



Computing & Information Sciences
FLORIDA INTERNATIONAL UNIVERSITY

Mobile Application Development

lecture8

Fall 2011 - COP 4655 U1

T/R 5:00 - 6:15pm – ECS 134

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Agenda

- AutoRelease Pool
- Reference Counting
- Programming Assignment: Address Book



AutoRelease Pool

- Used to track objects and dispose of their assigned memory.
- Programmer's responsibility to discard unneeded object memory.
- Any time you alloc, new, or copy an object you are responsible to release it.

Using NSAutoReleasePool

- To discard an object, add it to the AutoReleasePool:

```
[myCar autorelease];
```

- Object will not release unless you explicitly release it before it reaches [pool drain].

Example

```
NSAutoreleasePool * pool = [[NSAutoreleasePool alloc] init];
```

```
Fraction * myFraction = [[Fraction alloc] init];
```

```
{... work with object ...}
```

```
[myFraction autorelease];
```

```
[pool drain];
```

- Once the “pool” is sent the message “drained” objects memory is dealloc’d.
- Note: objects that are created by certain Foundation classes are automatically tracked by NSAutorelease pool.

Static Analysis in Xcode

- Executes code path to find logic errors.

Find

- Potential memory leaks
- Dead stores: variables assigned but never read
- Uninitialized variables.

Many pools

- You can have more than one pool
- Pools can be nested according to scope
- Eg., you have a method that creates series of large temporary objects. Create a pool before the alloc of the object then drain pool as soon as these objects are unneeded

Reference Counting

- Track the number of references to an object so that the object is dealloc'd only when the count is 0.
- When an object is created its reference count is 1.
- Every time you need to ensure the object is available send the object “retain” message.
- When you no longer need the object send the message “release”.
- When reference count reaches 0 system dealloc's.

release vs. autorelease

- Use release when you know there can be no other need for the object. (Can be dealloc'd at anytime by runtime system)
- Use autorelease defer dereferencing until pool is drained. Important to use for UI elements.

Lab Assignment #3

- Enter and run examples 17.1 and 17.6
- Comment out auto/release keywords and use Analyse to find memory issues.

Programming Assignment #4

Build an Address Book Application for the iPad
Individual Assignment, no teams.

- Enter a new card that contains first, last, middle, full address, phone, and email.
- After every new card is added, sort and list cards by last, first name.
- Select a card from the list and display/edit
- Store and display a maximum of five cards.
- Due Tues. Oct. 18th 11pm.

Readings

- <http://developer.apple.com/library/mac/#documentation/cocoa/Conceptual/MemoryMgmt/Articles/MemoryMgmt.html>
- <http://developer.apple.com/library/mac/#featuredarticles/StaticAnalysis/FeaturedArticle.html>
- Chapter 17