

# PROJECT: PHASE#3 (Advanced)

## CS 4/55231 INTERNET ENGINEERING

Spring 2004, Department of Computer Science, Kent State University  
Instructor: Javed I. Khan

Time: 3 weeks, Due Date: \_\_\_\_\_

11. (200 points) The objective of this phase is to use your web-server and client to build a simple peer-to-peer (P2P) system. For this phase of the project the first step of the assignment is to design a unified graphical user interface (GUI) that can launch both your client and server. From this GUI you should be able to (i) submit an URL to the browser (type in or drag-n-drop) and get the result back, and (ii) place a document in a new directory called PUBLIC in the servers document ROOT (type in or drag-n-drop). Design a Unified Graphical User Interface (GUI), which allows you to:
- a. Type in an URL and receive it via invoking the MINIC.
  - b. Add documents and their types, into the PUBLIC directory under local MINIS.
  - c. Design a format for *Table-of-Content* (TOC) listing the content of Local PUBLIC directory.
  - d. Add control in GUI so that the TOC can be seen from the GUI.
12. (200 points) A server in a P2P should support at least two new services in addition to the regular web services. The first is that it should be able to provide a **directory service** for documents in a shared (PUBLIC) directory. A service should be implemented with a set of METHODS and corresponding requests and responses. For example a directory service may include facilities for the exchange of TOC, search in TOC, etc. The TOC itself can be implemented as a simple HTML *mycontent.html* so that it can be exchanged as normal document. Below is an example of request and response message for supporting search:

SEARCH	SEARCH-FORMAT-VERSION	RESULT-STATUS	RESULT-FORMAT-VERSION
KW-COUNT		URL-COUNT	
KEYWORDS1:		URL1:	Score
KEYWORDS2:		URL2:	Score
...		.....	

Design a set of METHODS and corresponding messages to support search, exchange and browse operation in the PUBLIC directory with the help of TOC you have designed earlier.

13. (200 points) The second service needed in a P2P server is that they should be able to maintain a **neighborhood service**. Below is an example of neighborhood table. The table should maintain a list of servers who are its closest peer. Based on the subject it can select different peers to be its neighbors. The table can be implemented as a simple HTML file *myneighborhood.html* so that it can be exchanged as normal document. Below is an example of fields of this table:

TYPE: SUBTYPE	URL1: SCORE	URL2: SCORE	URL3: SCORE
Music: country			
Music: classical			
Paper: Activenet			
Paper: Video			

A neighborhood service should include means for maintaining and updating a table based on the success and failure of searchers redirected to other servers. Design few rules for maintaining this table and keep the score. Also design a METHOD set for exchanging, probing, and maintaining the neighborhood table.

14. (400 points) Now in this final phase improve your GUI so that (a) you can see your local neighborhood table with URL pointing to neighbors. (b) Obtain the TOC for selected neighbors, (c) obtain document from neighbors TOC.

## **SUBMISSION PROCEDURE**

Keep all your source codes under one directory. Add a makefile. Add sample files to show its operations. Now delete all binaries. Zip this directory and mail it. Add a report. This report should explain the design- including the tables, methods, request, and response formats. Include meaning of the fields.