

THE DESIGN AND DEVELOPMENT OF DYNAMIC INTERACTIVE VISUALIZATION TOOL IN TEACHING DATA STRUCTURE (DIVTIDS)

Chansilp, K. & Mukviboonthai, S.

School of Computer Engineering, Suranaree University of Technology,
111 University Avenue, Nakhon Ratchasima 30000, THAILAND

Abstract

After the promising result from the experiment of using the Dynamic Interactive Visualization Tool in teaching C (DIVTIC), which was developed as an alternative teaching approach, based on constructivist learning principles, and multimedia technologies [1, 2], the conceptual framework of the Dynamic Interactive Visualization Tool in teaching Data Structure (DIVTIDS) had been consecutively constructed to enhance students' learning in the Data Structure course [3].

Data Structure is one of the core courses for computer engineering and computer science students. This course causes troubles to students because the contents are complex and abstract. The course relates to how to program efficiently by applying various types of appropriate abstract structures, for example, linked list, stack, queue, tree, graph, etc. The findings of DIVTIC signal that the concept of visual imagery of DIVTIC would help students enhance their visualization in learning Data Structure.

Therefore, this paper describes the design and development of the Dynamic Interactive Visualization Tool in teaching Data Structure (DIVTIDS). DIVTIDS was designed around DIVTIC, constructivist principles, and collaborative and visualization learning strategies with use of the Internet to support the learning of abstract structures. Furthermore, each kind of structure will be represented graphically and animatedly along with the concept of DIVTIC.

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