CSCE 531 Spring 2010

Beginning of Course Questionnaire

Tuesday 10-01-12

The bulletin description of this course is: 531-Compiler Construction. (3) (Prereq: CSCE 240) Techniques for design and implementation of compilers, including lexical analysis, parsing, syntax-directed translation, and symbol table management.

1. What do you expect to learn from this course?

2. The bulletin description of CSCE 240 is: CSCE 240-Introduction to Software Engineering (3) (Prereq: CSCE 215, grade of C or better in CSCE 146) Fundamentals of software design and development; software implementation strategies; object-oriented design techniques; ethics in software development.

   Did you take CSCE 330? If yes, what was your grade? If not, are a graduate student? Did you take a similar course?

3. The bulletin description of CSCE 330 is: 330-Programming Language Structures. (3) (Prereq: CSCE 240, MATH 374) Formal specification of syntax and semantics; structure of algorithms; list processing and string manipulation languages; statement types, control structures, and interfacing procedures.

   Did you take CSCE 330 or a similar course? If yes, what was your grade?

4. The bulletin description of CSCE 355 is: 355-Foundations of Computation. (3) (Prereq: CSCE 211, 212, 350) Basic theoretical principles of computing as modeled by formal languages, grammars, and machines; fundamental limits of computation. Did you take CSCE 355 or a similar course? If yes, what was your grade?

5. The bulletin description of CSCE 245 is: 245-Object-Oriented Programming Techniques. (3) (Prereq: grade of C or higher in CSCE 146) Advanced object-oriented concepts and techniques; multiple inheritance; memory management; operator overloading; polymorphism; performance issues.

   Did you take CSCE 245? If yes, what was your grade? If not, are a graduate student? Did you take a similar course?

6. The bulletin description of CSCE 350 is: CSCE 350 - Data Structures and Algorithms, Credits: 3, Techniques for representing and processing information, including the use of lists, trees, and graphs; analysis of algorithms; sorting, searching, and hashing techniques. Prerequisites: CSCE 146, MATH 374

   Did you take CSCE 350? If yes, what was your grade? If not, are you a graduate student? Did you take a similar course?

7. Define *undirected graph.* **Answer:** "An undirected graph G = (V,E) is a set V of vertices and a set E of edges. Each edge is a two-element set of distinct vertices" [Kingston, 1990]. This definition prohibits self-loops and parallel edges. Example: V = {a,b,c,d}, E = {{a,c}, {c,d}, {a,d}}.

8. What is a binary search tree? **Answer:** "A binary search tree is a binary trees of items (ordinarily called keys), that come from an ordered set, such that: (1) each node contains one key; (2) the keys in the left subtree of a given node are less than or equal to the key in that node; (3) the keys in the right subtree of a given node are greater than or equal to the key in that node" [Neapolitan and Naimipour, 2004]. "In this well known implementation of the ordered symbol table ADT, the entries are stored, one per node, in a binary trtee. The keys obey the *binary search tree invariant*: the key of any node is greated than the keys of all nodes in its left subtree, and less than the keys of all the nodes in the right subtree" [Kingston, 1990]. A symbol table ADT is a set of entries, each with a key and a value, and operations: new, keyOf, valueOf, Update (on isolated entries), and Initialize, Insert, Delete, and Retrieve (on a whole table). A symbol table defines a mapping (function) from keys to values. Additional operations are: RetrieveMin and RetrieveNext. A symbol table with the last two operations is an ordered symbol table.

9. If p is false and q is true, $p \Rightarrow q$ is false. True or false? **Answer:** False: $p \Rightarrow q$ is true if p is false. Draw the truth table; recall that it is the same as the truth table of ((NOT p) OR q).