

# 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 (accessible 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