Operating Systems

Handy Tools

Handy Tool: Dllist

- Read interface in dllist.h
- Each node has a val, which is a Jval. Each node also has a key
  - See jval.h for Jval details
- Interfaces:
  - dll_append(Dllist, Jval);
  - dll_prepend(Dllist, Jval);
  - dll_insert_b(Dllist, Jval);
  - dll_insert_a(Dllist, Jval);
  - dll_delete_node(Dllist);
  - int dll_empty(Dllist);

Handy Tool: JRB

- JRB is an implementation of Red-Black trees, which are based on balanced binary trees
  - Operations take O(log(n)) time
- Create a tree with make_jrb() which returns a pointer to the header node in an empty tree
- Like the Dllist, each node has a val, which is a Jval. Each node also has a key
- For integers, you can insert using jrb_insert_int(JRB tree, int key, Jval val);
  - Returns a JRB (pointer to the new node)

JRB

- The macros **jrb_first()**, **jrb_last()**, **jrb_prev()** and **jrb_next()**
  - work just like their counterparts in Dllist
- **jrb_find_int()** to find a key
  - Returns a JRB node or NULL
- **jrb_delete_node(JRB node);**