CL07 - Conditional Control Flow

Control flow is *linear*

Going about your day…

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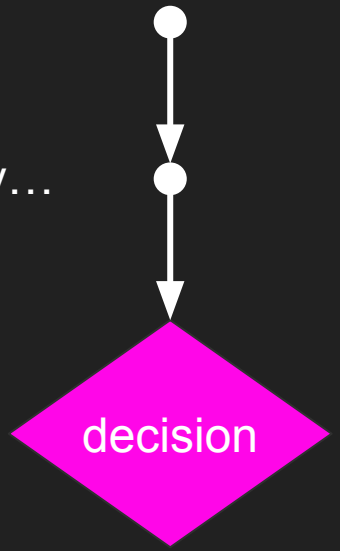
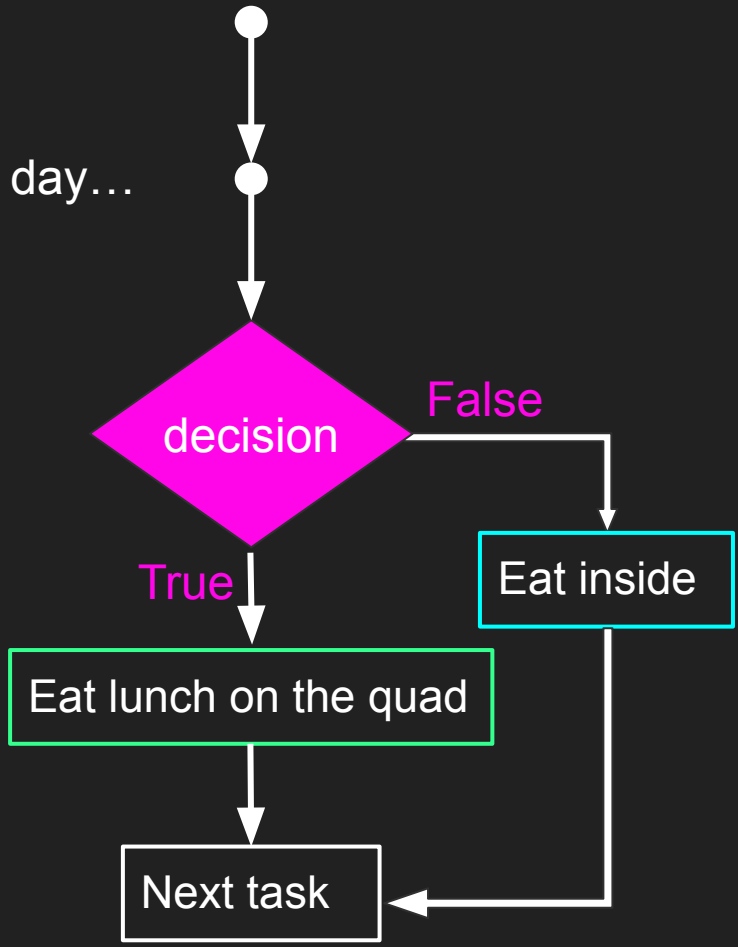


Is the weather nice?

Control flow is *linear*

Going about your day…

Is the weather nice?

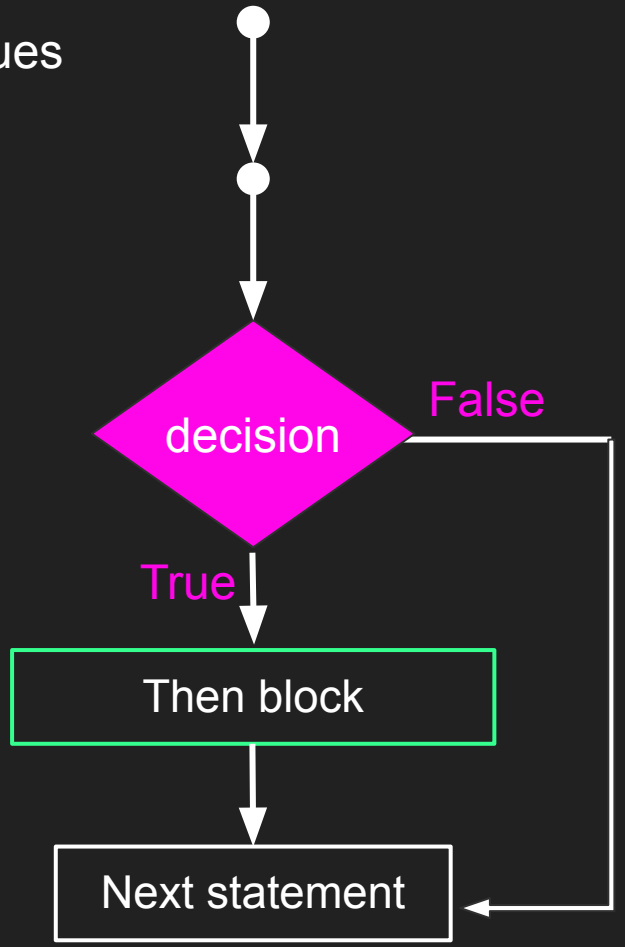


If-then-else / *Conditional* Statements

Code that behaves conditionally based on input values

bool

```
if <condition>:
    <then, execute these statements>
<rest of program>
```



If-then-else / *Conditional* Statements

Code that behaves conditionally based on input values

```
if <condition>:
    <then, execute these statements>
else:
    <execute these other statements>
<rest of program>
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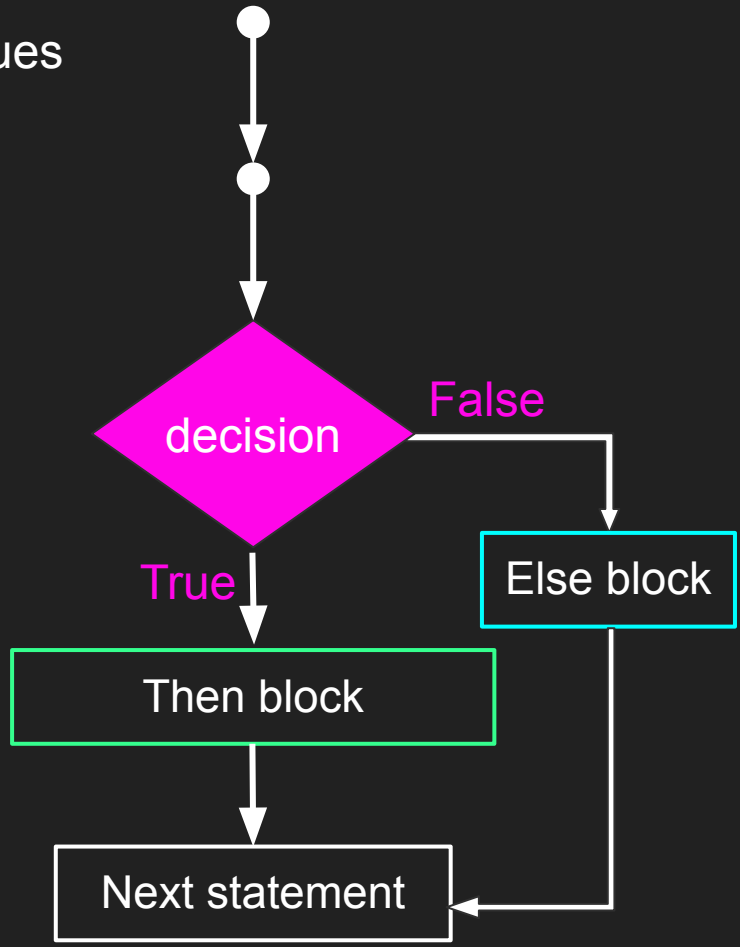
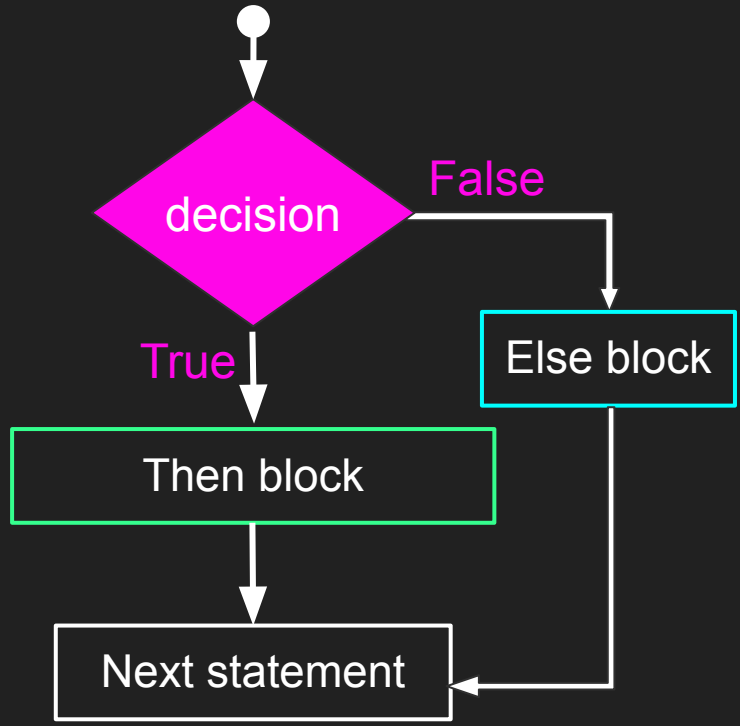


General syntax and semantics

```
if <condition>:
    <then block>
else:
    <else block>
<rest of program>
```

Semantics:

1. When evaluation reaches an **if statement**, the **boolean test expression** is evaluated.
2. If the expression evaluates to `True`, control continues into the **then statement block**. If the then statement block completes without a return, control continues by moving on to the next statement after the if statement.
3. Otherwise, if the test expression evaluates to `False`, control *jumps over the then block* and continues to the next line, whether it is an **else statement block** or the next statement in the program.



```python
"""Examples of conditionals."""


def number_report(x: int) -> None:
    """Print some numerical properties of x"""
    if x % 2 == 0:
        print("Even")
    else:
        print("Odd")

    if x % 3 == 0:
        print("Divisible by 3")

    if x == 0:
        print("Zero")
    else:
        if x > 0:
            print("Positive")
        else:
            print("Negative")

    print("x is " + str(x))


number_report(x=110)
```

```python
"""Calling to and fro..."""


def ping(i: int) -> int:
    print("ping: " + str(i))
    if i <= 0:
        return i
    else:
        return pong(i=i - 1)


def pong(i: int) -> int:
    print("pong: " + str(i))
    return ping(i=i - 1)


print(ping(i=2))
```

```python
"""Mysterious 'rev' from source (src) to destination (dest)!"""


def rev(src: str, i: int, dest: str) -> str:
    """You happen upon a magical lil function..."""
    if i >= len(src):
        return dest
    else:
        return rev(src=src, i=i + 1, dest=src[i] + dest)


print(rev(src="lwo", i=0, dest=""))
```

Practice

Write a function called check_first_letter that takes a input two strs: word and letter

It should return “match!” if the first character of word is letter

Otherwise, it should return “no match!”

Examples:

- check_first_letter(word=”happy”, letter=”h”) would return “match!”
- check_first_letter(word=”happy”, letter=”s”) would return “no match!”