

CS61A Discussion 5: **Trees and Mutation**

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Attendance

Form: **tinyurl.com/jerrydisc**

No need to submit the quiz.

Weekly question is:

Let me know that you filled out the discussion feedback (and lab feedback!).

Agenda

1. Week in Review
2. Midterm thoughts
3. Trees
4. List Mutation
5. Dictionaries

Week In Review

Hw3 due Friday!

Maps due 3/1!

- Start early!
- (Remember, February has 29 days this year)

Midterm regrades are due soon.

Midterm 1...

Was tough!

One test **does not** define who you are and/or whether or not you'll be successful in CS

Also, thanks for remembering your TA's name :)

Common Mistakes

1. Incorrect **domain** or **range**

- **Domain** - types of acceptable inputs
- **Range** - types of expected outputs

Common Mistakes

2. HOFs — **names** vs **evaluation**

- For example: print is a <Function>

Common Mistakes

3. Various environment diagram mistakes

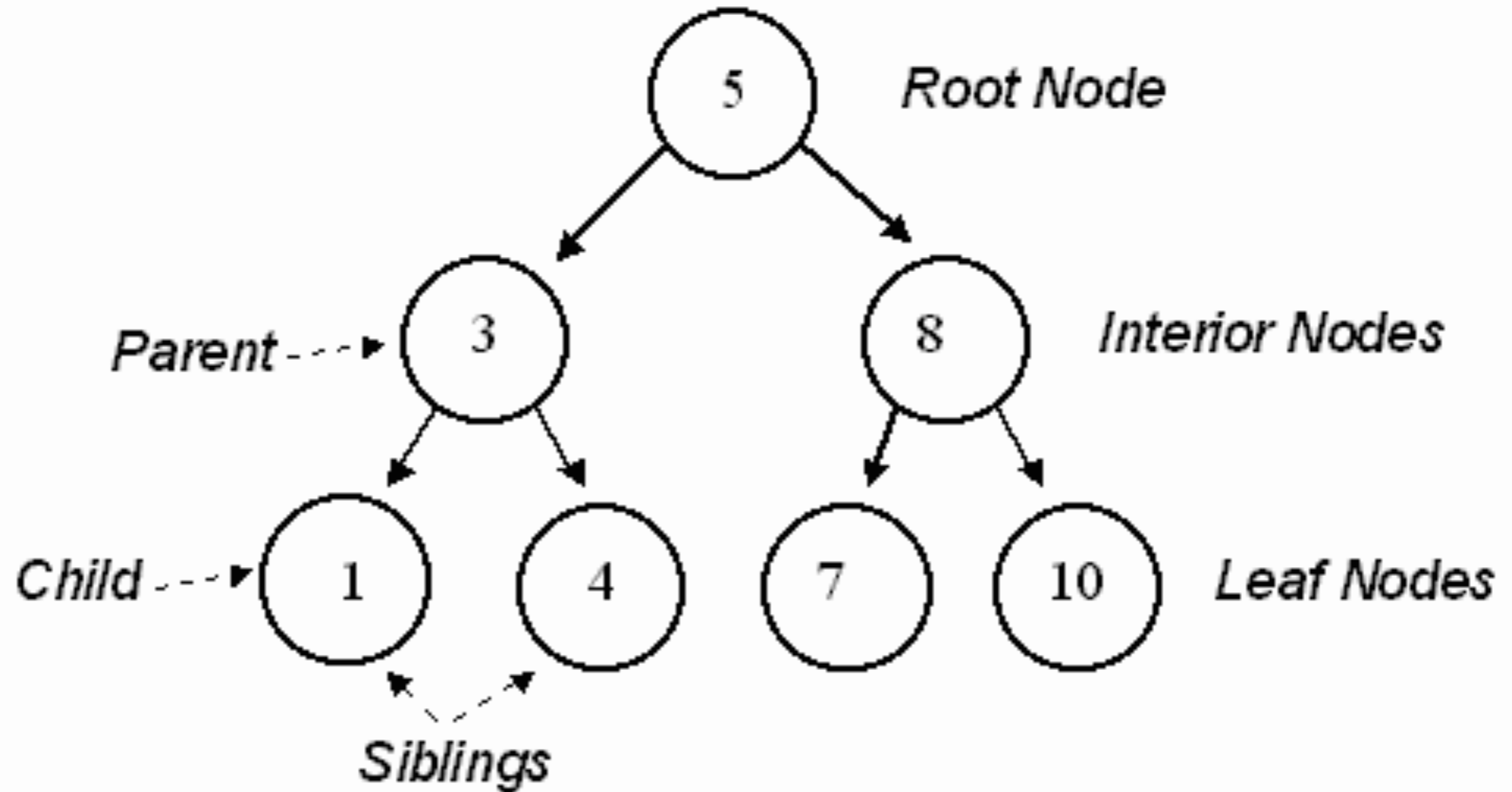
- Practice!

Trees

Recursive data structure

- **Nodes** are tree elements (think items in a linked list)
- **Root** of a tree is the top node
- Most nodes have a **parent** and **children** (hierarchy)
- **Leaves** are nodes without children

Trees



Trees

Constructor: `tree(label, children=[])`

Selectors: `label(t)`, `children(t)`,
`is_leaf(t)`

List Mutation

Recap

- Static lists are great, but boring
- Would like to modify our existing lists

List Mutation

Tools

- `lst.append(x)` will add `x` to the end of `lst`
 - `lst += [x]` will do the same thing
- `lst[0] = x` will assign `x` to `lst[0]`
- `lst = lst + [x]` will also append `x` to a **copy of** `lst`
- Read worksheet for more info

Dictionaries

Recap

- Stores **(key, value)** pairs
- Iterate over keys using a for loop:

```
for k in dictionary:
```

```
...
```

Dictionaries

Tools

```
words = {'one': 1, 'two': 2} #  
initialize with values
```

```
words['three'] = 3 # Add new key value  
pair
```

```
words['one'] = 11 # Modify existing  
value for key
```