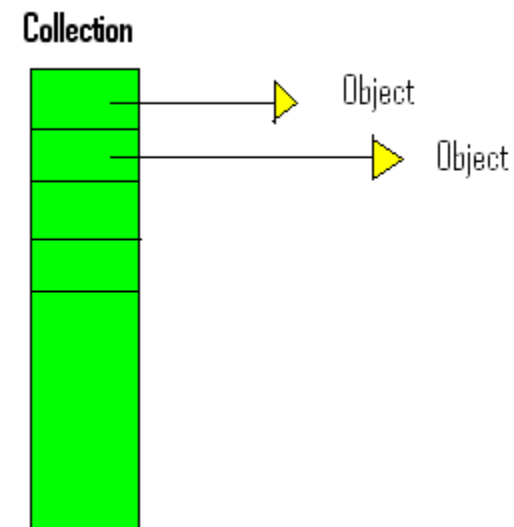
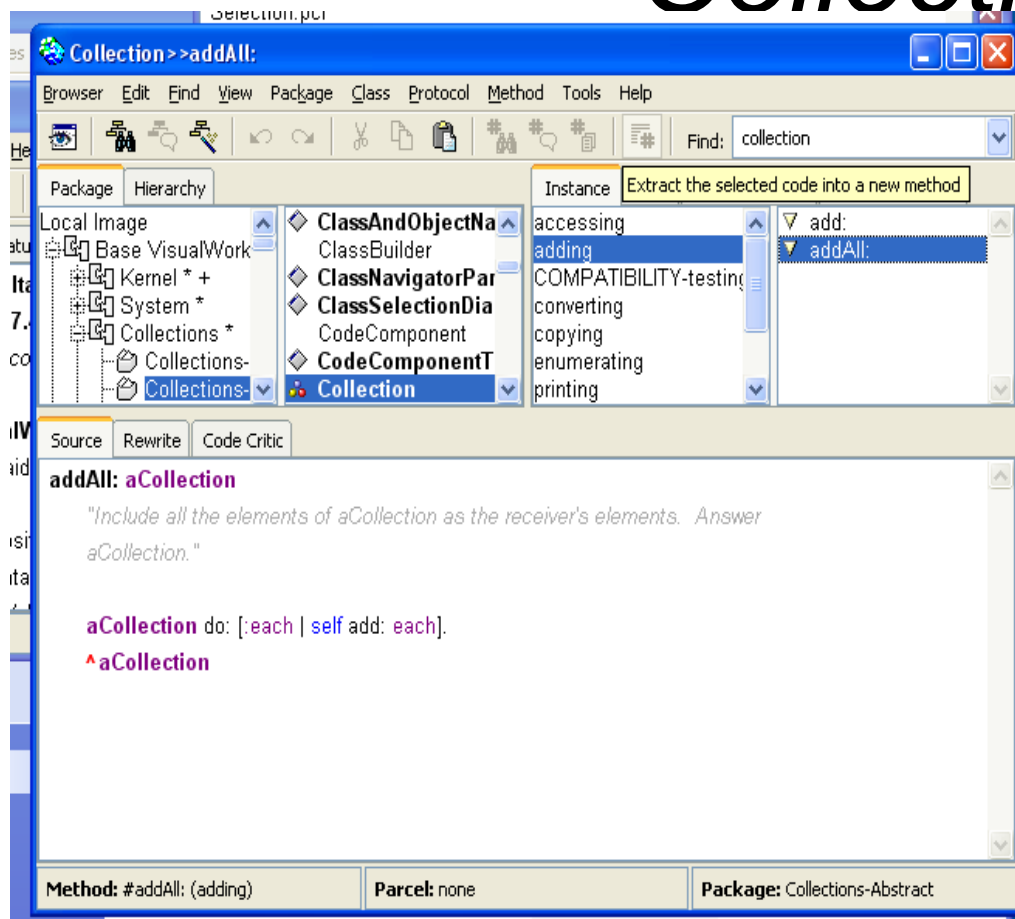


Individual Case Collections



Mohamed Elasmr

By: Mohamed Elasmr

What are collections???

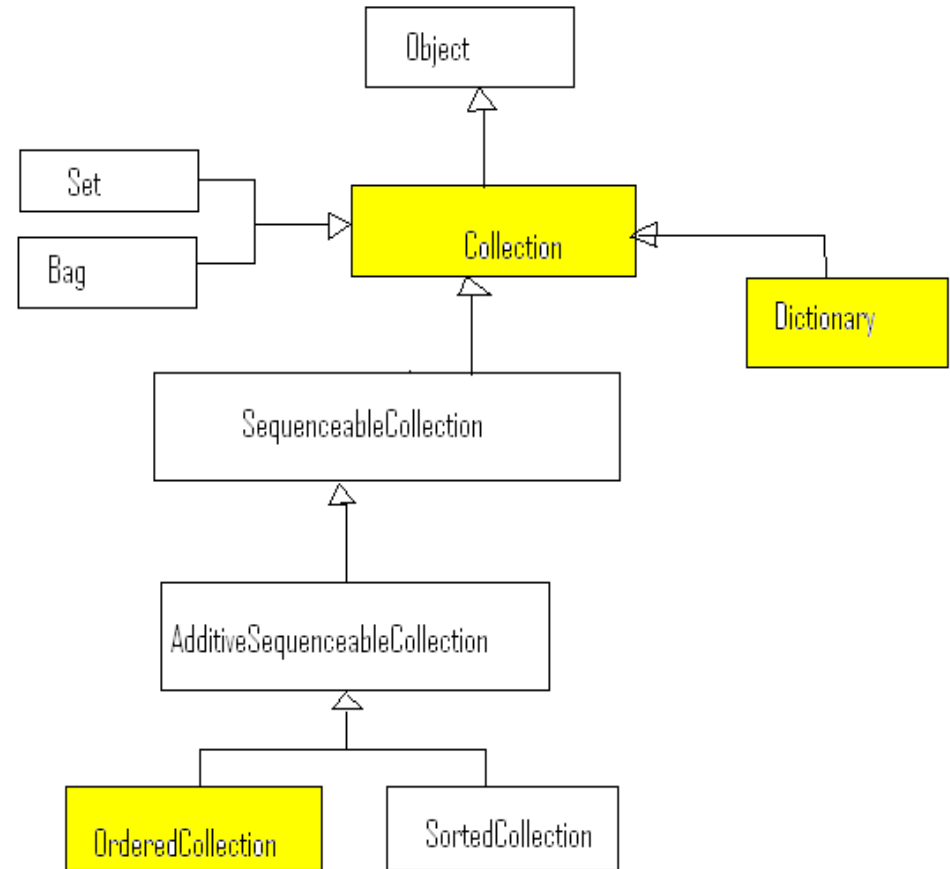
- Collections hold objects and provide protocol for enumerating through the held objects.
- Collections are organized in several ways:
 - Fixed size, expendable.
 - Indexed or not indexed.
 - Indexed by explicit or implicit keys
 - One kind of object or varied kinds of objects
 - Ordering to the elements exists (such as an index), or no ordering.

Why Collections?

- You can't write smalltalk code without using Collections.
- It gave me more trouble in the project than any other smalltalk feature.
- The easiest among all collection's subclasses is OrderedCollection.
- OrderedCollection keeps track of the sequence of the elements.

Things you need to know.

- Collection Class UML
- In Yellow are my favorites
- All methods in collection are inherited by its subclasses.....



Collection Messages (Methods)

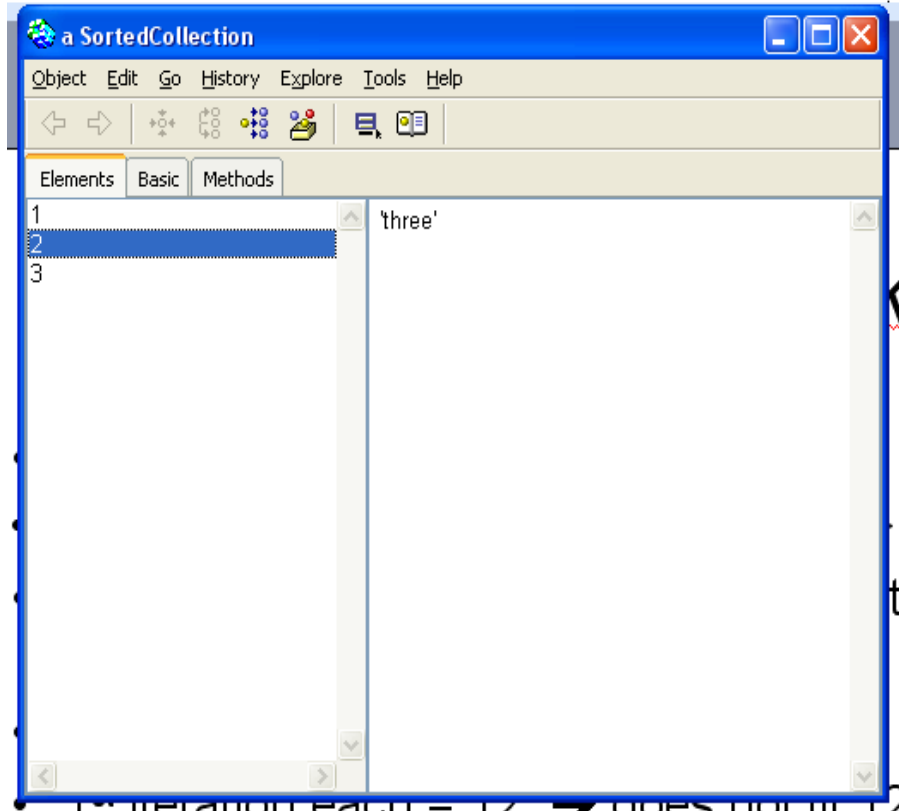
- new / new:
- size / capacity
- add: / addAll:
- isEmpty
- with: / with: with:
- withAll:
- add: / do: / remove:
- First / last
- at: put:
- ... you can look up the rest

```
(OrderedCollection with: 'CS2340' with: 'CS4440' with: 'CS3550') size. 3
```

```
| myCollection |  
myCollection := OrderedCollection new.  
myCollection add: 'CS2340'.  
myCollection add: 'CS2340'.  
myCollection add: 'CS2340'.  
myCollection at: 3 put: 'CS1510'.  
myCollection last. 'CS1510'
```

SortedCollection

- |mine|
- mine := SortedCollection sortBlock: [:a :b | a >= b].
- mine add: 'one'.
- mine add: 'two'.
- mine add: 'three'.
- mine inspect.



detect: aBlock

- Input aCollection outputs oneElement
- # (12 23 56 9 8 78) detect: [:each | each > 50] outputs 56
- The message detect returns 1st element that fits descriptions.
- Each is the element in each iteration.
- 1st iteration each = 12 → does not fit 12 > 50
- 2nd iteration each = 23 → does not fit 23 > 50
- 3rd iteration each = 56 → 56 > 50 true
- Return 56 and exit

select: aBlock
reject: aBlock

- 'I loved cs2340' select: [: each | each isVowel]. outputs 'Ioe'
- Returns a subset of all elements that fit the descriptions
- 'now is the time' reject: [:each | each isVowel] 'nw s th tm'
- Returns a subset of all elements that do not fit the condition
- You need to know only one, you can always get both results by using only reject or select.

collect: aBlock

- `#('now' 'is' 'the' 'time' 123) collect: [:each | each isString]`
 `#(true true true true false)`
- This message does two things:
 1. creates a new collection with same size as receiver.
 2. return the new created collection.

the elements of the new collection are the results of the condition in the block.

Advices to CS2340 students

- Go to VisualWorks and look at the collection class and all the messages/methods that are already offered.
- No way you will need a new message than the ones offered by VisualWorks, so make a good use of them.
- If you know how two or three subclasses of collection work you won't need the rest.