Animation with Tkinter

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Animation

- Tkinter is not set up to do good animation

  - Python runs in a single core and does not make any use of the graphics card

- But you can do simple things, enough for a project:

  - Lunar Lander: Land a lunar lander on the moon with limited amount of fuel

  - Robots: play the famous robots game used to teach vi commands

  - Single player pong

Animation

- Tkinter canvas objects can be redrawn

  - You need to retain the object id returned when an object is created

- Simpler method:

  - Redraw the canvas completely

  - At least 25 times per second to appear smooth

Animation with Tkinter

- Possibility 1:

  - Use the after method in order to call a callback function over and over again

    - Need to repeat the call within the callback function because otherwise it will only be called once

Animation with Tkinter

```python
class Test:
    def __init__(self):
        self.window = tk.Tk()
        self.window.after(2, self.alert)
        self.window.mainloop()
    def alert(self):
        print("hello")
        self.window.after(2, self.alert)
```

Creating the callback

Callback calls itself

Animation with Tkinter

- Possibility 2:

  - Use an infinite loop

    - Still needs an initial "after" in order to be started

  - Use time.sleep in order to suspend animation long enough

Animation with Tkinter

```python
class Test:
    def __init__(self):
        self.window = tk.Tk()
        self.window.title("testing")
        self.window.after(2, self.alert)
        self.window.mainloop()

    def alert(self):
        while True:
            time.sleep(2)
            print("hello")
```

Creating the callback

Infinite loop

Using sleep to pause