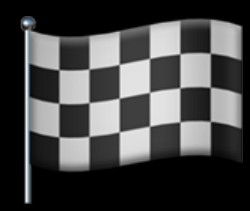


CS-121:


Week 5



Final Week of Unit 1!

- 1/3 of the way through the course!
- You've learned a lot so far.
- Units (~5 weeks each):
 - 1: Basics of programming
 - 2: Real-world tools, practices, projects
 - 3: Program design + final project (choose your own adventure)

What we've covered so far

- **Week 1:** Basic output and program flow
- **Week 2:** Inputs, variables, and data types
- **Week 3:** Simple functions
- **Week 4:** Expressions and Conditionals
-  **Week 5:** Loops and Lists



Upcoming

- Level up our tools
- Lab: Loops and Lists
- Project Pet.py v2 due Thursday by 3pm
- Project-based Unit 1 Assessment prep.



Tools of the Trade

- VSCode
- Github
- Python (or other languages)



100% free

- VSCode - Free and open-source
- Unlimited private repositories
- Python (and most languages) - Free and open-source



Learning Resources

Also mostly free

- YouTube
- GitHub repositories
- Stack Overflow
- Documentation sites
- Blogs/Forums/Reddit
- ChatGPT



Python Developer

Salaries

- Entry-level: \$80,625/year
- Mid-level: \$127,363/year
- Senior: \$201,196/year

Your Github profile is more valuable than...

- Your GPA
- Your college degree
- Your resume
- etc...

Unit 2:

- Transitioning to more real-world tools, practices, and projects.
- Data structures and algorithms
- File I/O
- Program design based on customer requirements



Loops + Lists Review

Creating and Accessing Lists in Python

```
# Creating a list
```

```
fruits = ["apple", "banana", "cherry"]
```

```
# Accessing elements by index
```

```
print(fruits[0])    # Outputs: apple
```

```
print(fruits[1])    # Outputs: banana
```

Loops in Programming

- **Loops** allow us to repeat a block of code multiple times.
- Two main types in Python:
 - `for` loops
 - `while` loops

for Loops

- Used to iterate over a **sequence** (like a list, tuple, string).
- Syntax:
 for variable in sequence:
 # Code block to execute

Example: for Loop

```
fruits = ["apple", "banana", "cherry"]  
for fruit in fruits:  
    print(f"I like {fruit}")
```

Output:

I like apple

I like banana

I like cherry

range() Function

- Generates a sequence of numbers.
- Commonly used with for loops.

```
for i in range(5):  
    print(i)
```

Output:

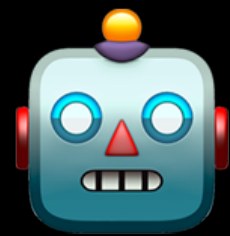
0

1

2

3

4



Time to be the
computer

While Loop Example

```
i = 0
```

```
while i < 3:
```

```
    do_clap(i)
```

```
    i = i + 1
```

```
# done!
```

👉 `i = 0`

```
while i < 3:  
    do_clap(i)  
    i = i + 1  
# done!
```

```
i = 0
```

```
👉 while i < 3:
```

```
    do_clap(i)
```

```
    i = i + 1
```

```
# done!
```

```
i = 0
```

```
while i < 3:
```

```
    🙌 do_clap(i)
```

```
    i = i + 1
```

```
# done!
```

```
i = 0
```

```
while i < 3:
```

```
    do_clap(i)
```

```
    👉 i = i + 1
```

```
# done!
```



```
i = 0
```

```
👉 while i < 3:
```

```
    do_clap(i)
```

```
    i = i + 1
```

```
# done!
```

```
i = 0
```

```
while i < 3:
```

```
    🙌 do_clap(i)
```

```
    i = i + 1
```

```
# done!
```

```
i = 0
```

```
while i < 3:
```

```
    do_clap(i)
```

```
    🙌 i = i + 1
```

```
# done!
```

```
i = 0
```

```
👉 while i < 3:
```

```
    do_clap(i)
```

```
    i = i + 1
```

```
# done!
```

```
i = 0
```

```
while i < 3:
```

```
    🙌 do_clap(i)
```

```
    i = i + 1
```

```
# done!
```

```
i = 0
```

```
while i < 3:
```

```
    do_clap(i)
```

```
    🙌 i = i + 1
```

```
# done!
```

```
i = 0
```

```
👉 while i < 3:
```

```
    do_clap(i)
```

```
    i = i + 1
```

```
# done!
```

```
i = 0
```

```
while i < 3:
```

```
    do_clap(i)
```

```
    i = i + 1
```

```
👉 # done!
```


For Loop Example

```
for i in range(3):  
    do_slam(i)  
    do_clap(i + 1)  
# done!
```

```
👉 for i in range(3):  
    do_slam(i)  
    do_clap(i + 1)  
# done!
```

```
for i in range(3):  
    🙌 do_slam(i)  
    do_clap(i + 1)  
# done!
```

```
for i in range(3):  
    do_slam(i)  
    🙌 do_clap(i + 1)  
# done!
```

```
for i in range(3):  
    🙌 do_slam(i)  
    do_clap(i + 1)  
# done!
```

```
for i in range(3):  
    do_slam(i)  
    🙌 do_clap(i + 1)  
# done!
```

```
for i in range(3):  
    🙌 do_slam(i)  
    do_clap(i + 1)  
# done!
```

```
for i in range(3):  
    do_slam(i)  
    🙌 do_clap(i + 1)  
# done!
```



```
for i in range(3):  
    do_slam(i)  
    do_clap(i + 1)  
👉 # done!
```



Let's Code!

- Open your code notebook.
- Experiment with loops and lists.
- Work on your project, homework or other steps.