArraysorter with 100 runs
--------------------------------
--------------------------------
2020-09-22 11:36:05 INFO  TimeLogger - Raw time per run (mSec):  .10
2020-09-22 11:36:05 INFO  TimeLogger - Normalized time per run (n^2):  27.21
2020-09-22 11:36:05 INFO  Benchmark_Timer - Begin run: integerArraysorter with 100 runs
--------------------------------
--------------------------------
```

```
35 ▶      public static void main(String[] args) throws IOException {
36            Config config = Config.load(SortBenchmark.class);
37            logger.info("SortBenchmark.main: " + config.get( sectionName: "huskysort",  optionNam
38            if (args.length == 0) logger.warn("No word counts specified on the command line");
39            SortBenchmark benchmark = new SortBenchmark(config);
40            //benchmark.sortIntegers(100000);
41            benchmark.sortIntegers( n: 100);
42            //benchmark.sortStrings(Arrays.stream(args).map(Integer::parseInt));
43            //benchmark.sortLocalDateTimes(100000);
44        }
45
46        // CONSIDER generifying common code (but it's difficult if not impossible)
47        private void sortIntegers(final int n) {
```

SortBenchmark › main()

SortBenchmark

```
E:\Java\jdk1.8.0_131\bin\java.exe ...
2020-09-22 11:37:09 DEBUG Config - Config.get(huskysort, version) = null
2020-09-22 11:37:09 INFO  SortBenchmark - SortBenchmark.main: null with word counts: []
2020-09-22 11:37:09 WARN  SortBenchmark - No word counts specified on the command line
2020-09-22 11:37:09 INFO  Benchmark_Timer - Begin run: intArraysorter with 100 runs
--------------------------------
--------------------------------
2020-09-22 11:37:09 INFO  TimeLogger - Raw time per run (mSec):  .29
2020-09-22 11:37:09 INFO  TimeLogger - Normalized time per run (n^2):  19.53
2020-09-22 11:37:09 INFO  Benchmark_Timer - Begin run: integerArraysorter with 100 runs
--------------------------------
```

```java
35 ▶    public static void main(String[] args) throws IOException {
36          Config config = Config.load(SortBenchmark.class);
37          Logger.info("SortBenchmark.main: " + config.get( sectionName: "huskysort",  optionN
38          if (args.length == 0) Logger.warn("No word counts specified on the command line"
39          SortBenchmark benchmark = new SortBenchmark(config);
40          //benchmark.sortIntegers(100000);
41          benchmark.sortIntegers( n: 200);
42          //benchmark.sortStrings(Arrays.stream(args).map(Integer::parseInt));
43          //benchmark.sortLocalDateTimes(100000);
44      }
45
46          // CONSIDER generifying common code (but it's difficult if not impossible)
47          private void sortIntegers(final int n) {
```

SortBenchmark › main()

SortBenchmark ✕

```
E:\Java\jdk1.8.0_131\bin\java.exe ...
2020-09-22 11:37:32 DEBUG Config - Config.get(huskysort, version) = null
2020-09-22 11:37:32 INFO  SortBenchmark - SortBenchmark.main: null with word counts: []
2020-09-22 11:37:32 WARN  SortBenchmark - No word counts specified on the command line
2020-09-22 11:37:32 INFO  Benchmark_Timer - Begin run: intArraysorter with 100 runs
--------------------------------
--------------------------------
2020-09-22 11:37:32 INFO  TimeLogger - Raw time per run (mSec):  .19
2020-09-22 11:37:32 INFO  TimeLogger - Normalized time per run (n^2):  3.18
2020-09-22 11:37:32 INFO  Benchmark_Timer - Begin run: integerArraysorter with 100 runs
--------------------------------
--------------------------------
```

```java
35 ▶    public static void main(String[] args) throws IOException {
36          Config config = Config.load(SortBenchmark.class);
37          Logger.info("SortBenchmark.main: " + config.get( sectionName: "huskysort",  optionName
38          if (args.length == 0) Logger.warn("No word counts specified on the command line");
39          SortBenchmark benchmark = new SortBenchmark(config);
40          //benchmark.sortIntegers(100000);
41          benchmark.sortIntegers( n: 400);
42          //benchmark.sortStrings(Arrays.stream(args).map(Integer::parseInt));
43          //benchmark.sortLocalDateTimes(100000);
44      }
45
46          // CONSIDER generifying common code (but it's difficult if not impossible)
47          private void sortIntegers(final int n) {
```

SortBenchmark › main()

SortBenchmark ✕

```
E:\Java\jdk1.8.0_131\bin\java.exe ...
2020-09-22 11:37:55 DEBUG Config - Config.get(huskysort, version) = null
2020-09-22 11:37:55 INFO  SortBenchmark - SortBenchmark.main: null with word counts: []
2020-09-22 11:37:55 WARN  SortBenchmark - No word counts specified on the command line
2020-09-22 11:37:55 INFO  Benchmark_Timer - Begin run: intArraysorter with 100 runs
--------------------------------
--------------------------------
2020-09-22 11:37:55 INFO  TimeLogger - Raw time per run (mSec):  .26
2020-09-22 11:37:55 INFO  TimeLogger - Normalized time per run (n^2):  1.09
2020-09-22 11:37:55 INFO  Benchmark_Timer - Begin run: integerArraysorter with 100 runs
--------------------------------
--------------------------------
```

```java
35 ▶    public static void main(String[] args) throws IOException {
36          Config config = Config.load(SortBenchmark.class);
37          Logger.info("SortBenchmark.main: " + config.get( sectionName: "huskysort",  optionNar
38          if (args.length == 0) Logger.warn("No word counts specified on the command line");
39          SortBenchmark benchmark = new SortBenchmark(config);
40          //benchmark.sortIntegers(100000);
41          benchmark.sortIntegers( n: 800);
42          //benchmark.sortStrings(Arrays.stream(args).map(Integer::parseInt));
43          //benchmark.sortLocalDateTimes(100000);
44      }
45
46          // CONSIDER generifying common code (but it's difficult if not impossible)
47          private void sortIntegers(final int n) {
```

SortBenchmark › main()

SortBenchmark ✕

```
E:\Java\jdk1.8.0_131\bin\java.exe ...
2020-09-22 11:38:17 DEBUG Config - Config.get(huskysort, version) = null
2020-09-22 11:38:17 INFO  SortBenchmark - SortBenchmark.main: null with word counts: []
2020-09-22 11:38:17 WARN  SortBenchmark - No word counts specified on the command line
2020-09-22 11:38:17 INFO  Benchmark_Timer - Begin run: intArraysorter with 100 runs
--------------------------------
--------------------------------
2020-09-22 11:38:17 INFO  TimeLogger - Raw time per run (mSec):  .80
2020-09-22 11:38:17 INFO  TimeLogger - Normalized time per run (n^2):  .83
2020-09-22 11:38:17 INFO  Benchmark_Timer - Begin run: integerArraysorter with 100 runs
--------------------------------
--------------------------------
```

```java
35  ▶       public static void main(String[] args) throws IOException {
36              Config config = Config.load(SortBenchmark.class);
37              logger.info("SortBenchmark.main: " + config.get( sectionName: "huskysort",  optionName: "v
38              if (args.length == 0) logger.warn("No word counts specified on the command line");
39              SortBenchmark benchmark = new SortBenchmark(config);
40              //benchmark.sortIntegers(100000);
41              benchmark.sortIntegers( n: 1600);
42              //benchmark.sortStrings(Arrays.stream(args).map(Integer::parseInt));
43              //benchmark.sortLocalDateTimes(100000);
44          }
45
46          // CONSIDER generifying common code (but it's difficult if not impossible)
47          private void sortIntegers(final int n) {
```

SortBenchmark › main()

SortBenchmark ×

```
E:\Java\jdk1.8.0_131\bin\java.exe ...
2020-09-22 11:38:45 DEBUG Config - Config.get(huskysort, version) = null
2020-09-22 11:38:45 INFO  SortBenchmark - SortBenchmark.main: null with word counts: []
2020-09-22 11:38:45 WARN  SortBenchmark - No word counts specified on the command line
2020-09-22 11:38:45 INFO  Benchmark_Timer - Begin run: intArraysorter with 100 runs
--------------------------------
--------------------------------
2020-09-22 11:38:45 INFO  TimeLogger - Raw time per run (mSec):  3.70
2020-09-22 11:38:45 INFO  TimeLogger - Normalized time per run (n^2):  .96
2020-09-22 11:38:45 INFO  Benchmark_Timer - Begin run: integerArraysorter with 100 runs
--------------------------------
--------------------------------
```

```java
35  ▶       public static void main(String[] args) throws IOException {
36              Config config = Config.load(SortBenchmark.class);
37              logger.info("SortBenchmark.main: " + config.get( sectionName: "huskysort",  optionName: "v
38              if (args.length == 0) logger.warn("No word counts specified on the command line");
39              SortBenchmark benchmark = new SortBenchmark(config);
40              //benchmark.sortIntegers(100000);
41              benchmark.sortIntegers( n: 3200);
42              //benchmark.sortStrings(Arrays.stream(args).map(Integer::parseInt));
43              //benchmark.sortLocalDateTimes(100000);
44          }
45
46          // CONSIDER generifying common code (but it's difficult if not impossible)
47          private void sortIntegers(final int n) {
```

SortBenchmark › main()

SortBenchmark ×

```
E:\Java\jdk1.8.0_131\bin\java.exe ...
2020-09-22 11:39:12 DEBUG Config - Config.get(huskysort, version) = null
2020-09-22 11:39:12 INFO  SortBenchmark - SortBenchmark.main: null with word counts: []
2020-09-22 11:39:12 WARN  SortBenchmark - No word counts specified on the command line
2020-09-22 11:39:12 INFO  Benchmark_Timer - Begin run: intArraysorter with 100 runs
--------------------------------
--------------------------------
2020-09-22 11:39:13 INFO  TimeLogger - Raw time per run (mSec):  12.17
2020-09-22 11:39:13 INFO  TimeLogger - Normalized time per run (n^2):  .79
2020-09-22 11:39:13 INFO  Benchmark_Timer - Begin run: integerArraysorter with 100 runs
--------------------------------
--------------------------------
```

```java
35  ▶       public static void main(String[] args) throws IOException {
36              Config config = Config.load(SortBenchmark.class);
37              logger.info("SortBenchmark.main: " + config.get( sectionName: "huskysort",  optionName:
38              if (args.length == 0) logger.warn("No word counts specified on the command line");
39              SortBenchmark benchmark = new SortBenchmark(config);
40              //benchmark.sortIntegers(100000);
41              benchmark.sortIntegers( n: 6400);
42              //benchmark.sortStrings(Arrays.stream(args).map(Integer::parseInt));
43              //benchmark.sortLocalDateTimes(100000);
44          }
45
46          // CONSIDER generifying common code (but it's difficult if not impossible)
47          private void sortIntegers(final int n) {
```

SortBenchmark › main()

SortBenchmark ×

```
E:\Java\jdk1.8.0_131\bin\java.exe ...
2020-09-22 11:39:35 DEBUG Config - Config.get(huskysort, version) = null
2020-09-22 11:39:35 INFO  SortBenchmark - SortBenchmark.main: null with word counts: []
2020-09-22 11:39:35 WARN  SortBenchmark - No word counts specified on the command line
2020-09-22 11:39:35 INFO  Benchmark_Timer - Begin run: intArraysorter with 100 runs
--------------------------------
--------------------------------
2020-09-22 11:39:39 INFO  TimeLogger - Raw time per run (mSec):  41.87
2020-09-22 11:39:39 INFO  TimeLogger - Normalized time per run (n^2):  .68
2020-09-22 11:39:39 INFO  Benchmark_Timer - Begin run: integerArraysorter with 100 runs
--------------------------------
--------------------------------
```

```java
35      public static void main(String[] args) throws IOException {
36          Config config = Config.load(SortBenchmark.class);
37          logger.info("SortBenchmark.main: " + config.get( sectionName: "huskysort",  optionNa
38          if (args.length == 0) logger.warn("No word counts specified on the command line");
39          SortBenchmark benchmark = new SortBenchmark(config);
40          //benchmark.sortIntegers(100000);
41          benchmark.sortIntegers( n: 12800);
42          //benchmark.sortStrings(Arrays.stream(args).map(Integer::parseInt));
43          //benchmark.sortLocalDateTimes(100000);
44      }
45
46      // CONSIDER generifying common code (but it's difficult if not impossible)
47      private void sortIntegers(final int n) {
```

SortBenchmark › main()

SortBenchmark

```
E:\Java\jdk1.8.0_131\bin\java.exe ...
2020-09-22 11:40:02 DEBUG Config - Config.get(huskysort, version) = null
2020-09-22 11:40:02 INFO  SortBenchmark - SortBenchmark.main: null with word counts: []
2020-09-22 11:40:02 WARN  SortBenchmark - No word counts specified on the command line
2020-09-22 11:40:02 INFO  Benchmark_Timer - Begin run: intArraysorter with 100 runs
--------------------------------
--------------------------------
2020-09-22 11:40:21 INFO  TimeLogger - Raw time per run (mSec):  164.81
2020-09-22 11:40:21 INFO  TimeLogger - Normalized time per run (n^2):  .67
2020-09-22 11:40:21 INFO  Benchmark_Timer - Begin run: integerArraysorter with 100 runs
--------------------------------
--------------------------------
```

```java
35      public static void main(String[] args) throws IOException {
36          Config config = Config.load(SortBenchmark.class);
37          logger.info("SortBenchmark.main: " + config.get( sectionName: "huskysort",  optionName: "version")
38          if (args.length == 0) logger.warn("No word counts specified on the command line");
39          SortBenchmark benchmark = new SortBenchmark(config);
40          //benchmark.sortIntegers(100000);
41          benchmark.sortIntegers( n: 25600);
42          //benchmark.sortStrings(Arrays.stream(args).map(Integer::parseInt));
43          //benchmark.sortLocalDateTimes(100000);
44      }
45
46      // CONSIDER generifying common code (but it's difficult if not impossible)
47      private void sortIntegers(final int n) {
```

SortBenchmark › main()

SortBenchmark

```
E:\Java\jdk1.8.0_131\bin\java.exe ...
2020-09-22 11:41:01 DEBUG Config - Config.get(huskysort, version) = null
2020-09-22 11:41:01 INFO  SortBenchmark - SortBenchmark.main: null with word counts: []
2020-09-22 11:41:01 WARN  SortBenchmark - No word counts specified on the command line
2020-09-22 11:41:01 INFO  Benchmark_Timer - Begin run: intArraysorter with 100 runs
--------------------------------
--------------------------------
2020-09-22 11:42:13 INFO  TimeLogger - Raw time per run (mSec):  653.99
2020-09-22 11:42:13 INFO  TimeLogger - Normalized time per run (n^2):  .67
2020-09-22 11:42:13 INFO  Benchmark_Timer - Begin run: integerArraysorter with 100 runs
--------------------------------
--------------------------------
```