CSI 35 LECTURE NOTES (Ojakian)

Topic 15: Tree Basics

OUTLINE

(References: Finan: Ch7, Rosen: 11.1)

1. Tree Definitions
2. Rooted Trees

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1. Trees: Equivalent Definitions

   In all cases, n = number of vertices

   (a) Connected and acyclic.
   (b) Connected and $n-1$ edges.
   (c) Acyclic and $n-1$ edges.
   (d) There is a unique path between any two vertices.

2. General Terminology

   (a) Leaves.
   (b) Internal vertices.

3. Rooted Tree

   (a) Root, parents, children
   (b) Binary trees (each vertex has at most 2 children). Full - 2 children or none.
   (c) Subtree at a root
   (d) Ordered: if for each parent, its children are in a linear order.

4. Exercises

   Section 11.1: 1 - 4, 7 - 13, 16 - 17.