Instructor Interface

Student Activities Demo

1. Student machines receive copy of instructor slides
2. Students complete the activity by annotating slides with ink or text
3. Students submit their responses to the instructor

Student Attention vs. Time

```c++
void Graph::kruskal()
{
    int edgesAccepted = 0;
    DisjSet s(NUM_VERTICES);

    while (edgesAccepted < NUM_VERTICES - 1){
        e = smallest weight edge not deleted yet;
        // edge e = (u, v)
        uset = s.find(u);
        vset = s.find(v);
        if (uset != vset){
            edgesAccepted++;
            s.unionSets(uset, vset);
        }
    }
}
```

Draw a picture of something from your field of engineering:

To submit your picture, press the button

Find the Runtime of Kruskal's
Highlight the Minimum Spanning Tree (MST) (use Kruskal’s Algorithm)

• Now find the MST using Prim’s method.
• Under what conditions will these methods give the same result?

Do a Radix Sort
Values to Sort: 126, 328, 636, 341, 416, 131, 328

BucketSort on least significant digit:

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

BucketSort on next-higher digit:

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

BucketSort on most significant digit:

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

Fill in the Runtimes of Dictionary Implementations

<table>
<thead>
<tr>
<th></th>
<th>Unsorted linked list</th>
<th>Sorted Array</th>
<th>Binary Search Tree</th>
<th>AVL Tree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insert</td>
<td></td>
<td></td>
<td>O(log N)</td>
<td></td>
</tr>
<tr>
<td>Find</td>
<td>O(N)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delete</td>
<td></td>
<td>O(N)</td>
<td>O(log N)</td>
<td></td>
</tr>
</tbody>
</table>

Reading Pipeline Diagrams

1. What cycle is the “add” instruction being fetched in?
2. What is the last cycle where the “or” instruction is active?
3. What happens in cycle 4?

Pedagogical Goals

- Active learning
- Classroom Assessment
  - Determine level of understanding to adjust material
  - Inclusion of student materials into discussion
    - Diversity of ideas
    - Examples to illustrate points
    - Discussion of misconceptions

Build the Perfect Coffee Cup

List three desirable properties:

1.
2.
3.
Quick Poll

What is your favorite animal?
A. dog
B. cat
C. dragon
D. manatee

Thank You!

For latest downloads, source code, papers, presentations, mailing list:
http://classroompresenter.cs.washington.edu/

Richard Anderson
(anderson@cs.washington.edu)

Ruth Anderson
(rea@cs.washington.edu)