

Hong Chong yuan's lab 5 report id: chong10

List of a

a	1Kints.txt	2Kints.txt	4Kints.txt	8Kints.txt	16Kints.txt	32Kints.txt	1Mints.txt
Arrays.sort() (Java Default)	0.0	1.0	0.0	2.0	1.0	2.0	53.0
Bubble Sort	11.0	5.0	14.0	49.0	289.0	1501.0	/
Selection Sort	6.0	2.0	6.0	21.0	168.0	658.0	/
Insertion Sort	7.0	3.0	9.0	25.0	93.0	348.0	116211.0
Mergesort	2.0	1.0	1.0	1.0	5.0	11.0	151.0
Quicksort	2.0	2.0	2.0	1.0	7.0	26.0	119.0

List of b

b	1Kints.txt	2Kints.txt	4Kints.txt	8Kints.txt	16Kints.txt	32Kints.txt	1Mints.txt
Arrays.sort() (Java Default)	0.0	0.0	0.0	0.0	0.0	1.0	1.0
Bubble Sort	4.0	3.0	7.0	22.0	263.0	1050.0	/
Selection Sort	2.0	1.0	5.0	28.0	151.0	605.0	/
Insertion Sort	0.0	0.0	0.0	0.0	0.0	1.0	5.0
Mergesort	0.0	0.0	0.0	1.0	2.0	2.0	39.0
Quicksort	2.0	0.0	0.0	0.0	2.0	2.0	27.0

List of c

c	1Kints.txt	2Kints.txt	4Kints.txt	8Kints.txt	16Kints.txt	32Kints.txt	1Mints.txt
Arrays.sort() (Java Default)	0.0	0.0	0.0	1.0	1.0	2.0	1.0
Bubble Sort	2.0	3.0	15.0	53.0	212.0	843.0	/
Selection Sort	0.0	1.0	5.0	15.0	72.0	231.0	/
Insertion Sort	4.0	0.0	14.0	43.0	178.0	680.0	/
Mergesort	0.0	0.0	0.0	0.0	3.0	1.0	33.0
Quicksort	0.0	0.0	0.0	0.0	2.0	2.0	17.0

List of d

d	1Kints.txt	2Kints.txt	4Kints.txt	8Kints.txt	16Kints.txt	32Kints.txt	1Mints.txt
Arrays.sort() (Java Default)	0.0	0.0	0.0	1.0	0.0	2.0	35.0
Bubble Sort	1.0	3.0	7.0	24.0	95.0	448.0	/
Selection Sort	0.0	1.0	5.0	14.0	185.0	232.0	/
Insertion Sort	1.0	0.0	2.0	5.0	11.0	42.0	/
Mergesort	0.0	0.0	0.0	0.0	1.0	1.0	50.0
Quicksort	0.0	0.0	1.0	0.0	2.0	4.0	29.0

The screenshot shows the IntelliJ IDEA interface with the project 'Lab5 - a.txt' open. The 'Run' tool window displays the execution of sorting algorithms. The results are as follows:

- 1Kints.txt:**
 - Quicksort c: 0.0 20230406_202853 chong10 1Kints.txt
 - Quicksort d: 0.0 20230406_202853 chong10 1Kints.txt
 - Arrays.sort() (Java Default) a: 0.0 20230406_202821 chong10 2Kints.txt
 - Arrays.sort() (Java Default) b: 0.0 20230406_203281 chong10 2Kints.txt
 - Arrays.sort() (Java Default) c: 0.0 20230406_203281 chong10 2Kints.txt
 - Arrays.sort() (Java Default) d: 0.0 20230406_203281 chong10 2Kints.txt
- 2Kints.txt:**
 - Bubble Sort a: 5.0 20230406_203205 chong10 2Kints.txt
 - Bubble Sort b: 3.0 20230406_203205 chong10 2Kints.txt
 - Bubble Sort c: 6.0 20230406_203205 chong10 2Kints.txt
 - Bubble Sort d: 3.0 20230406_203205 chong10 2Kints.txt
- 4Kints.txt:**
 - Selection Sort a: 2.0 20230406_203207 chong10 2Kints.txt
 - Selection Sort b: 1.0 20230406_203207 chong10 2Kints.txt
 - Selection Sort c: 1.0 20230406_203207 chong10 2Kints.txt
 - Selection Sort d: 1.0 20230406_203207 chong10 2Kints.txt
- 8Kints.txt:**
 - insertion sort a: 3.0 20230406_203211 chong10 2Kints.txt
 - insertion sort b: 0.0 20230406_203211 chong10 2Kints.txt
 - insertion sort c: 4.0 20230406_203211 chong10 2Kints.txt
 - insertion sort d: 0.0 20230406_203211 chong10 2Kints.txt
- 16Kints.txt:**
 - Mergesort a: 1.0 20230406_203214 chong10 2Kints.txt
 - Mergesort b: 0.0 20230406_203214 chong10 2Kints.txt
 - Mergesort c: 0.0 20230406_203214 chong10 2Kints.txt
 - Mergesort d: 0.0 20230406_203214 chong10 2Kints.txt
- 32Kints.txt:**
 - Quicksort a: 2.0 20230406_203216 chong10 2Kints.txt
 - Quicksort b: 0.0 20230406_203216 chong10 2Kints.txt
 - Quicksort c: 0.0 20230406_203216 chong10 2Kints.txt
 - Quicksort d: 0.0 20230406_203216 chong10 2Kints.txt

The status bar at the bottom indicates "Build completed successfully in 2 sec, 699 ms (4 minutes ago)".

IntelliJ IDEA 2023.2.3

File Edit View Navigate Code Refactor Build Run Tools VCS Window Help 4月6日 周四 下午 8:30

Run: Current File Notifications

src a.txt

Project Sorting

Run: Sorting

```
Lab5 - a.txt
/ /Users/hongchongyuan/Library/Java/JavaVirtualMachines/openjdk-19.0.1/Contents/Home/bin/java -javaagent:/Applications/IntelliJ IDEA CE.app/Contents/lib/idea_rt.jar=55423:/Users/hongchongyuan/Library/Java/JavaVirtualMachines/openjdk-19.0.1/Contents/Home/bin
Arrays.sort() (Java Default) a 0.0 20230406_202814 chong10 1Kints.txt
Arrays.sort() (Java Default) b 0.0 20230406_202814 chong10 1Kints.txt
Arrays.sort() (Java Default) c 0.0 20230406_202814 chong10 1Kints.txt
Arrays.sort() (Java Default) d 0.0 20230406_202814 chong10 1Kints.txt
1Kints.txt 1
Bubble Sort a 11.0 28230406_202829 chong10 1Kints.txt
Bubble Sort b 4.0 20230406_202829 chong10 1Kints.txt
Bubble Sort c 2.0 20230406_202829 chong10 1Kints.txt
Bubble Sort d 1.0 20230406_202829 chong10 1Kints.txt
1Kints.txt 2
Selection Sort a 6.0 28230406_202834 chong10 1Kints.txt
Selection Sort b 2.0 20230406_202834 chong10 1Kints.txt
Selection Sort c 0.0 20230406_202834 chong10 1Kints.txt
Selection Sort d 0.0 20230406_202834 chong10 1Kints.txt
1Kints.txt 3
insertion sort a 7.0 28230406_202839 chong10 1Kints.txt
insertion sort b 0.0 20230406_202839 chong10 1Kints.txt
insertion sort c 4.0 20230406_202839 chong10 1Kints.txt
insertion sort d 1.0 20230406_202839 chong10 1Kints.txt
1Kints.txt 4
Mergesort a 2.0 20230406_202846 chong10 1Kints.txt
Mergesort b 0.0 20230406_202846 chong10 1Kints.txt
Mergesort c 0.0 20230406_202846 chong10 1Kints.txt
Mergesort d 0.0 20230406_202846 chong10 1Kints.txt
1Kints.txt 5
Quicksort a 2.0 20230406_202853 chong10 1Kints.txt
Quicksort b 2.0 20230406_202853 chong10 1Kints.txt
Quicksort c 0.0 20230406_202853 chong10 1Kints.txt
Quicksort d 0.0 20230406_202853 chong10 1Kints.txt
|
```

Version Control Run TODO Problems Terminal Services Build

Build completed successfully in 2 sec, 699 ms (3 minutes ago)

32:1 LF UTF-8 4 spaces

IntelliJ IDEA 2023.2.3

File Edit View Navigate Code Refactor Build Run Tools VCS Window Help 4月6日 周四 下午 8:33

Run: Current File Notifications

src a.txt

Project Lab5 ~/ideaProjects/Lab5

Run: Sorting

Run: Sorting

```
Lab5 - a.txt
/ /Users/hongchongyuan/Library/Java/JavaVirtualMachines/openjdk-19.0.1/Contents/Home/bin
Quicksort d 0.0 20230406_203216 chong10 2Kints.txt
1Kints.txt 1
Arrays.sort() (Java Default) a 0.0 20230406_203258 chong10 4Kints.txt
Arrays.sort() (Java Default) b 0.0 20230406_203258 chong10 4Kints.txt
Arrays.sort() (Java Default) c 0.0 20230406_203258 chong10 4Kints.txt
Arrays.sort() (Java Default) d 0.0 20230406_203258 chong10 4Kints.txt
1Kints.txt 2
Bubble Sort a 14.0 20230406_203301 chong10 4Kints.txt
Bubble Sort b 7.0 20230406_203301 chong10 4Kints.txt
Bubble Sort c 15.0 20230406_203301 chong10 4Kints.txt
Bubble Sort d 7.0 20230406_203301 chong10 4Kints.txt
1Kints.txt 3
Selection Sort a 6.0 20230406_203303 chong10 4Kints.txt
Selection Sort b 5.0 20230406_203303 chong10 4Kints.txt
Selection Sort c 5.0 20230406_203303 chong10 4Kints.txt
Selection Sort d 5.0 20230406_203303 chong10 4Kints.txt
1Kints.txt 4
insertion sort a 9.0 20230406_203306 chong10 4Kints.txt
insertion sort b 0.0 20230406_203306 chong10 4Kints.txt
insertion sort c 14.0 20230406_203306 chong10 4Kints.txt
insertion sort d 2.0 20230406_203306 chong10 4Kints.txt
1Kints.txt 5
Mergesort a 1.0 20230406_203308 chong10 4Kints.txt
Mergesort b 0.0 20230406_203308 chong10 4Kints.txt
Mergesort c 0.0 20230406_203308 chong10 4Kints.txt
Mergesort d 0.0 20230406_203308 chong10 4Kints.txt
1Kints.txt 6
Quicksort a 2.0 20230406_203311 chong10 4Kints.txt
Quicksort b 0.0 20230406_203311 chong10 4Kints.txt
Quicksort c 0.0 20230406_203311 chong10 4Kints.txt
Quicksort d 1.0 20230406_203311 chong10 4Kints.txt
|
```

Version Control Run TODO Problems Terminal Services Build

Build completed successfully in 2 sec, 699 ms (5 minutes ago)

92:1 LF UTF-8 4 spaces

The screenshot shows the IntelliJ IDEA interface with a terminal window open. The terminal displays performance metrics for various sorting algorithms (Arrays.sort(), Bubble Sort, Selection Sort, Insertion Sort, Merge Sort, and Quicksort) across different input sizes (8Kints.txt, 16Kints.txt, 32Kints.txt, 64Kints.txt, non.txt). The metrics include time taken (in seconds), date, and file name.

Algorithm	Input Size	Time (s)	Date	User	File
Arrays.sort() (Java Default)	a	0.0	2023/04/06_202814	chong10	8Kints.txt
Bubble Sort	a	11.0	2023/04/06_202829	chong10	1Kints.txt
Selection Sort	a	21.0	2023/04/06_203400	chong10	8Kints.txt
Insertion Sort	a	25.0	2023/04/06_203404	chong10	8Kints.txt
Merge Sort	a	1.0	2023/04/06_203406	chong10	8Kints.txt
Quicksort	a	1.0	2023/04/06_203407	chong10	8Kints.txt
Arrays.sort() (Java Default)	b	0.0	2023/04/06_203355	chong10	8Kints.txt
Bubble Sort	b	22.0	2023/04/06_203358	chong10	8Kints.txt
Selection Sort	b	18.0	2023/04/06_203400	chong10	8Kints.txt
Insertion Sort	b	43.0	2023/04/06_203404	chong10	8Kints.txt
Merge Sort	b	0.0	2023/04/06_203406	chong10	8Kints.txt
Quicksort	b	0.0	2023/04/06_203409	chong10	8Kints.txt
Arrays.sort() (Java Default)	c	1.0	2023/04/06_203355	chong10	8Kints.txt
Bubble Sort	c	53.0	2023/04/06_203358	chong10	8Kints.txt
Selection Sort	c	15.0	2023/04/06_203400	chong10	8Kints.txt
Insertion Sort	c	5.0	2023/04/06_203404	chong10	8Kints.txt
Merge Sort	c	0.0	2023/04/06_203406	chong10	8Kints.txt
Quicksort	c	0.0	2023/04/06_203409	chong10	8Kints.txt
Arrays.sort() (Java Default)	d	1.0	2023/04/06_203355	chong10	8Kints.txt
Bubble Sort	d	24.0	2023/04/06_203358	chong10	8Kints.txt
Selection Sort	d	14.0	2023/04/06_203400	chong10	8Kints.txt
Insertion Sort	d	5.0	2023/04/06_203404	chong10	8Kints.txt
Merge Sort	d	0.0	2023/04/06_203406	chong10	8Kints.txt
Quicksort	d	0.0	2023/04/06_203409	chong10	8Kints.txt

IntelliJ IDEA File Edit View Navigate Code Refactor Build Run Tools VCS Window Help 4月6日周四下午9:00

Lab5 - Sorting.java Current File

```
Lab5 src Lab5 Sorting.java 8Kints.txt a.txt non.txt 16Kints.txt 4Kints.txt b.txt 32Kints.txt c.txt d.txt
```

Project Run Sorting x Sorting

```
/Users/hongchongyuan/Library/Java/JavaVirtualMachines/openjdk-19.0.1/Contents/Home/bin/java -javaagent:/Applications/IntelliJ IDEA.app/Contents/lib/idea_rt.jar -Dfile.encoding=UTF-8
```

Quicksort a 7.0 20230406_205910 chong10 16Kints.txt
Quicksort b 2.0 20230406_205910 chong10 16Kints.txt
Quicksort c 2.0 20230406_205910 chong10 16Kints.txt
Quicksort d 2.0 20230406_205910 chong10 16Kints.txt

Mergesort a 5.0 20230406_205919 chong10 16Kints.txt
Mergesort b 2.0 20230406_205919 chong10 16Kints.txt
Mergesort c 3.0 20230406_205919 chong10 16Kints.txt
Mergesort d 1.0 20230406_205919 chong10 16Kints.txt

Insertion sort a 93.0 20230406_205929 chong10 16Kints.txt
Insertion sort b 0.0 20230406_205929 chong10 16Kints.txt
Insertion sort c 178.0 20230406_205929 chong10 16Kints.txt
Insertion sort d 11.0 20230406_205929 chong10 16Kints.txt

Selection Sort a 168.0 20230406_205936 chong10 16Kints.txt
Selection Sort b 151.0 20230406_205936 chong10 16Kints.txt
Selection Sort c 72.0 20230406_205936 chong10 16Kints.txt
Selection Sort d 185.0 20230406_205936 chong10 16Kints.txt

Bubble Sort a 289.0 20230406_205943 chong10 16Kints.txt
Bubble Sort b 263.0 20230406_205944 chong10 16Kints.txt
Bubble Sort c 212.0 20230406_205944 chong10 16Kints.txt
Bubble Sort d 95.0 20230406_205944 chong10 16Kints.txt

Arrays.sort() (Java Default) a 1.0 20230406_205951 chong10 16Kints.txt
Arrays.sort() (Java Default) b 0.0 20230406_205951 chong10 16Kints.txt
Arrays.sort() (Java Default) c 1.0 20230406_205951 chong10 16Kints.txt
Arrays.sort() (Java Default) d 0.0 20230406_205951 chong10 16Kints.txt

IntelliJ IDEA File Edit View Navigate Code Refactor Build Run Tools VCS Window Help 4月6日周四下午8:53

Lab5 - Sorting.java Current File

src / Sorting

Run: Sorting v Sorting x

/Users/hongchongyuan/Library/Java/JavaVirtualMachines/openjdk-19.0.1/Contents/Home/bin/java -javaagent:/Applications/IntelliJ IDEA CE.app/Contents/lib/idea_rt.jar=61291:/

Mergesort a 11.0 20230406_205235 chong10 32Kints.txt
Mergesort b 2.0 20230406_205235 chong10 32Kints.txt
Mergesort c 1.0 20230406_205235 chong10 32Kints.txt
Mergesort d 1.0 20230406_205235 chong10 32Kints.txt

32Kints.txt 4
Quicksort a 26.0 20230406_205250 chong10 32Kints.txt
Quicksort b 2.0 20230406_205250 chong10 32Kints.txt
Quicksort c 2.0 20230406_205250 chong10 32Kints.txt
Quicksort d 4.0 20230406_205250 chong10 32Kints.txt

32Kints.txt 5
insertion sort a 348.0 20230406_205315 chong10 32Kints.txt
insertion sort b 1.0 20230406_205315 chong10 32Kints.txt
insertion sort c 680.0 20230406_205315 chong10 32Kints.txt
insertion sort d 42.0 20230406_205315 chong10 32Kints.txt

32Kints.txt 6
Selection Sort a 658.0 20230406_205323 chong10 32Kints.txt
Selection Sort b 605.0 20230406_205324 chong10 32Kints.txt
Selection Sort c 231.0 20230406_205324 chong10 32Kints.txt
Selection Sort d 232.0 20230406_205324 chong10 32Kints.txt

32Kints.txt 7
Bubble Sort a 1501.0 20230406_205333 chong10 32Kints.txt
Bubble Sort b 1050.0 20230406_205334 chong10 32Kints.txt
Bubble Sort c 843.0 20230406_205335 chong10 32Kints.txt
Bubble Sort d 448.0 20230406_205335 chong10 32Kints.txt

32Kints.txt 8
Arrays.sort() (Java Default) a 1.0 20230406_205343 chong10 32Kints.txt
Arrays.sort() (Java Default) b 1.0 20230406_205343 chong10 32Kints.txt
Arrays.sort() (Java Default) c 2.0 20230406_205343 chong10 32Kints.txt
Arrays.sort() (Java Default) d 2.0 20230406_205343 chong10 32Kints.txt

Version Control Run TODO Problems Terminal Services

Build completed successfully in 1 sec, 930 ms (a minute ago)

32Kints.txt 9
In non.txt

Sorting x Sorting x

/Users/hongchongyuan/Library/Java/JavaVirtualMachines/openjdk-19.0.1/Contents/Home/bin/java -javaagent:/Applications/IntelliJ IDEA CE.app/Contents/lib/idea_rt.jar=61291:/

1Mints.txt 3
insertion sort a 116211.0 20230406_212945 chong10 1Mints.txt
insertion sort b 5.0 20230406_212945 chong10 1Mints.txt

1Mints.txt 4
Quicksort b 1.0 20230406_203606 chong10 32Kints.txt
Quicksort c 0.0 20230406_203606 chong10 32Kints.txt
Quicksort d 1.0 20230406_203606 chong10 32Kints.txt

1Mints.txt 5
Arrays.sort() (Java Default) a 53.0 20230406_203830 chong10 1Mints.txt
Arrays.sort() (Java Default) b 1.0 20230406_203830 chong10 1Mints.txt
Arrays.sort() (Java Default) c 1.0 20230406_203830 chong10 1Mints.txt
Arrays.sort() (Java Default) d 35.0 20230406_203830 chong10 1Mints.txt

1Mints.txt 6
In non.txt

Sorting x Sorting x

/Users/hongchongyuan/Library/Java/JavaVirtualMachines/openjdk-19.0.1/Contents/Home/bin/java -javaagent:/Applications/IntelliJ IDEA CE.app/Contents/lib/idea_rt.jar=61291:/

1Mints.txt 4
Mergesort a 151.0 20230406_213915 chong10 1Mints.txt
Mergesort b 39.0 20230406_213915 chong10 1Mints.txt
Mergesort c 33.0 20230406_213915 chong10 1Mints.txt
Mergesort d 50.0 20230406_213915 chong10 1Mints.txt

1Mints.txt 5
Quicksort a 119.0 20230406_214743 chong10 1Mints.txt
Quicksort b 27.0 20230406_214743 chong10 1Mints.txt
Quicksort c 17.0 20230406_214743 chong10 1Mints.txt
Quicksort d 29.0 20230406_214743 chong10 1Mints.txt

abcd test for 1Mints.txt on bubble sort and selection sort run more than 10min, so it is been close. the insertion sort for above is run half way but spend more than 10min.