# Week 6 Arena Simulation

1. Process interaction – Flowchart
   - Consider a generic customer (entity) and the sequence of events and activities (processes) it undergoes as it moves through the system.
   - At any time, the system may have many entities interacting with each other as they compete for resources. Arena takes this process – interaction "world view"
   - The entities flow through a network of modules (blocks) that describe their behavior. The network can be represented as a process flowchart
     - Ex. People show up in a barber, get served and then leave.
     - In Area, create (generate cust arrivals) – process (use the barber) – dispose (outta here)

2. Arena Software Rockwell Software
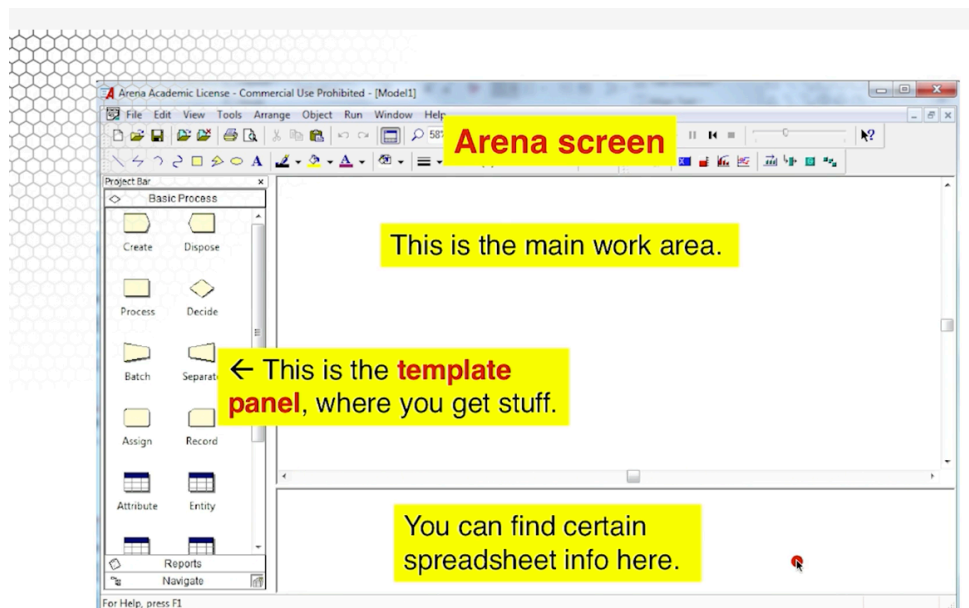
3. Basic Process Template
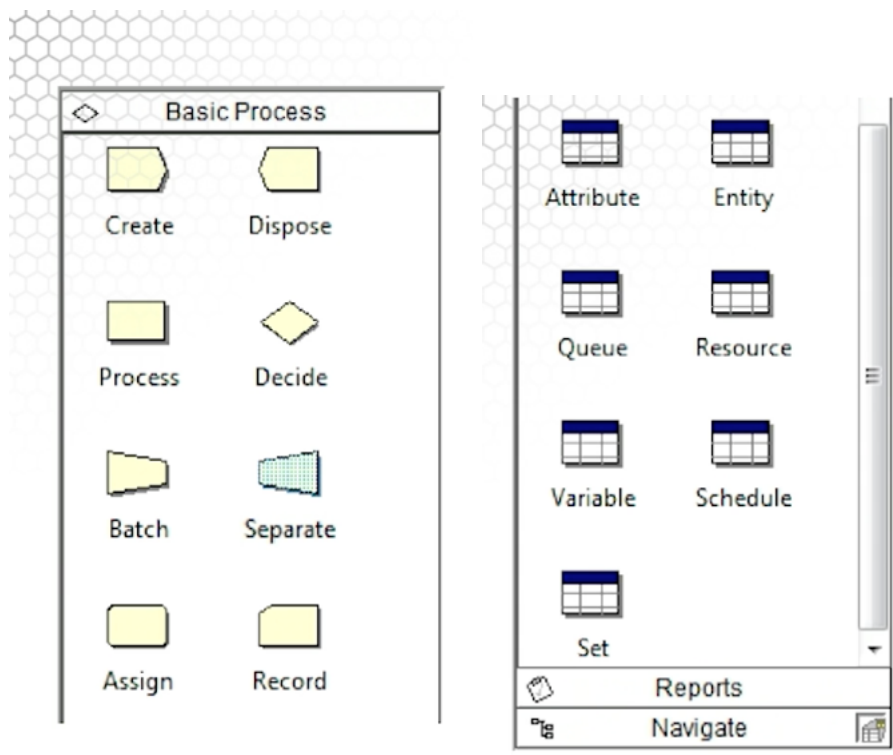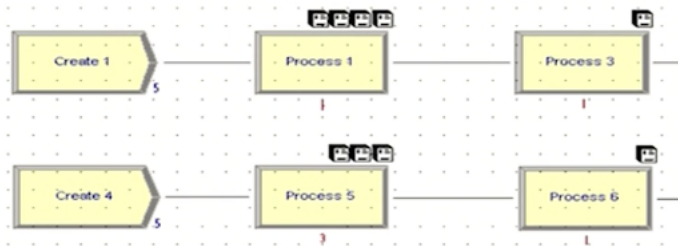

Module and Spreadsheet

- Demo

4. Create Process Dispose

- Create: Periodically generate customer arrivals.
- Process: Have work performed on the customers; maybe have to wait in line.
- Dispose: Customers leave the system after service.

- Create Module: we can change the name, the type of entity, interarrival distribution

- Process Module: fields for name, type of action (more in next lesson)

5. Details-Delay-Release
   - In the process module we have Delay, Seize-Delay-Release, Seize-Delay, Delay-Release
   - Process = Resource + Queue

   - Deadlocks

6. Spreadsheet
   - Capacity is the number of resource's servers on duty
   - Can change fixed capacity (make a schedule..)
   - Schedule spreadsheet
   - Can change it to FIFO, LIFO
7. Decide Module
   - 2 ways by Chance: When an entity gets to a Decide Module, he can randomly go to either of two locations (probabilities are given in percentages)
   - N way by Chance: randomly go to any of various locations
   - 2 way by condition: go to either of two locations if a condition is satisfied.
   - N way by condition …
8. Assign Module
   - Gives values to attributes and variables and even graphics to entities
   - Attributes: each customer passing through the system has various properties
   - Variables are global:

Use the very powerful and flexible Assign module.
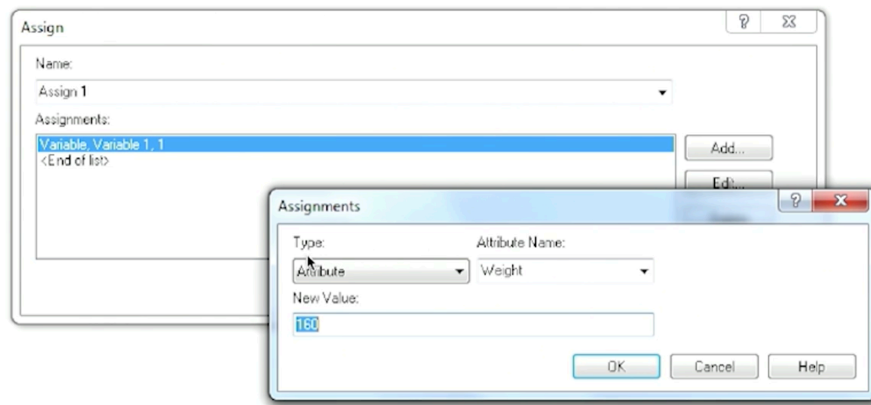
9. Attribute Variable Entity Spreadsheet
10.   Batch Separate and Control
    - ' Temporal' and 'Permanent' type
11.   Run Setup and Control