Assessment Date:  Spring 2012

Faculty Name(s):  David Topham

1. Course Name and Number:

   CS 124 Programming With Data Structures

2. All Course SLOs from the Course Outline of Record:

   1. Apply a systematic approach to the design, construction and management of computer programs, emphasizing programming style, documentation, and debugging techniques.
   2. Demonstrate knowledge of the basic data structures of stacks, lists, trees, graphs, queues, and sets.
   3. Implement (program) these structures in their appropriate applications, such as sorting and searching.
   4. Analyze and determine which of several methods involving data structures is most appropriate for solving a particular problem.
   5. Evaluate the purpose and design of selected other data structures such as hash tables, heaps, etc.

3. Specific Course SLO(s) assessed as part of this project:

   For this assessment I placed 10 multiple choice questions within the final exam to determine how well the students could differentiate between the various data structures. ACM objective 6 is particularly relevant to this knowledge since the students need to understand the differences among the structures in regards to their performance on the computer in order to compare them.

4. Assessment strategy or tool used in the assessment. (Describe below, and if applicable copy/paste any additional related documents at end of this form (i.e. Rubric, score sheet, test questions, essay assignment, etc.):

   This course assesses students using quizzes for each topic throughout the semester, along with a dozen programming labs to strengthen the understanding of the topics, then a comprehensive final exam to allow the students to demonstrate their knowledge.

5. Specific aspects of the assessment tool which link up to specific Course SLOs being assessed (i.e. Which specific test questions measured which Course SLOs? Note: May describe with #4 above.):

   Our task is to design assessments that determine how well students meet each of these objectives. For example, SLO #2 (Demonstrate knowledge of the basic data structures of stacks, lists, trees, graphs, queues, and sets.) can be realized if objectives 1, 5, 6, 7, and 9 are met.
6. Results and analysis of the data. (Explain below and if applicably copy/paste any related documents, i.e. spreadsheets with data at the end of this document):

The results were excellent for this: 22 out of 24 students scored very well on these questions. In order to determine if the students could write about some of the structures in their own words rather than choosing answers listed, I put one question within the final asking them to compare two structures that are similar to see if they could isolate and explain the significant attributes needed to choose the right one for a particular situation. In this question asking them to compare a singly-linked list to a doubly-linked list, the performance was not as perfect, but still very good. Here 18/24 scored high, 4 showing some understanding but not enough, and 2 unable to find the important ideas at all.

7. Describe any faculty dialogue that occurred as part of the assessment process (i.e. Were results shared at a department meeting? Was there discussion about changing any SLOs? Etc.):

This course will be taught by a different instructor for the next few years (Xisheng Fang), so we discussed strategies to increase students success at meeting these objectives.

8. Next steps (i.e. any planned revisions to curriculum or teaching strategies to promote student success, future assessment plans, etc.):

This is the first assessment of this course, and since objective 6 was successful, I will plan additional assessments of other objectives the next time the course it taught (It is a spring-only offering currently)

9. Results of implemented changes, if available at this time:

N/A (yet)

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