Alice Events Overview

What are events?

- An event is an action or occurrence recognized by a computer that may be handled by software. Events are generated or triggered by the system, by the user or in other ways.
- An event listener is a programming element that listens for a specific event such as a keypress or a mouse-click that occurs while the program is running, and responds to the event by calling an event handler.
- An event handler is an action that takes place in response to the event. The handler may be built-in Alice procedures, or a procedure created by the programmer.

initializeEventListeners procedural method (Scene class)

- In Alice 3, all event listeners are initialized in a special procedural method of the Scene class, named appropriately, initializeEventListeners.
- Open this procedure by clicking on the initializeEventListeners tab in the Alice 3 editor window.

addSceneActivationListener

- The initializeEventListener procedure already has already implemented one listener, addSceneActivationListener
- addSceneActivationListener responds to the Run button being clicked.
• Here, the scene activation event calls `myFirstMethod` as the handler, but any procedural method(s) may be called as handlers to respond to the Run button being clicked

**Creating Events**

1. You may drag an event procedures from the methods panel of this or Scene object
2. You may click the `addEventListener` button located in the `initializeEventListeners` tab to see the drop down menu of available listeners.

**Types of Events**

- **Scene Activation / Time** events include
  - A listener for when the run button is clicked
  - A time listener that allows you to create events based on the passage of time.

- **Keyboard** events include listeners that
  - Respond to any keypress on the keyboard
  - Respond only to arrow or number keypresses
  - Allow arrow keys to move and orient a specific object in the scene

- **Mouse** events include listeners that
  - Respond to a click on an object in the scene
  - Respond to a click anywhere on the runtime window
  - Allow the mouse to move an orient any object in the scene

- **Position / Orientation** events include listeners that
  - Listen and respond to object collisions, or when objects get close to each other
  - Listen and respond to objects that move into or out of the runtime window