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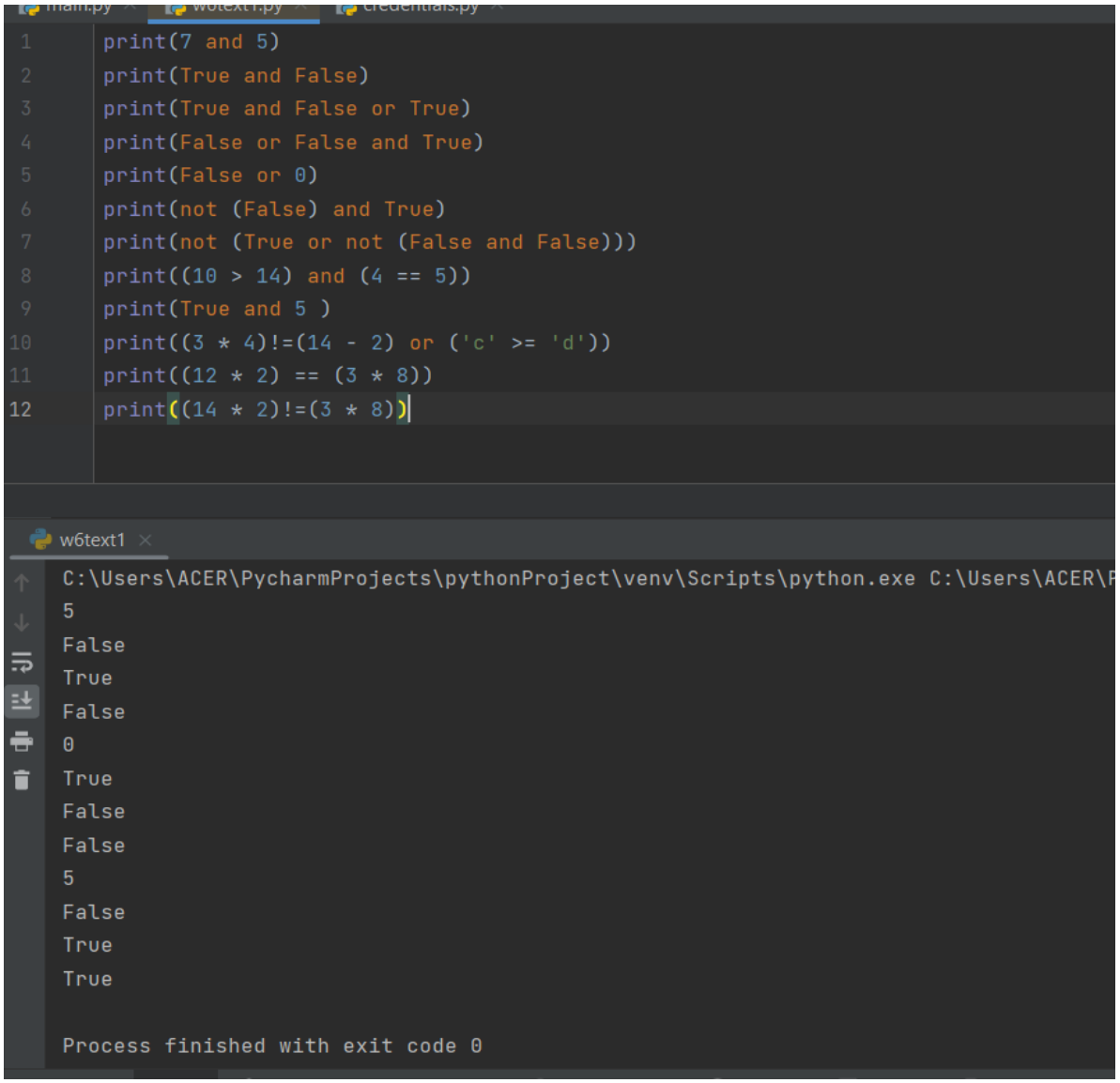
# Part 1

Evaluate the following Boolean expressions in **IDLE**:

**Note down the response to each. Do they differ from what you would expect?**

```
7 and 5
True and True
True and False or True
False or False and True
False or 0
not (False) and True
not (True or not (False and False))
 (10 > 14) and (4 == 5)
True and 5
 (3 * 4)! = (14 - 2) or ('C' >= 'D')
 (12 * 2) == (3 * 8)
 (14 * 2)! = (3 * 8)
```



```
print(7 and 5)
print(True and False)
print(True and False or True)
print(False or False and True)
print(False or 0)
print(not (False) and True)
print(not (True or not (False and False)))
print((10 > 14) and (4 == 5))
print(True and 5 )
print((3 * 4)!=(14 - 2) or ('c' >= 'd'))
print((12 * 2) == (3 * 8))
print((14 * 2)!=(3 * 8))
```

```
w6text1
C:\Users\ACER\PycharmProjects\pythonProject\venv\Scripts\python.exe C:\Users\ACER\P
5
False
True
False
0
True
False
False
5
False
True
True

Process finished with exit code 0
```

## Part 2

**1.** Evaluate the following expressions for `num1 = 10` and `num2 = 20`.

**(a)** `not (num1 < 1) and num2 < 10`

**(b)** `not (num1 < 1) and num2 < 10 or num1 + num3 < 100`

**(c)** `not (num2 > 1) or num1 > num2 - 10`

```
num1=10
num2=20
print(not (num1 < 1) and num2 <10)
print(not (num1 < 1) and num2 <10 or num1 + num2 < 100)
print(not (num2 > 1) or num1 > num2 - 10)
```

```
w6text2no1
C:\Users\ACER\PycharmProjects\pythonProject\venv\Scripts\python.
False
True
False

Process finished with exit code 0
```

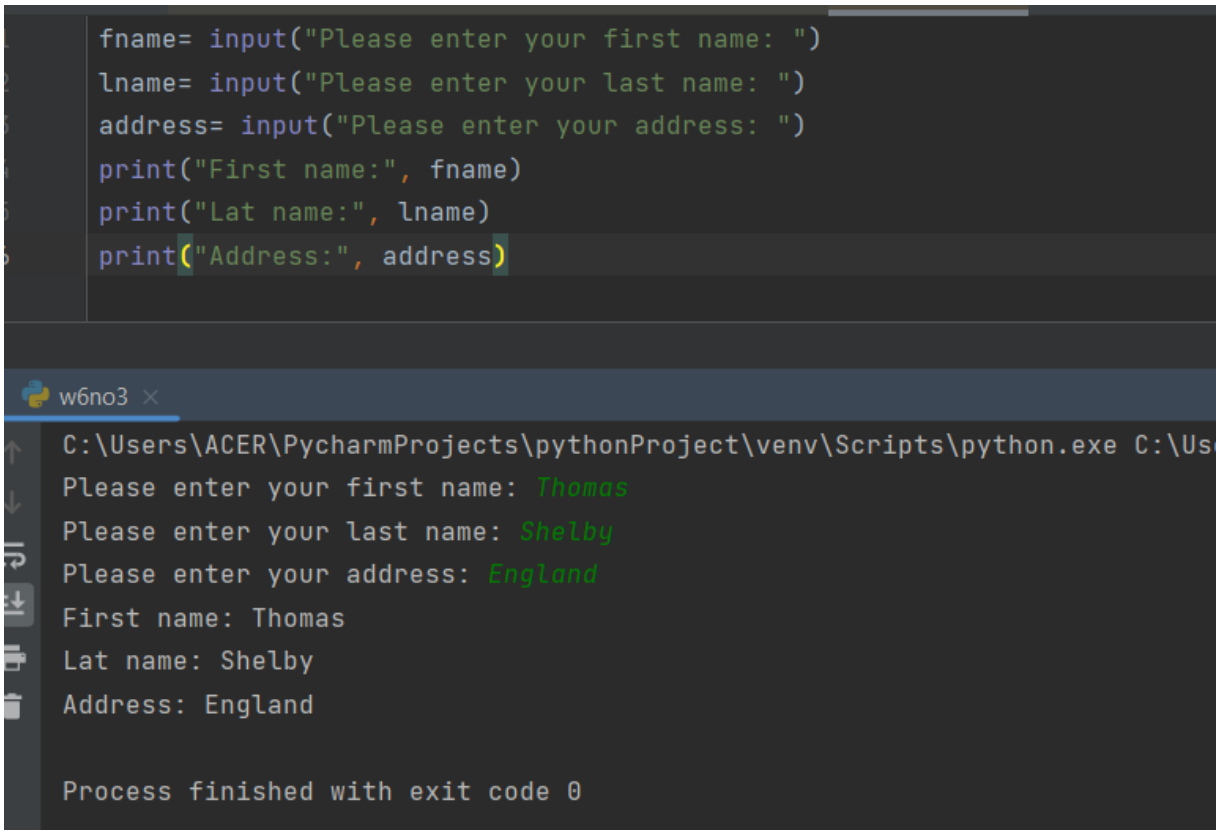
**2.** Write a python program to find the sum and product of two numbers.

```
num1 = int(input("Enter first number: "))
num2 = int(input("Enter second number: "))
sum= num1 + num2
product = num1 *num2
print("The sum of the numbers:" , sum)
print("The product of the numbers:" , product)
```

```
w6no2
C:\Users\ACER\PycharmProjects\pythonProject\venv\Scripts\python.exe
Enter first number: 10
Enter second number: 20
The sum of the numbers: 30
The product of the numbers: 200

Process finished with exit code 0
```

**3.** Write a python program to input first name, last name, and address. Print them.




**4.** Write a python program to input three numbers and find their sum.

```
num1= int(input("Enter first number:"))
num2= int(input("Enter second number:"))
num3= int(input("Enter third number:"))
sum = num1+ num2 +num3
print("The sum of number is:",sum)
```

```
w6no4
C:\Users\ACER\PycharmProjects\pythonProject\venv\Scripts
Enter first number:10
Enter second number:20
Enter third number:30
The sum of number is: 60

Process finished with exit code 0
```

**5.** Write a python program to print the area of circle. Take radius of circle as an input form the user.

```
radius= float(input("Enter the radius of the circle"))
area=math.pi*radius*radius
print("The area of the circle is:" , area)
```

```
w6no4   w6no5
C:\Users\ACER\PycharmProjects\pythonProject\venv\Scripts\python.exe C:\Users
Enter the radius of the circle7
The area of the circle is: 153.93804002589985

Process finished with exit code 0
```

## Part 3

**1.** Write a program that:

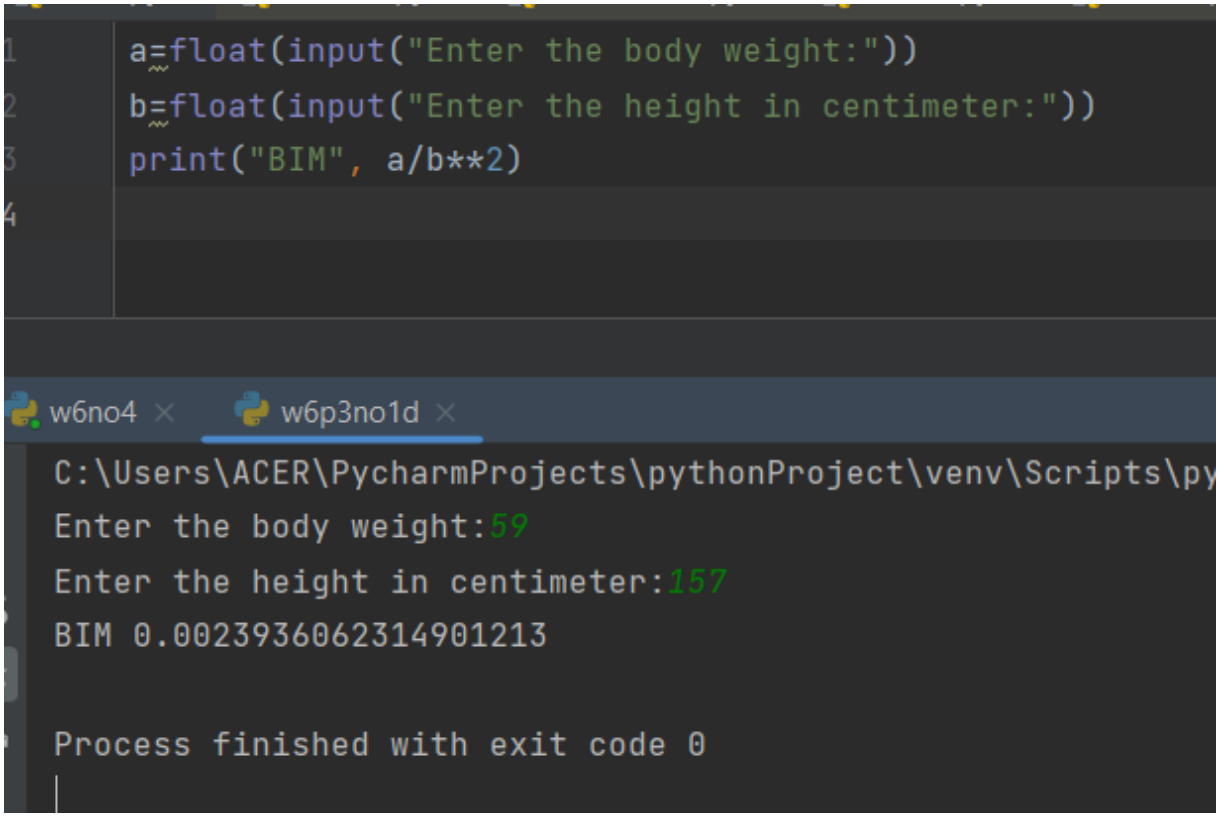
**(a)** Asks to input the user's weight in kilograms.

**(b)** Asks to input the user's height in centimeters.

**(c)** Calculates the BMI (Body Mass Index).

[BMI=weight in kilograms / square of height in centimeters]

**(d)** Prints the user's BMI.



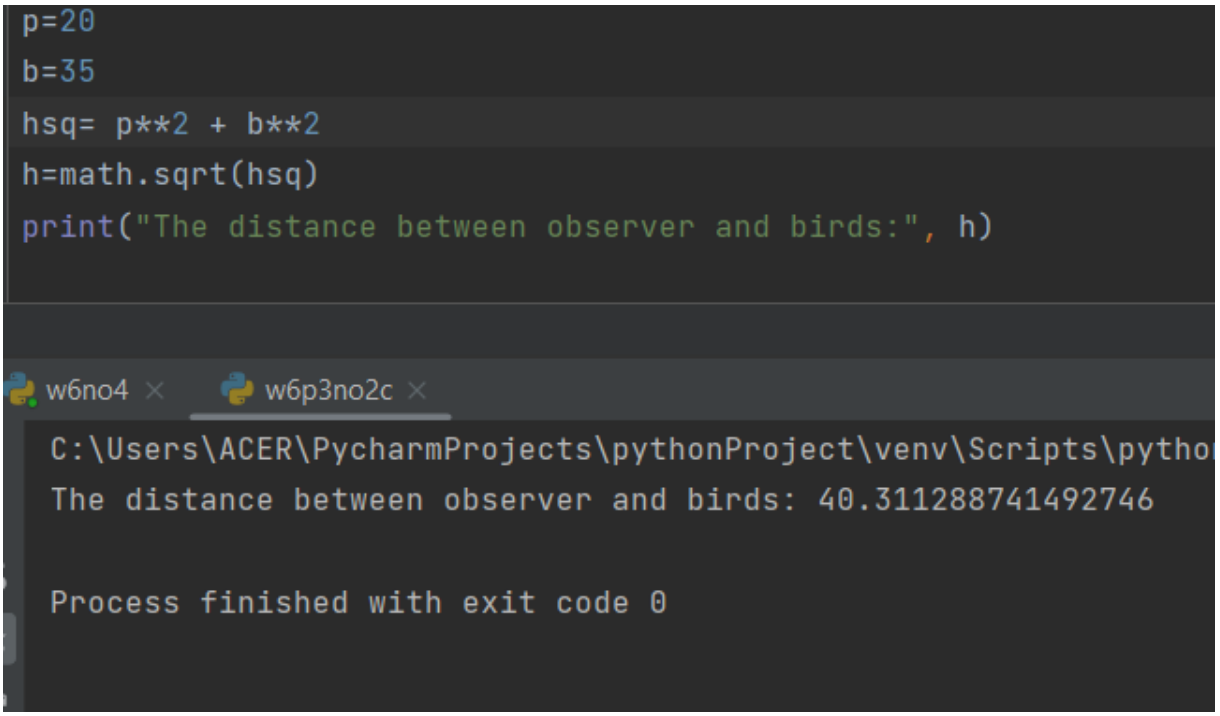

**2.** An observer sees the shadow of a bird at mid-day.

**(a)** The distance between the observer and the shadow is 15 meters.

**(b)** The perpendicular distance between the bird and its shadow is 25 meters.

**(c)** Find the total distance between the bird and the observer.

**[Use height and distance formula: $h^2=p^2+b^2$]**




**3.** A customer walks in a flower shop and finds the following menu:

| Particulars | White Roses | Lilies | Poppies | Marigold | Red Roses |
|---|---|---|---|---|---|
| Per piece | 50 | 50 | 40 | 20 | 100 |
| Per bouquet | 300 | 300 | 250 | 200 | 1000 |

If the user bought a bouquet of lilies and four red roses, find the total money the user spent in the flower shop.

```
a= 300
b=100
totalMoney=a+(b*4)
print("The total money that the user spent on the flower shop:", tota
```

```
w6p3no3
C:\Users\ACER\PycharmProjects\pythonProject\venv\Scripts\python.exe C:\
The total money that the user spent on the flower shop: 700

Process finished with exit code 0
```

**4.** Take user's name, age and address as input and generate a formatted output using python scripting. [Use %d and %s to generate the output]

```
name= input("enter your name:")
age=input("enter your age:")
address=input("enter your address:")
output = "Name: %s, Age: %d, Address: %s"% (name, int(age), address)
print(output)
```

```
w6p3no4
C:\Users\ACER\PycharmProjects\pythonProject\venv\Scripts\python.exe C:\Users\A
enter your name:Renuka Dhakal
enter your age:11
enter your address:America
Name: Renuka Dhakal, Age: 11, Address: America

Process finished with exit code 0
```

**5.** Calculate the VAT amount of a gadget the user bought using the built in python format function within two decimal digits. Input the cost price from the

user. [VAT =13%]

```
costPrice= float(input("Enter the cost price of the gadget:"))
VATrate= (13/100)
VATamount= costPrice *VATrate
print("The total VAT amount of this gadget:" ,VATamount)
print("VAT amount: {:.2f}".format(VATamount))
```

```
w6p3no5
C:\Users\ACER\PycharmProjects\pythonProject\venv\Scripts\python.exe
Enter the cost price of the gadget:700
The total VAT amount of this gadget: 91.0
VAT amount: 91.00

Process finished with exit code 0
```

## Part 4 (Home Task) - Optional

**1.** Give an appropriate if statement for each of the following
(The value of `num` is not important):

**(a)** Displays `'within range'` if `num` is between 0 and 100, inclusive.

**(b)** Displays `'within range'` if `num` is between 0 and 100, inclusive, and displays `'out of range'` otherwise.

**2**. Rewrite the following if-else statements using a single if statement and elif:

```
if temperature >= 85 and humidity > 60:
    print ('muggy day today')
else:
    if temperature >= 85:
        print ('warm, but not muggy today')
```

```
else:
    if temperature >= 65:
        print ('pleasant today')
    else:
        if temperature <= 45:
            print ('cold today')
        else:
            print ('cool today')
```

**3.** Write a Python program in which:

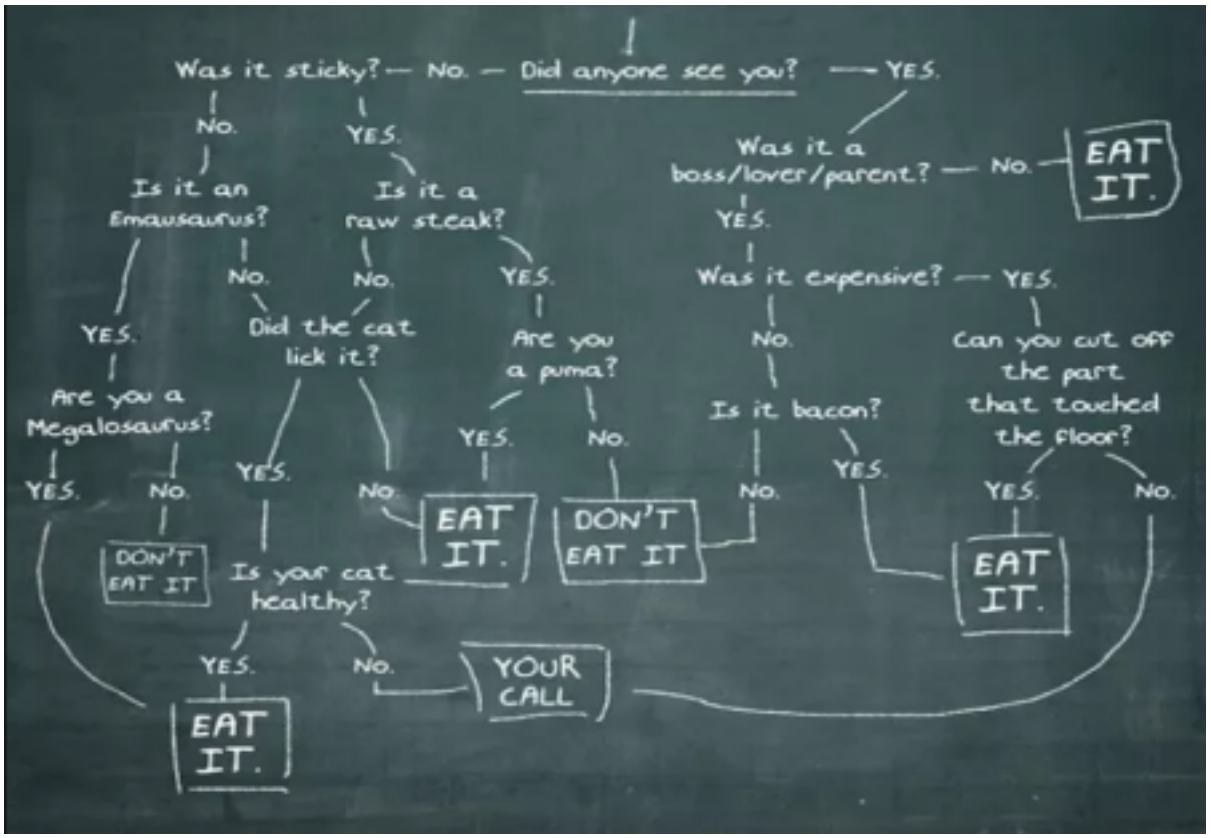
**(a)** The user enters either `'A', 'B', or 'C'`. If `'A'` is entered, the program should display the word `'Apple'`; if `'B'` is entered, it displays `'Banana'`; and if 'C' is entered, it displays `'Coconut'`. Use nested if statements for this.
**(b)** Repeat question **(a)** using an if statement with `elif` headers instead.

**(c)** A student enters the number of college credits earned. If the number of credits is greater than or equal to 90, 'Senior Status' is displayed; if greater than or equal to 60, 'Junior Status' is displayed; if greater than or equal to 30, 'Sophomore Status' is displayed; else, 'Freshman Status' is displayed.

**(e)** The user enters a number. If the number is divisible by 3, the word ‘Fizz’ should be displayed; if the number is divisible by 5 the word ‘Buzz’ should be displayed and if the number is divisible by both ‘FizzBuzz’ should be displayed.

**5.** Create a program using the schematic below to help you decide whether it is okay to eat something that you dropped on the floor…

**Note:** this is not genuine advice on health and hygiene ;)


Did anyone see you?
YES.
Was it a boss/lover/parent?
No.
EAT IT.
YES.
Was it expensive?
YES.
Can you cut off the part that touched the floor?
YES.
No.
EAT IT.
No.
Is it bacon?
YES.
No.
DON'T EAT IT
Was it sticky?
No.
YES.
Is it an Emausaurus?
Is it a raw steak?
No.
No.
YES.
YES.
Are you a Megalosaurus?
YES.
No.
DON'T EAT IT
Did the cat lick it?
Are you a puma?
YES.
No.
YES.
No.
EAT IT.
DON'T EAT IT
Is your cat healthy?
YES.
No.
EAT IT.
YOUR CALL