

CS 2604 Data Structures and File Management
Event Simulation Handout for Programming Assignment #2

Summer II 2003

The following algorithm is what I suggest you implement for the DMV Simulation assignment. You are free to improve on it. Most importantly, make sure you understand how it works, before implementing.

```
// screen queue:  queue at the screening window
// tran queue:   priority queue for the transaction windows
// event queue:  time-ordered queue used by your program to
//              carry out the simulation

t = 0

while event queue not empty OR input file not empty

    t, e = time and event details from file or queue (earliest)

    if e is a window close command
        set window status to closed
    else if e is a window open command
        set window status to available
        generate trytoserve event at t
    else if e is an incoming transaction
        display transaction details
        enqueue transaction to screen queue
        generate trytodispatch event at t
    else if e is a trytodispatch event
        if screen queue is not empty and scrwindow is not busy
            dequeue transaction x from screen queue
            set scrwindow status to busy
            generate dispatch event for x at time t+1
        endif
    else if e is a dispatch event
        display dispatch details
        set scrwindow status to available
        generate trytodispatch event at t
        enqueue transaction to tran queue
        generate trytoserve event at t
    else if e is a trytoserve event
        if tran queue not empty and there is an available window
            get first available window
            dequeue transaction x from tran queue
            set window status to busy
            display transaction details
            generate completion event at t + x
            (where x is the expected length of transaction)
            generate trytoserve event at t // this may not be necessary
        endif
    else if e is a completion event
        display completion details
        set window status to available
        generate trytoserve event at t
    endif

endwhile
```