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XAM370 Performance and Memory Management

- Lecture will begin soon
- Please download the course materials from **http://university.xamarin.com**
- Please join the conversation as we wait for the course to begin

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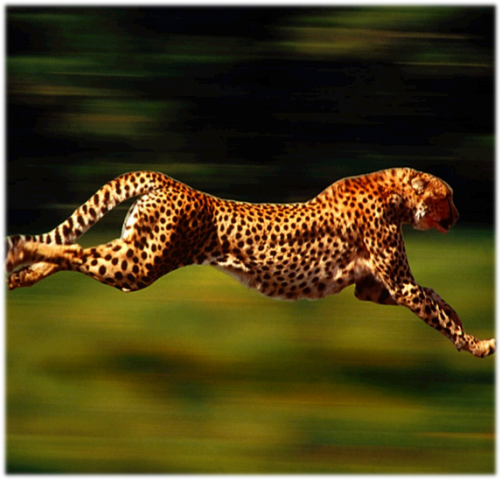
Performance Thoughts

- Don't abuse the UI thread
- Think about the Garbage Collector
- Use the right build settings
- Know about the SDK tools available
- Always test on physical devices



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Lab 1

Async Execution, or how to keep your app responsive

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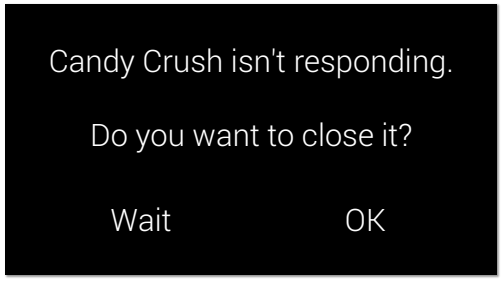
Async Execution

- Avoid putting non-UI related work on the UI thread
- Event handlers and method overrides should return as soon as possible so the UI remains responsive or bad things happen



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Module Objectives

- Use Async / Await and Tasks

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Lab Summary

- Use Async / Await and Tasks

QUESTIONS?

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Lab 2

Memory and Garbage Collection

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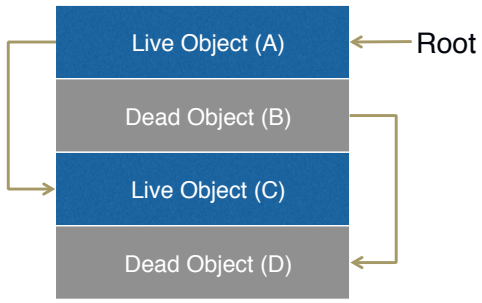
Garbage Collection

- Garbage Collection is used to manage your memory in your application
- Mapped on top of the platform memory management
- iOS has two choices – prefer **sgen** over default



Before GC

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Garbage Collection

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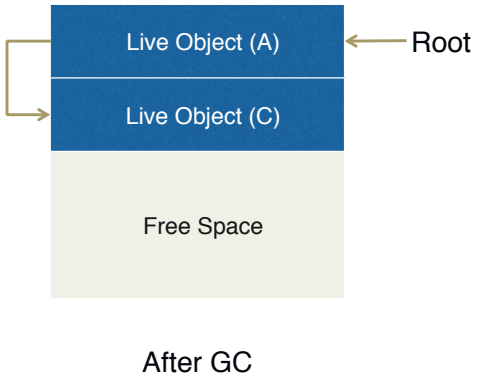

Be GC friendly

- Dispose objects that hold native resources and objects that wrap scarce resources
- Beware of event handlers – they can keep subscribed objects alive
- Beware of immortal objects in iOS due to strong references

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Module Objectives

- Using Dispose
- Dealing with strong ref cycles

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Lab Summary

- Using Dispose
- Dealing with strong ref cycles

QUESTIONS?

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Lab 3

Diagnosing iOS Performance

iOS Performance Tips

- Beware: Simulator vs. Device differences
- Load Table/Collection Views with maximum dataset and stress test
- Use Instruments Performance Monitor
- For top native tips, check out: http://www.raywenderlich.com/31166/25-ios-app-performance-tips-tricks

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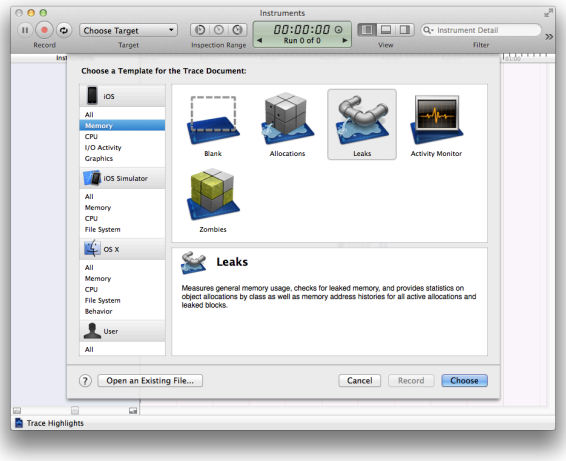
Module Objectives

- UITableView performance
- Using Instruments



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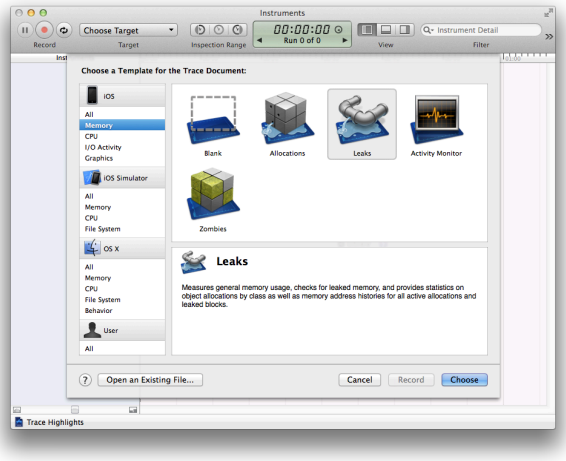
Lab Summary

- UITableView performance
- Using Instruments

QUESTIONS?



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Lab 4

Diagnosing Android Performance

Android Performance Tips

- Device Developer Options are your friend!
- Avoid nested layout if you can – prefer RelativeLayout over nested LinearLayout containers, use Hierarchy Viewer to diagnose
- Watch out for ListView performance issues
- Traceview SDK tool can provide profiling information
- For more tips for native Android see http://developer.android.com/training/articles/perf-tips.html

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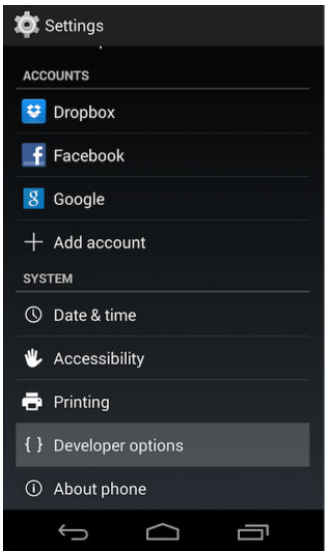
Module Objectives

- ListView Performance
- Using Android Device Monitor
- Device Developer Options



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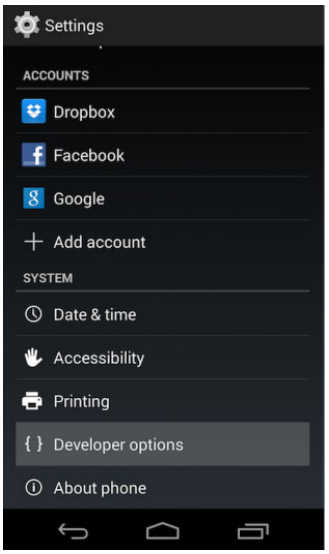
Lab Summary

- ListView Performance
- Using Android Device Monitor
- Device Developer Options

QUESTIONS?



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Additional Resources

http://docs.xamarin.com/guides/cross-platform/application_fundamentals/memory_perf_best_practices/

Android Guidance: **http://bit.ly/1b2J2tA**

Apple Guidance: **http://bit.ly/1eWxKrL**

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XAM370 – Performance and Memory Management

Thank You

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