CSC6362 — System/Software Architecture: Summer 2005

Project 1: KWIC Software Architecture for Web-based Search Engine

Due: 5:00pm Wednesday June 22 (hardcopy in class; softcopy online)

"The important decisions in design are not what to put in but what to leave out."
Attributed to Tony Hoare by Brinch Hansen

I. Summary

As system/software architects of a renowned company, your team is to architect a simple KWIC software system and implement it, which later will be used for a web search engine. For this project, you will use an Object-Oriented architectural style, and build a Java applet, which should be accessible through your own web page.

II. The KWIC System

Functional Requirements: The KWIC (Key Word in Context) index system shall accept an ordered set of lines, where each line is an ordered set of words, and each word is an ordered set of characters. Any line shall be "circularly shifted" by repeatedly removing the first word and appending it at the end of the line. The KWIC index system shall output a listing of all circular shifts of all lines in ascending alphabetical order.

Non-Functional Requirements: The KWIC system shall be easily understandable, portable, enhanceable and reusable with good performance. The KWIC system must also be user-friendly, responsive, and adaptable.

III. The Deliverable

Your description should be elegant and comprehensible. Your deliverable should be available as both on-line (one URL per team member) and off-line specifications (submission of one copy per team):

1. **Requirements specification** The requirements specification is incomplete (e.g., where should the input come from, and the output go?). Describe any extensions, or clarifications, to the requirements specification.
2. **Architectural specification** Describe both pictorially and textually, the architectural style, components, connections, any constraints, any patterns, and as the rationale a discussion of advantages and disadvantages of your architecture. You should establish traceability between the requirements specification and the architectural design specification.
3. **Java applet specification** Your program specification, well documented and tested.

4. **User Manual** Describe how the user can access and use the system. Your description should include the addresses of your web sites where your applet (and all other deliverables) can be accessed. Also briefly describe essential scenarios — the typical interactions between the user and the system, e.g., what are the steps the user has to follow in using the system. Use screenshots to show how the system looks like initially as well as for subsequent steps that the user takes.