# Assignment 1: KWIC CS3219 SEM1 2016/17

**Code Repository URL:**

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# Introduction

KWIC is a way of searching for words in a sentence. Given a list of lines and a list of words to ignore, KWIC system should generate a KWIC index of the input lines. In a KWIC-index, a line is listed once for each keyword that occurs in the line. The keyword cannot be in words to ignore . Also, KWIC-index is alphabetized by keyword.

# Requirements

# The system must take in a list of sentences, and the words to ignore, and cycle through each word and populate the lines in alphabetical order. It must be able to handle a decent number of lines as input and produce a reasonably fast response time.

# Architectural Designs

# Solution 1:

Main

readInput()

circularShift()

alphabetize()

printResult()

# 

# In this design, the main program calls the 4 functions, and data is shared between them.

Main

readInput()

circularShift()

alphabetize()

printResult()

# Solution 2:

# In this design, the 4 functions are encapsulated as their own abstract data type. The red arrow represents the flow of data from each type to the other.

# 4. Limitation & Benefits of Selected Designs

**Solution 1**

**Benefits:** The code is shorter, and is ideal for small programs, as we can see all the data attributes and functions that are used in this program.

**Limitation:** As the data is shared between the functions, if the program becomes bigger, errors will be harder to trace as the same data attribute can be use and modified in several places.

**Solution 2**

**Benefits:** Each module is encapsulated in its own data type, which results in a clear and logical work flow. The code is easier to understand when it is shared with other people. Each modules do not affect one another, which results in a less tedious task of debugging.

**Limitation:** Adding new functions to modules requires modification to the modules, which can result in a more complicated code. Using ADTs results in a longer code than the traditional way.

*< add a section in case you have any other thing to list about your assignment>*