Timer-Based Animation

Jerry Cain
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slides courtesy of Eric Roberts

Timer Events

- The programs from the previous slide deck respond to mouse events by adding an event listener to the `GWindow` object.
- JavaScript also allows you to listen for ***timer events***, which occur after a specified time interval.
- As with mouse events, you specify the listener for a timer event in the form of a callback function that is automatically invoked at the end of the time interval.
- You can add animation to a JavaScript program by setting a timer for a short interval and having the callback function make small updates to the graphical objects in the window.
- If the time interval is short enough (typically between 20 and 30 milliseconds), the animation will appear smooth to the human eye.

Timeouts

- JavaScript supports two kinds of timers. A ***one-shot timer*** invokes its callback function once after a specified delay. You create a one-shot timer by calling

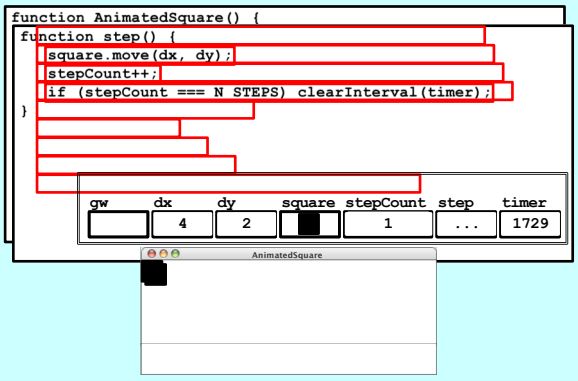
```
setTimeout(function, delay);
```

  where *function* is the callback function and *delay* is the time interval in milliseconds.
- An ***interval timer*** invokes its callback function repeatedly at regular intervals. You create an interval timer by calling

```
setInterval(function, delay);
```

  The `setInterval` function returns a numeric value that you can later use to stop the timer by calling `clearInterval` with that numeric value as an argument.

A Simple Example of Animation



The End