CMPT 280

Topic 14: Dictionaries

Mark G. Eramian

University of Saskatchewan

References

- Textbook, Chapter 14

Dictionaries vs. Dispensers

Reading Roundup

- How are (non-keyed) dictionaries different from dispensers?

Dictionaries vs. Dispensers

Reading Roundup

- How are (non-keyed) dictionaries different from dispensers?
  - Additional operations (obtain(x), delete(x))
  - Linear iterator (accessable cursor).

Dictionaries vs. Dispensers

Reading Roundup

A *dictionary* is a searchable dispenser that supports the following additional operations:

- `obtain(x)` — get the item that matches item x
- `delete(x)` — delete the item that matches item x
- `insert(x)` — insert the item x into the container

and allows arbitrary manipulation of the cursor.

Exercise 1

Keyed Items

Modify this class so that it can be a *keyed data item* for lib280.

```
1 public class Treasure {
2       String name;          // name of treasure item
3       float goldValue;      // gold value of treasure item
4       String description; // detailed item description
5
6       // Accessors, mutators, constructors, etc. ...
7 }
```

Keyed Dictionaries

Reading Roundup

- What is the main advantage of keyed dictionaries over non-keyed dictionaries?

Keyed Dictionaries

Reading Roundup

- What is the main advantage of keyed dictionaries over non-keyed dictionaries?
    - Searches, retrievals, and deletions can be performed given only an item's key, rather than the entire item.

Dictionaries vs. Dispensers

Reading Roundup

Keyed dictionaries have all of the operations that a (non-keyed) dictionary has, plus the following additional operations which take advantage of the fact that all items have a key:

- `obtain(k)` — get the entire item that has key k
- `delete(k)` — remove from the container the item that has key k
- `has(k)` — test whether the container has an item with key k
- `search(k)` — position the cursor at the item with key k
- `setItem(x)` — If the item at the cursor and x have the same key, replace the item at the cursor with x.

Next Class

- Next class reading: Chapter 15: Hash Tables