The Job-Shop and Simulation Software

1-26-2011

Opening Discussion

- What did we talk about last class?
- Stats as sequences of values.

Code

- Let's finish our multiserver queue code. We have a problem right now, in part because of the "Scala way". We need to fix it.

The Job-Shop

- Imagine a manufacturing system that has multiple stations, each of which has one or more machines that can do the work required at that station.

- Products would move from one station to the next.

- It is basically a sequence of multiserver queues.

Software Packages

- Simulation software packages have certain advantages and disadvantages compared to general purpose programming languages.

- Advantages

  - Less programming required, natural framework, easier to modify, better error detection

- Disadvantages

  - Learning curve, speed, flexibility, costs

General-Purpose vs. Application-Oriented

- Simulation languages and application-oriented simulators have merged over time.

- The main distinction now is one of flexibility.

- Event-driven languages

Process Approach

- Instead of thinking of the simulation as just events, you can think of it as processes.

- A process follows an entity through the system.

- A process has multiple entry and exit points for when the entity is waiting, generally on some queue.

OO Simulation

- OO programming was born from simulation.

- Tracking entities as objects and using the process style approach could have certain benefits to it in an OO based system.

- One advantage might be that we could reuse certain constructs more.

Minute Essay

- What questions do you have about the code that we have written to date?

- The first quiz is on Friday.