if-Statements

CSC120
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Program Flow

- Let's talk about the **flow** of a program in Python

- Python reads the lines in a script one by one from top to bottom

- But you might not always want this to be the case!

- What if you only wanted some lines of code to be run if a certain condition is True?

if-Statements

- An **if-statement** allows you to check conditions (boolean values) and change the program flow based on those conditions

- If-statements let you run specific lines code (or completely ignore code) depending on **conditions** that you specify

- These conditions are specified by boolean/logical values
  - True, False

If-Statement Format

```
if condition1:
    statements1..
elif condition2:
    statements2..
elif ...
.
.
else:
    statements..
```

This whole block is considered one if-statement

If-Statement Format

```
if condition1:
    statements1..
elif condition2:
    statements2..
elif ...
.
.
else:
    statements..
```

- The if-statement first checks if condition1 is True
  - If so, it executes all the statements indented under it, **line-by-line**
  - It then skips the rest of the if-statement

If-Statement Format

```
if condition1:
    statements1..
elif condition2:
    statements2..
elif ...
.
.
else:
    statements..
```

- If condition1 is False, then it checks to see if condition2 is True
  - If so, it executes statements2, line-by-line
  - The rest of the if-statement is skipped

If-Statement Format

```
if condition1:
    statements1..
elif condition2:
    statements2..
elif ...
.
.
else:
    statements..
```

- If condition2 is False, it will continue on with this pattern, checking all the other elif statements
- If one of the elif conditions is True, skip the rest of the if-statements

If-Statement Format

```
if condition1:
    statements1..
elif condition2:
    statements2..
elif ...
.

.

else:
    statements..
```

- Lastly, if none of the previous conditions are true, it will run statements after `else`

If-Statement Format

```
if condition1:
    statements1..
elif condition2:
    statements2..
elif ...
.
.
else:
    statements..
```

- **Important**: Only the first `if` condition (and `statements1`) is necessary

- You use `elif` and/or `else` only if they make sense in your context
  - 0 or more `elif`
  - 0 or 1 `else`

Examples in Wing