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## Event Listeners

- Event listeners listen to user interface events, such as mouse clicks, mouse moves, and menu selection.
- An event occurs whenever the user uses the mouse or clicks inside the window. These events occur whether or not there is an event listener. The event listener listens for those events that are needed and uses them.
- In order to use an `EventListener`, a new class must first be made that implements that listener. After the class is made, the stub methods that are associated with that `EventListener` can either be filled with code that the programmer wants to be executed or they can be left blank if they are not needed. For example, when a programmer implements the `MouseListener` class, the following methods must be implemented as well: `mousePressed()`, `mouseReleased()`, `mouseClicked()`, `mouseEntered()`, `mouseExited()`. It is not necessary to write code for each one of these methods, but they must be implemented.
- In order to use an event listener you must know what the source of the event is. For example, if you know that you're looking for when the mouse is being moved across the screen, you would implement the `MouseMotionListener` to keep track of this event and respond accordingly.
- It is common to implement a listener class within another class for two reasons: it cleans up the code and it lets the listener access variables in the other class.
- Many objects in the Java API have methods that allow the user to enter in listeners, for example `JButton` has the method `addActionListener`. This allows the `JButton` to associate itself with the `ActionListener`, so that when the button is pressed it will execute any code within the class that implemented `ActionListener`.
- A few examples of listeners that have already been added to the Java API are `MouseListener`, `MenuListener`, `KeyListener`
- `EventListeners` are essential to making a good GUI that is easy to use. Without them, there would be no way for the user to interface with the graphical components within the window.