

Design and Model Analysis

Robert Holt – 388648

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In general the model reflects the structure of the scenario that it attempts to simulate, with relative accuracy balanced with simplicity; every class corresponds either to physically relevant component in the system, is a strategy, or is the mail generator – which simulates an external input. Small critiques of the model are discussed below.

Building Central to Domain Model

The concept of a building is central to the simulation's domain model. The simulation API currently accepts parameters specifying building but gives the building no object instance. Rather than this, a Building class – along with a BuildingFactory – might be appropriate, so that:

- Rather than be concerned about integer arguments specifying building parameters, the Simulation can simply accept a building to simulate mail with
- Rather than store a large number of integer constants at the top level (under Simulation), they could be stored in relevant building subclasses to be generated by the Factory
- Supporting additional commandline arguments is easier to both add and read with a factory

Real World Concurrency

The simulation models concurrency as interleaved steps between the MailSorter and the DeliveryBots. Concurrent mail delivery in reality involves independent agents. So where the simulation limits the actions of a DeliveryBot based on the MailSorter, a real delivery bot might be free to deliver mail while the mailsorter is stopped.

Since the simulation measures a DeliveryBot's effectiveness by the number of steps it takes, and the number of steps is based on the MailSorter, the simulation will artificially favor certain strategies and overlook others that might work better in a real office building.

Logging

The logging and printing logic is dispersed throughout the top level Simulation method that governs the entire simulation. An improvement would be to add a Logger that collects information as the simulation runs and prints it at the end, so that the program is more extensible, the Logger and Simulation are agnostic of one another and the logic is separate.