

# CSSE 220 Day 28

Multithreading

Checkout *Multithreading* project from SVN

# Questions

# The World is Concurrent

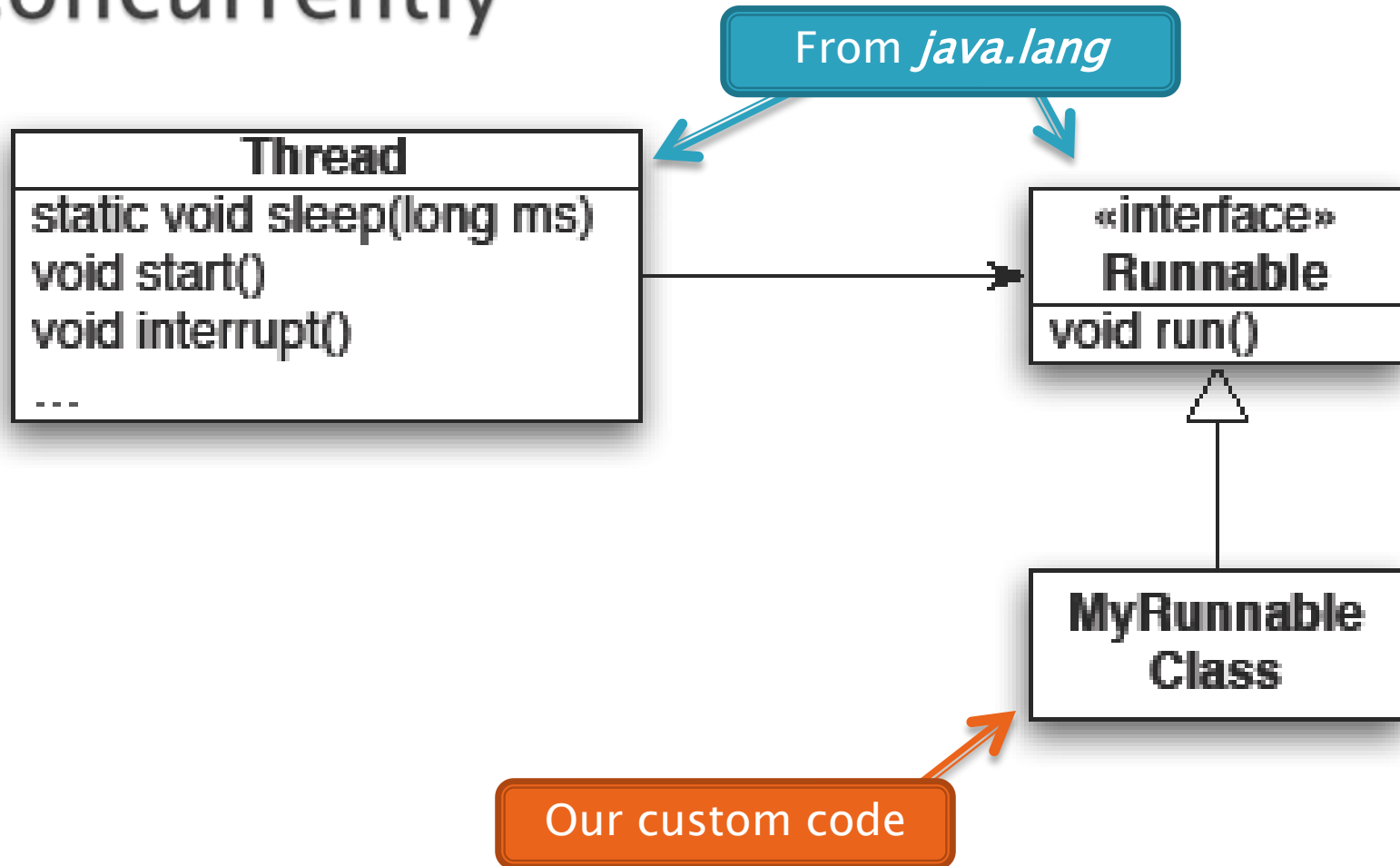
»» Joe Armstrong,  
*Programming in Erlang*

# Multithreading

- ▶ A technique to:
  - Run multiple pieces of code “simultaneously” on a single machine
  - Run different parts of a program on different processor cores

Time → Slices	1	2	3	4	5	6	7	8	9	10	11	12	13	14
running thread 1	█	█	□	█	□	□	□	█	□	█	□	□	█	█
running thread 2	□	□	█	□	█	█	█	□	█	□	█	█	□	□

# Running Our Own Code Concurrently




# Animation with Threads


- ▶ Use separate thread for each object's "brain"
- ▶ Another thread asks Java to update the GUI



# Other Uses for Threads

- ▶ Web servers: many users connecting
  - ▶ Desktop applications:
    - layout, spellchecking, auto-save, ...
  - ▶ Scientific computing
  - ▶ Weather forecasting
  - ▶ ...
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# Next Time

- ▶ Vector Graphics team presentations
  - ▶ Using threads for game programming
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# Markov Chaining

»» Work time