Conditional Statements

Remix CS 2019-20

What is a Conditional Statement?

In programming, a conditional statement is a statement of code that will only execute if a condition (a boolean) is true. A real life example of a conditional statement would be, "if it is raining, I will take an umbrella to school"
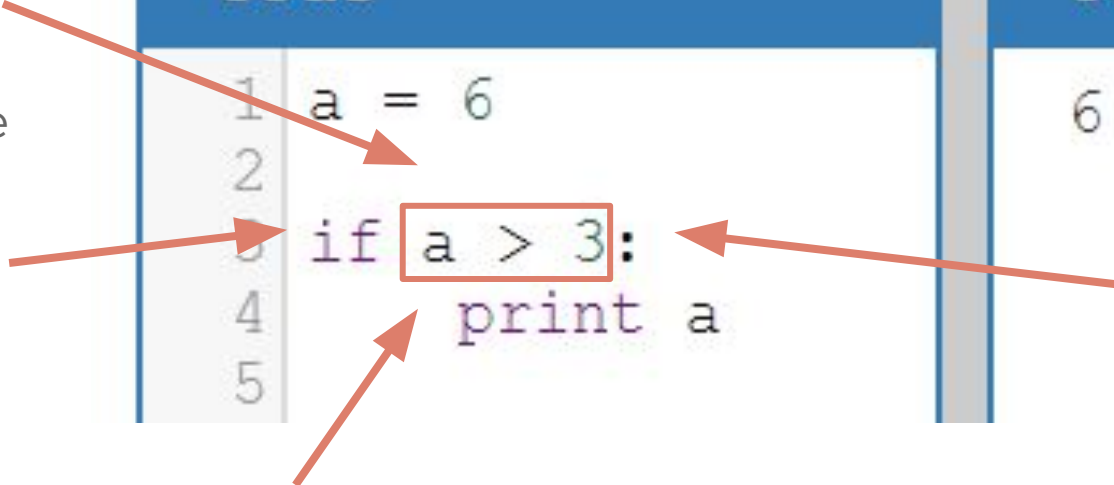
Conditional Statements in Python

If statements run their code only when their boolean expression is True

Boolean expression (Either True or False)

if statement begins with 'if"

":" after boolean expression

```
Code                    Output
1  a = 6                6
2
3  if a > 3:
4      print a
5
```
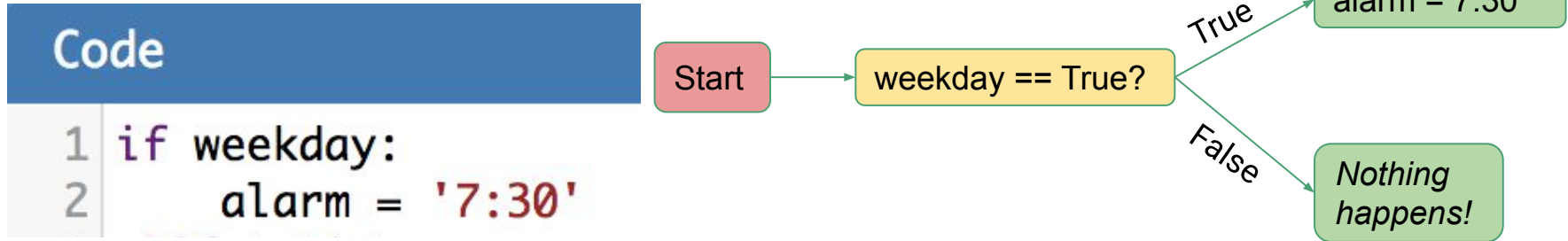
Indent the lines of code you want contained within the "if" statement, which will only run if the boolean expression is True.

"If" statement in an alarm

If today is a weekday, then set my alarm to 7:30 am.


```
Code
1 if weekday:
2     alarm = '7:30'
```

Start → weekday == True?
- True → alarm = 7:30
- False → Nothing happens!

Try to code the following example

If today is a weekday, then set my alarm to 7:30 am;
else, if today is a holiday, then set my alarm to 9:00 am;
else, set my alarm to 10:00 am.

Solution

```
Code
1  if weekday:
2      alarm = '7:30'
3  elif holiday:
4      alarm = '9:00'
5  else:
6      alarm = '10:00'
```

Else and Elif

Only executes if previous conditional statement (weekday) was false **AND** if holiday is <u>true</u>.
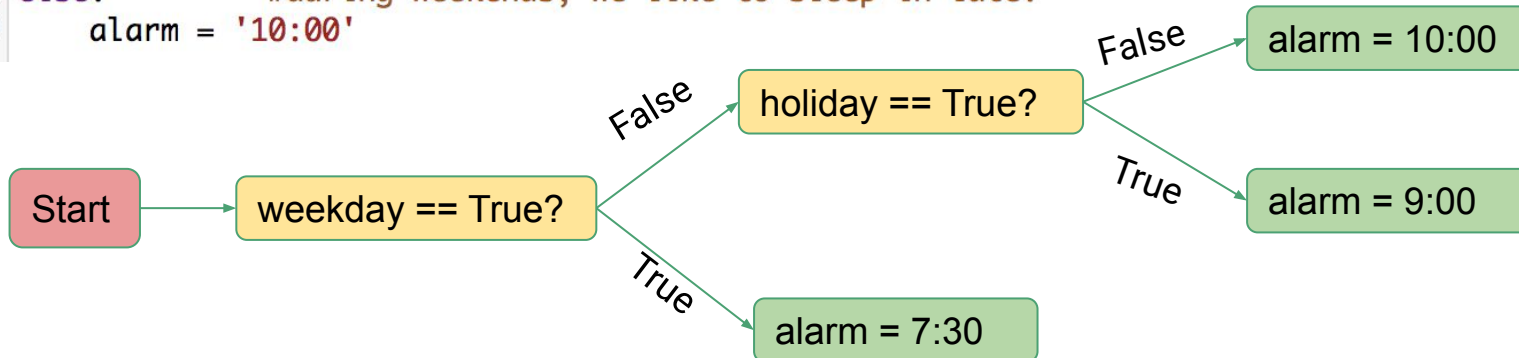
```
Code
1  holiday = True
2  weekday = False
3  if weekday:     #during weekdays, we want to wake up early to go to school
4      alarm = '7:30'
5  elif holiday:   #during holidays, we dont have to wake up as early, but
6                  #maybe we have certain responsibilities for the holiday.
7      alarm = '9:00'
8  else:           #during weekends, we like to sleep in late.
9      alarm = '10:00'
```

Only executes if previous two conditional statements were false (weekday and holiday).

Example: Setting Your Alarm

```
Code
1  holiday = True
2  weekday = False
3  if weekday:    #during weekdays, we want to wake up early to go to school
4      alarm = '7:30'
5  elif holiday: #during holidays, we dont have to wake up as early, but
6                  #maybe we have certain responsibilities for the holiday.
7      alarm = '9:00'
8  else:          #during weekends, we like to sleep in late.
9      alarm = '10:00'
```

Examples

Code

```
1  weekend = True
2
3  if (weekend):
4      print ("No school today")
5  else:
6      print ("School today")
```

Output

Examples

Code

```
1  age = 14
2
3  if (age >= 20):
4      print("You are old")
5  elif (age >= 13):
6      print("You are a teenager")
7  else:
8      print("You are still a kid")
9
```

Output

Examples

Code	Output

```
1  a = 5
2  b = 5
3
4  if (a > b):
5      print("a is bigger")
6  elif (b > a):
7      print("b is bigger")
8  else:
9      print("a and b are equal")
```

Why do conditionals matter?

- "If" statements are used when we need to make decisions in our code

- We don't always know what the environment outside of the code will be like when we are writing our code, so we use "if" statements to account for the different situations we could encounter

- Sometimes the program should do something different depending on the time of day, input from the user, or other factors

Now try the following exercises:

https://py3.codeskulptor.org/#user303_LzQc6nx67C_7.py