Python Session 2

Loops, Lists, and Dicts

Loops

- Cycle
- Run code again and again

While

- While will check a condition and will keep running if condition is true
- If condition false, break out of while loop
- Be careful of INFINITE LOOPS

```python
counter = 0
while counter < 10:
    print(counter)
    counter += 1
```

```python
count = 10
while count > 0:
    print(count)
    count -= 1
```

For

- Cycle for a defined time
- Set to run for a set amount of iterations or over items

```python
for i in [0, 1, 2]:
    print("hi")
```

```python
for i in range(3):
    print("hi")
```

Lists

- Hold collection of data

```python
shapes = ["Square", "Circle", "Triangle"]
```

- Access with index

```python
print(shapes[0])
```

```python
for shape in shapes:
    print(shape)
```

```python
for i in range(len(shapes)):
    print(i + 1, shapes[i])
```

Dicts

- Key value pairs
-
  ```
  shapes = ["Square", "Circle", "Triangle"]
  colors = ["Red", "Green", "Blue"]
  ```

  - Access with key
  -

```
# access values by key
print(shapes["Square"])
print(shapes["Circle"])
print(shapes["Triangle"])
```

```
# key value pairs
shapes = {
    "Square": "Red",
    "Circle": "Green",
    "Triangle": "Blue"
}
```

Nested Loops

- Can put a loop inside another loop
- Example is to make a 2D grid
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```python
for row in range(3):
    for col in range(3):
        print(f"({row}, {col}) ", end="")
    print()
```