Event-based Programming

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CS151: Computational Thinking: Visual Media

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Event-based programming

Trigger function calls based on **events** or **actions** that happen in your program.

- Used ubiquitously in games
- CS151 Final project is making a game using turtle!
- In class, we will code up a very simple version of **Pac-Man** together to illustrate concepts from event-based programming
Callbacks: interactive keyboard control

Tell Python to call a function when something (an event) happens.

• Desired Pac-Man controls:
  • Arrow arrow keys move the Pac-Man forward in the indicated direction (e.g. left arrow key moves Pac-Man left)

• Two step process:
  • If we press certain keys, have Python call Turtle movement functions.
  • We tell the screen to listen for events that could happen in future.

• Let's implement keyboard control callbacks
Timer events

When we want a function to be called some number of milliseconds in the future.

- Example: check for collision events: if the PacMan is close enough to a pellet, then have it disappear.
- To check for collisions repeatedly on a schedule, have the called function start another timer.