• Questions

▼ Mysteries

• (first one on paper)

▼ mutable vs immutable

  • t = ("a", "b", "c")
    t[0] = "z"
    print(t)

  • s = "abc"
    s[0] = "z"
    print(s)

  • li = ["a", "b", "c"]
    li[0] = "z"
    print(li)

▼ slicing

  • t = ("a", "b", "c")
    t = t[:1] + ("MOOO",) + t[1:]
    print(t)

  • s = "abc"
    s = s[:1] + "MOOO" + s[1:]
    print(s)

  • li = ["a", "b", "c"]
    li = li[:1] + ["MOOO"] + li[1:]
    print(li)

▼ while

  • def f(x):
      while x > 0 or x < 0:
          print(x)
          if abs(x) > 10:
              return x * 2
          x += 3
          return x / 2
      x = f(10)
      y = f(-6)
      z = f(-4)
      print(x > y and z < x)

▼ alias
- grid = [[-1, 0, 1], [-2, 0, 2], [-1, 0, 1]]
  row0 = grid[0]
  x = grid
  row0[2] = 7
  x[0][1] -= 1
  print(grid)
  print(x)
  print(row0)

▼ **Image data**

▼ **How to represent color?**

▼ **printing on paper: CMYK (cyan, magenta, yellow, black)**
- [https://upload.wikimedia.org/wikipedia/commons/c/c9/CMYK_subtractive_color_mixing.svg](https://upload.wikimedia.org/wikipedia/commons/c/c9/CMYK_subtractive_color_mixing.svg)

▼ **digital: RGB (red, green, blue)**

▼ **on screens, tightly packed red, green, and blue elements light with different intensities**
- [https://upload.wikimedia.org/wikipedia/commons/3/34/RGB_pixels.jpg](https://upload.wikimedia.org/wikipedia/commons/3/34/RGB_pixels.jpg)
- [https://www.exploratorium.edu/snacks/pixels-pictures-phones](https://www.exploratorium.edu/snacks/pixels-pictures-phones)

▼ **in image files, divided up into grid, each cell is called a pixel, each pixel has a mix of red, green, and blue**
- Color picker: [https://www.google.com/search?q=color+picker](https://www.google.com/search?q=color+picker)

▼ **represent an image in Python (2x2 example)**

![Image](https://www.exploratorium.edu/snacks/pixels-pictures-phones)

▼ **3D list!**
- `[[[[1, 0, 0], [0, 1, 0]],
  [[0, 0, 1], [1, 0, 0]]]]`
Announcements

- new partners for hw 5 and 6
- quiz reflections back
- quiz on Friday, will not include image stuff, will be asked to write a small amount of code