

IntelliJ Terminal Commands Worksheet

- Note - the terms *terminal* and *shell* are used interchangeably.
- Unzip the project and open the project in IntelliJ:
 - Average.java - reads a sequence of integers from stdin, computes their average, and writes the average to stdout
 - RangeFilter.java - reads a sequence of integers from standard input and writes those values between lo and hi to stdout
 - numbers.txt - contains 1000 integers
 - presidents.txt - contains the names and terms of US presidents
 - top-500.txt - contains Rolling Stone's 500 greatest songs of all time
- Lift → Terminal
- The > is called the terminal or shell *prompt*.
 - Change the prompt by entering the command:
 - PS1="> "
- TAB completion. Use the TAB key to complete command names and file names.
- History. Press the up arrow key (repeatedly) to see the previous command(s). You can edit and re-run them using the right and left arrow keys to position the cursor and the delete / backspace key to edit the command line.
- The shell has many commands, e.g., `javac-introcs program.java` and `java-introcs program` to compile and execute Java programs, respectively. Some other useful shell command you should try:

Shell command	Description
> ls	List the contents of the current directory
> ls -l	A verbose list of the contents of the current directory
> pwd	Print the name of the current directory
> rm filename	Remove / delete the file named filename; your shell may ask you to confirm the file removal - type <code>y</code> to confirm; <code>n</code> to cancel
> less filename	Print a file, page by page. Use the spacebar to page; use <code>q</code> to quit.
> sort filename	Sort the lines in a file
> uniq filename	Print the unique lines in a file
> grep pattern filename	Find occurrences of a pattern in a file, e.g., <code>grep John presidents.txt</code>

- Compile Average.java and RangeFilter.java

9. Run the Average program

```
> java-introcs Average
10.0  5.0  6.0
3.0   7.0 32.0
```

Use<ctrl-d> (Mac) or <ctrl-z><enter> (Windows) to signal the end-of-file.

Answer:

10. Run the RangeFilter program

```
> java-introcs RangeFilter 4 7
1 20 30 2 4 6 -1
100 6 7
34 0
```

Use<ctrl-d> (Mac) or <ctrl-z><enter> (Windows) to signal the end-of-file.

Answer:

11. Redirect stdin: Run the Average program redirecting numbers.txt to stdin:

```
> java-introcs Average < numbers.txt
```

Answer:

12. Redirect stdin: Run the RangeFilter program redirecting numbers.txt to stdin:

```
> java-introcs RangeFilter 1 5 < numbers.txt
```

Answer:

13. Redirect stdin and stdout: Run the Average program redirecting numbers.txt to stdin and stdout to the file averages.txt

```
> java-introcs Average < numbers.txt > averages.txt
```

Answer:

14. Remove the file averages.txt

```
> ls
> rm averages.txt
> ls
```

15. Redirect stdin: Run the RangeFilter program redirecting numbers.txt to stdin and stdout to the file results.txt

```
> java-introcs RangeFilter 10 20 < numbers.txt > results.txt
```

Answer:

16. Redirect stdin and stdout: Run the RangeFilter program redirecting numbers.txt to stdin and redirecting stdout to ranges.txt. Then run the Average program redirecting ranges.txt to stdin

```
> java-introcs RangeFilter 10 20 < numbers.txt > ranges.txt  
> java-introcs Average < ranges.txt
```

Answer:

17. Redirect stdin and piping: Run the RangeFilter program redirecting numbers.txt to stdin and piping stdout to the Average program

```
> java-introcs RangeFilter 10 20 < numbers.txt | java-introcs Average
```

Answer:

18. Use the less command to print the presidents.txt and top-500.txt files to stdout. Recall - use the spacebar to page.

```
> less presidents.txt  
> less top-500.txt
```

19. Sort the presidents.txt file

Answer:

20. Sort the presidents.txt file redirecting stdout to a sorted-pres.txt

Answer:

21. Use the less command to view the sorted-pres.txt

Answer:

22. Sort the presidents.txt file and pipe stdout to the less command

Answer:

23. What songs do the Beatles have in the top 500?

Answer:

Answers:

9. Average is 10.5

10.

4

6

6

7

11. Average is 50.117

12. Many values between 1 and 5

13. Examine file averages.txt: Average is 50.117

15. Examine file results.txt. Many values between 10 and 20

16. Average is 15.315315315315315

19. sort presidents.txt

20. sort presidents.txt > sorted-pres.txt

21. less sorted-pres.txt

22. sort presidents.txt | less

23. grep Beatles top-500.txt

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Command	Description
<code>pwd</code>	current working directory
<code>ls</code> <code>ls -l</code>	list directory
<code>rm filename</code>	remove/delete filename (if prompted - use <code>y</code> to confirm; <code>n</code> to cancel)
<code>javac-introcs MyClass.java</code>	compile MyClass.java
<code>java-introcs MyClass arg0 arg1 arg2...</code>	run program MyClass with command line arguments
<code>java-introcs MyClass arg0 arg1 ... < infile</code>	Redirect standard input from file named <i>infile</i>
<code>java-introcs MyClass arg0 arg1 ... > outfile</code>	Redirect standard output to file named <i>outfile</i>
<code>java-introcs MyClass arg0 arg1 ... < infile > outfile</code>	Redirect standard input from file named <i>infile</i> and redirect standard output to file named <i>outfile</i>
<code>java-introcs Program1 java-introcs Program2</code>	pipng
<code>java-introcs Program1 < input.txt more</code> <code>java-introcs Program1 < input.txt > output.txt</code> <code>java-introcs Program1 arg1 java-introcs Program2 arg2</code>	combinations
ctrl-c	terminate a program
Mac: enter control-d Windows: enter cntl-z enter	end of file
<code>jshell-introcs</code>	start jshell - use ctrl-d to end
<code>less, uniq, grep, sort, cat, head, tail</code>	Terminal (shell) commands

