

SE 211 – Software Specification and Design II Winter 2023

Assignment #1

Create an object-oriented program (using Java) to generate a KWIC index.

The requirements are as follows:

- **Req-1:** A KWIC index is formed by sorting and aligning the words within a line to allow each word to be searchable alphabetically.
- **Req-2:** The program must read the input lines from a file. We'll refer to this file as the *inputfile*.
- **Req-3:** The program must allow the user to optionally specify using the option `-s` the name of a file which contains the words to be ignored. We'll refer to this file as the *stopwords*.
- **Req-4:** The command to execute the program should be of the form: `kwic [-s stopwords] inputfile`. Note: the square brackets are not part of the invocation command; rather, they are used to indicate that the use of `-s` is optional.
- **Req-5:** If the *inputfile* does not exist, the program should report the error message "Error: The file *inputfile* does not exist" and terminate.
- **Req-6:** If the *inputfile* exists but it is empty, the program should report the error message "Error: The file *inputfile* is empty" and terminate.
- **Req-7:** If the `-s` option has been specified and the *stopwords* file does not exist, the program should report the message "Warning: The file *stopwords* does not exist" and continue with the execution.
- **Req-8:** If the `-s` option has been specified and the *stopwords* file exists but is empty, the program should report the error message "Warning: The file *stopwords* is empty" and continue with the execution.
- **Req-9:** The format of the generated output should be similar to that shown as the "Output" on the lecture slides.

In addition to the program, you should also create a class diagram to document the design.

Please submit your program and the class diagram **via Blackboard** by Sunday, January 29, 2023, **11:59pm**.

There will be a 20-point deduction for each week of lateness.