Assignment 1: KWIC-KWAC-KWOC

For this assignment :

You will implement a KWIC (Key Word In Context) index system. You can refer to the readings available in the IVLE workbin/Readings folder.

1. "On the criteria to be used in decomposing systems into modules" by D L Parnas
2. "An Introduction to Software Architecture" by David Garlan and Mary Shaw

Choose any of the architectural designs mentioned in the case study-1 of Reading-2. Alternatively, you can modify and come up with a new design.

Implement your chosen or modified design in Java.

Submit the code and a short report on the architectural design you follow for the implementation.

Also, refer to the requirements and submission instructions given below.

Requirements

Functional

(Grading will be based on how close the implementation is to the specified design)

KWIC (Key Word In Context) index system provides a search mechanism for information in a long list of lines, such as movie titles. Given a list of titles and a list of ``words to ignore'', you are to write a program that generates a KWIC (Key Word In Context) index of the titles. In a KWIC-index, a title is listed once for each keyword that occurs in the title. The keyword cannot be in "words to ignore" and the KWIC-index is alphabetized by keyword.

For each input title, it shall be "circularly shifted" exhaustively by removing the first word and appending it at the end of the line to create a set of circularly shifted lines. The first word (not including "words to ignore") will be the keyword. The system shall output on the screen a listing of the circularly shifted lines for all input titles in ascending alphabetical order. Display the keyword in upper case and the rest in lower case.

For example, if the "words to ignore" are ["is", "the", "of", "and", "as", "a", "after"] and the titles are ["The Day after Tomorrow", "Fast and Furious", "Man of Steel"], the output should be as below.

Day after Tomorrow the
Fast and Furious
Furious Fast and
Man of Steel
Steel Man of
Tomorrow the Day After

Non-functional

The index system you implement should be:

- User friendly - the system user interface should be easy for users to use the system
- Response time - the system should respond to user's query in a reasonable time e.g. comparable to the common search engine such as Yahoo.
- Extendable - new functions can be added to the system easily without any major changes to the design of the system.

(You may add more non functional requirements. Mention them in your design document.)

Weightage

Assignment 1 is worth 5**%** of your final grade.

Due Date

30th August, Saturday, 5pm

Submission Guidelines

1. This is a paired task. Split the work between two members. Clearly identify who implements which part.
2. Submit your design (about 1-3 pages) as a single PDF file Submit a short report in the folder A1-KWIC in IVLE workbin.
3. Name the document: "`<Matric-number-1>_<Matric-number-2>_A1`" - e.g. "A0045396X_A0046342Y_A1").
4. You will be required to demonstrate your work during tutorial in week 4 of the semester.
5. Use Git repository for A1. Push your codes to the repository and add your repository URL in the above report. You can sign up for a free account at https://bitbucket.org or https://github.com. If you are not sure how to use Git, please take a look at it here or the Pro Git book.
6. We provide a report template that you can use as in the next page.

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--- report template ---
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Code Repository URL:

Name		
Matriculation Number		

1. Introduction
(up to 1 paragraph)

2. Design
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3. Limitation & Benefits of Selected Design
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