University of Illinois at Urbana-Champaign
Dept. of Electrical and Computer Engineering

ECE 220: Computer Systems & Programming

Pyramid Tree I/O Example

Use Pyramid Trees to Write Output and Input Examples

Let's do an I/O example using pyramid trees.

Here's what we'll do:
- write a tree as **ASCII**
- write a tree as binary
- compare the two files, and
- rebuild a tree from the binary file.

Then, as a think-pair-share, you can rebuild a tree from the **ASCII** file.

Pyramid Tree Nodes Consist of Four Fields

Recall the pyramid tree node structure:

```
struct pyr_node_t {
    int32_t x;
    int32_t y_left;
    int32_t y_right;
    int32_t id;
};
```

x and y splitters (internal nodes) or position (leaf nodes)

graph vertex array index (leaf nodes)

Pyramid Tree is a Number and an Array of Nodes

And the pyramid tree:

```
struct pyr_tree_t {
    int32_t     n_nodes;
    pyr_node_t* node;
};
```

number of nodes in pyramid tree

array of nodes

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