

Tablet PC Software Development

<http://www.cs.clemson.edu/~pargas/tabletpc>

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Objective:

To develop a new course entitled *CPSC 481/681: Tablet PC Software Development*, for senior undergraduate and first-year graduate computer science students.

- CPSC 481/681 teaches both undergraduate and graduate students the skills necessary to develop exciting and useful Tablet PC software.
- The software developed will provide new instructional material targeting an existing laptop-enhanced course being taught at Clemson University.

Laptop-Enhanced Course:

In a laptop-enhanced course, each student comes to class with a laptop equipped with wireless access to the Internet. At Clemson, these laptop-enhanced courses are being taught by instructors (from many different disciplines) who are experimenting with novel pedagogical techniques in an attempt to use technology, i.e., laptop or tablet PCs, to deliver course content more effectively.

The Tablet PC software produced by *CPSC 481/681* students will *supplement the material* currently being used in selected laptop-enhanced courses.

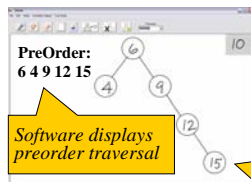
CPSC 481/681

Provides new instructional material for

Target Laptop-Enhanced Course

Initial Target (fall 2005)
CS2/CS4: Data Structures

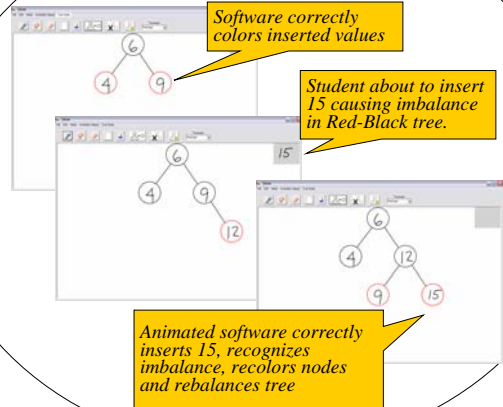
Binary Search Trees (CS2)



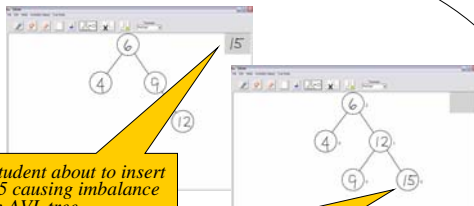
Student has entered several values into tree; about to insert value 10.

Animated software inserts values correctly into binary search tree

Red-Black Trees (CS4)



AVL Trees (CS4)



Candidate data structures and algorithms:
binary heap, skew heap, leftist heap, binomial queue, hash tables, sorting algorithms, graphs algorithms
Dijkstra's algorithm, Prim's algorithm, Kruskal's algorithm, depth-first search, breadth-first search

Project Deliverables

Syllabus for course, webpage	September 2005
End of semester report, data structure algorithms (first draft)	December 2005
Data structure algorithms (final)	June 2006
Source code, papers, final reports	August 2006
Project complete	December 2006

Acknowledgements

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Possible Future Target Courses (and example animated algorithms)

Computer Organization (register-transfer, memory cycle, fetch-execute cycle, ...)

Computer Theory (finite-state automaton, push-down automaton, ...)

Non-CS courses: Introduction to Russian, Programming Using MATLAB