**Assignment 1: KWIC-KWAC-KWOC**

Code Repository URL: <https://github.com/KWIC-KWAC-KWOC/CS3219Program>

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1. **Introduction**

This document serves as a report on the architectural designs followed in the implementation of a KWIC (Key Word In Context) index system. Our group chose to implement the program using two designs namely *Abstract Data* and *Pipes and Filter*. After the program initialization, the user is prompted to choose the design in which he or she would like to run the program. The selection of an option will initiate the program in the chosen architectural design. Information on the design, limitation and benefits of the selected designs will be discussed in the upcoming sections.

1. **Design**
   1. **Abstract Data Type**

The implementation of KWIC using the Abstract Data Type is discussed in this part of the report. In this data type, the program is divided into 5 components. The components are able to interact and share data with one another by invoking the procedures located within them. The 5 components are master control, input, output, circular shift and alphabetic shift.

* + 1. **Master Control**

This component acts as the main controller of all the other components. It invokes each component by calling them and also is involved in passing the data between the components. After the input component acquires the titles and words to ignore from the user, these set of data needs to be passed onto the circular shift component to be processed.

* + 1. **Input**

The input component gathers the titles and words to ignore from the user and stores the information so as to pass it on to circular shift.

* + 1. **Circular Shift**

Circular shift processes the titles by shifting the words in the title to position the keyword as the first word.

* 1. **Pipes and Filter Type**

1. **Limitation & Benefits of Selected Design**
   1. **Abstract Data Type**
      1. **Limitations**
      2. **Benefits**
   2. **Pipes and Filter Type**
      1. **Limitations**
      2. **Benefits**