Computing

Lesson 6: Nested Selection

Programming Part 2: Selection

Rebecca Franks

[1] *Materials from the Teach Computing Curriculum created by the National Centre for Computing Education*

Task 1: Predict

Take a look at the code on the next slide. Read it carefully and explain exactly what might happen when this code is executed. Think about the possible inputs that could be entered and what might happen in each scenario.

For example, if the user enters a y, what will happen? If the user enters an n, what will happen?

Remember to write down your prediction.

Task 1: Predict

```
print("Pick either Ostrich, Lion or Whale")
print("I will attempt to guess your choice")
print("Does the animal live in the water? Y/N")
answer = input().lower()

if answer == "n":
   print("Does the animal have wings? Y/N")
   answer = input().lower()
   if answer == "y":
       print("It must be an Ostrich!")
   else:
       print("It must be a Lion!")
else:
   print("It must be a Whale!")
```

Task 2: Run

Open and **run** the file with this code.

Here's a copy of the program (**oaknat.uk/comp-ks4-animalstart**).

Was your prediction correct? Did anything unexpected happen? Write down your thoughts.

Task 3: Investigate

Investigate the program using the steps below:

Step 1

Enter a y for the first question.

- What is the output?

Step 2

Run the program again. Enter a 2 for the first question.

- What is the output?

Step 3

What needs to be the input for the output to be `It must be a Whale!`

Task 3: Investigate

Investigate the program using the steps below:

Step 4

Run the program again. Enter an **n** for the first question.

- What is the output?

Step 5

Which line of code is executed when the condition on line 6 is True?

Step 6

Which line of code is executed when the condition on line 6 is False?

Task 3: Investigate

Investigate the program using the steps below:

Step 7

Run the program again. Enter an `n` for the first questions and an `n` for the second question.

- What is the output?

Step 8

What needs to be the input for the output to be `It must be a Lion!`

Step 9

Run the program again. Enter an `n` for the first question and a `y` for the second question.

- What is the output?

Task 3: Investigate

Investigate the program using the steps below:

Step 10

Which line of code is executed when the condition on line 9 is True?

Step 11

Which line of code is executed when the condition on line 9 is False?

Step 12

Does a user *have* to enter a **lowercase** n or y for the code to execute correctly?

Explain your answer.

Task 4: Modify

Modification 1	Hint
At line 14 enter a new line of code that outputs `Is the animal a mammal? Y/N`	
Modification 2	**Hint**
At line 15 enter a new line of code that holds the user input in answer.	See line 8 for help with the code. The final line of code should now be at line 16

Task 4: Modify

Modification 3	Hint

Test your code. Check the input/output in the hint to see if it is working correctly.	`Pick either Ostrich, Lion or Whale`
	`I will attempt to guess your choice`
	`Does the animal live in the water? Y/N`
	`y`
	`Is the animal a mammal? Y/N`
	`y`
	`It must be a Whale!`

Modification 4	**Hint**
At line 16 enter a new line of code that will check if the answer to “`is it a mammal?`” is equal to `n`	See line 6 for help with the code. Remember your indents.

Task 4: Modify

Modification 5	Hint
The program should output “`It must be a Fish!`” if the condition on line 16 is True and “`It must be a Whale!`” if the condition is False. Enter the necessary lines of code to make this happen.	

Modification 6	Hint

Test your code. Check the input/output in the hing to see if it is working correctly.	`Pick either Ostrich, Lion or Whale`
	`I will attempt to guess your choice`
	`Does the animal live in the water? Y/N`
	`y`
	`Is the animal a mammal? Y/N`
	`n`
	`It must be a fish!`

Task 4: Modify

Modification 7	Hint

Test your code again. Check the input/output in the hing to see if it is working correctly.	`Pick either Ostrich, Lion or Whale`
	`I will attempt to guess your choice`
	`Does the animal live in the water? Y/N`
	`y`
	`Is the animal a mammal? Y/N`
	`y`
	`It must be a Whale!`

Modification 8	**Hint**
Edit the instructions at the beginning of the code to reflect the addition of a Fish to the animal choices.	

Guess the vegetable game

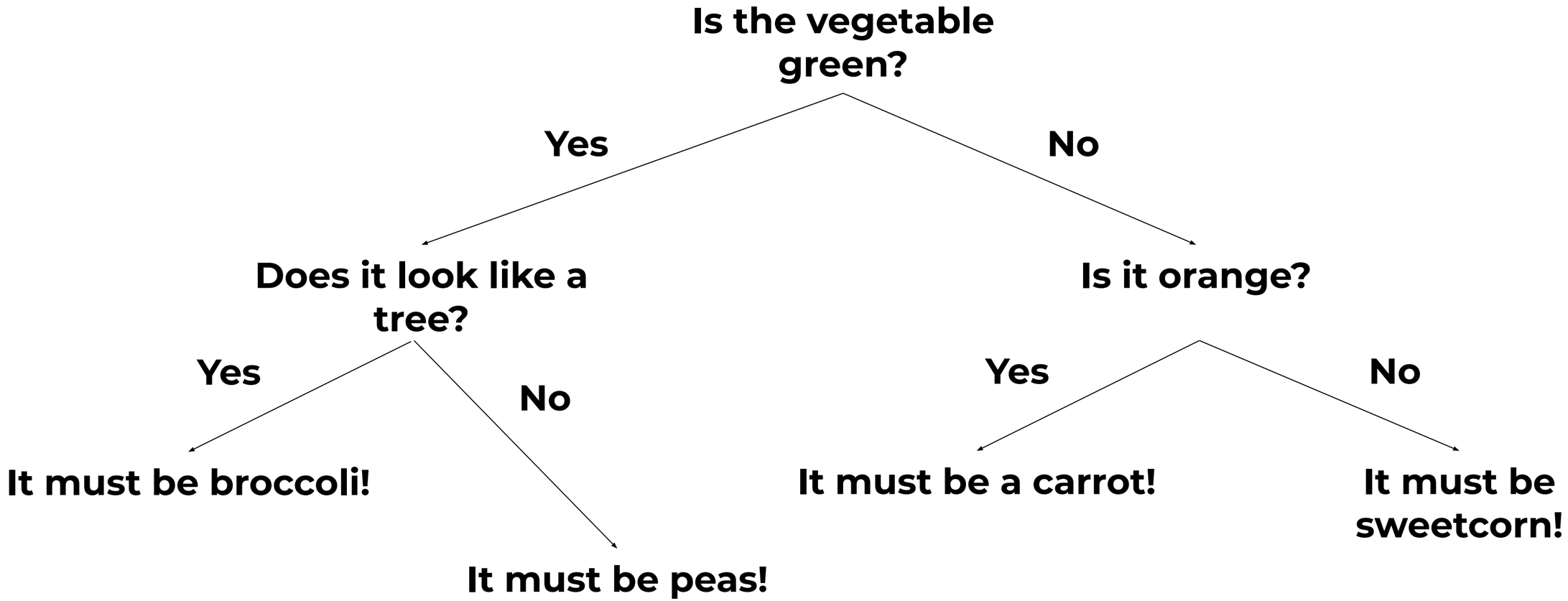
Make a guess the vegetable game

Make a guess the vegetable game. Your game will consist of 4 vegetables.

- Peas
- Broccoli
- Carrot
- Sweetcorn

The vegetables need to be divided into categories. To help you plan your game, a tree diagram has been created for you on the next slide.

Guess the vegetable game decision tree



Sample input/output for testing

Example: the user has chosen carrot as their vegetable (✔ if it was successful)

Note: Use this example to check your program. This is the output your program should produce for the given input. ✔

The user is given instructions and a question prompt	`Pick either Carrot, Broccoli, Peas or Sweetcorn`
	`I will attempt to guess your choice`
	`Is the vegetable green? Y/N`

The user enters their reply	`n`
The program checks the response against a condition and displays the following prompt.	`Is the vegetable orange? Y/N`
The user enters their reply	`y`
The program checks the response against a condition and displays the message.	`It must be a Carrot!`

Sample input/output for testing

Example: the user has chosen peas as their vegetable (✔️ if it was successful)	

The user is given instructions and a question prompt	`Pick either Carrot, Broccoli, Peas or Sweetcorn`
	`I will attempt to guess your choice`
	`Is the vegetable green? Y/N`

The user enters their reply	`y`
The program checks the response against a condition and displays the following prompt.	`Does the vegetable look like a tree? Y/N`
The user enters their reply	`n`
The program checks the response against a condition and displays the message.	`It must be a Peas!`