

## Simulation

What are some advantages of simulation over real-world testing?

How would we model simulations graphically using something like Tkinter? (HINT: What are the different parts of a simulation?)

If we wanted to simulate and track the COVID-19 virus on the population in different states, what would be potential components and rules of this simulation?

Consider this setup from lecture:

```
def makeModel(data):
    data["cx"] = 200
    data["cy"] = 200
    data["size"] = 50
    data["colors"] = [ "red", "orange", "yellow", "green",
                      "blue", "purple" ]
    data["colorIndex"] = 0
def makeView(data, canvas):
    i = data["colorIndex"]
    color = data["colors"][i]
    canvas.create_oval(data["cx"] - data["size"], data["cy"] -
                      data["size"], data["cx"] + data["size"], data["cy"] +
                      data["size"], fill=color)
```

Write a mousePressed function (remember it takes in arguments data, event) that changes the color of the oval if the mouse is pressed in the oval.