

Programming: Week 21 Lab (Files)

Learning objectives:

- Using Java file handling classes to read and write text files.
- Interpreting mixed formatted data using the **Scanner** class.

Resources

- Week 21 Lecture Slides
- Java documentation
<https://docs.oracle.com/javase/8/docs/api/java/util/Scanner.html>

Preparation

- Create a new Java project in Eclipse.
- Download the sample text files (**sample1.txt** and **temps.dat**) from Moodle into your project folder. This should be the top level folder (e.g. ~/programming/week21) **not** the source folder (e.g. /programming/week21/src).

Exercise 1

Write a program which takes the name of a text file as a command-line argument, and which outputs the number and average length of words in the file to the console. You can treat 'words' as any text separated by whitespace - treat the output of **Scanner.next()** as a 'word'. The program should give appropriate errors if there is no file specified on the command line, or the file cannot be opened. Test it with **sample1.txt**.

Set the command line argument in Eclipse using the **Run Configurations** dialog (see Figure 1). Open the 'Arguments' tab and set the arguments there.

Exercise 2

The file **temps.dat** contains some temperature monitoring data. The file contains dates, times and temperature readings from two sensors, in Celsius. Look at the file (you can open it in **TextWrangler**, say) to figure out the format, then write a console program that reads this data and writes out the minimum and maximum temperatures recorded by each of the two sensors.

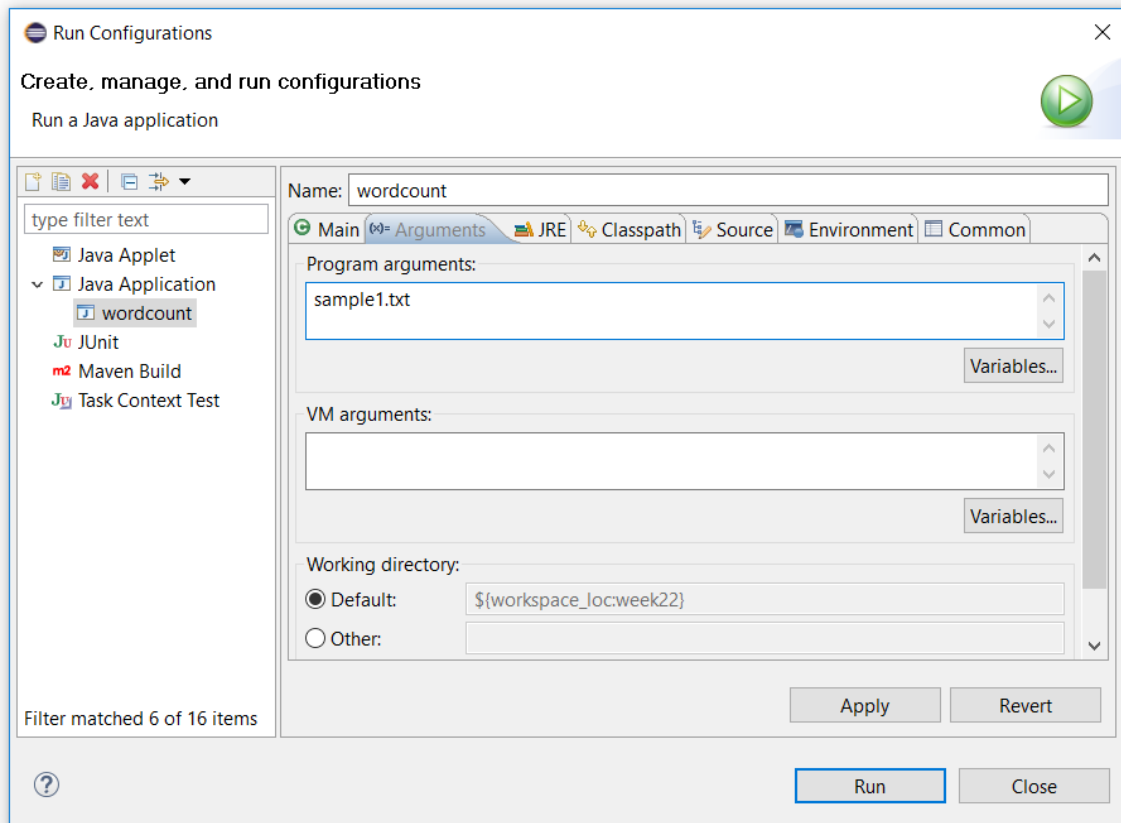


Figure 1: Eclipse Run configurations dialog

Extension Exercise

Extend your solution to Exercise2 to write out some extra statistics – the mean temperatures, and the time and date for each maximum and minimum. Then add file output: the two columns of temperatures could be output as a **comma separated values** file which could be read into Excel.