



Chatbots with Personality: Branching & Loops



Question 1

What are 2 kinds of **errors** we should defend against?

- A. Syntax and Logic (or semantic)
- B. Compile time, arithmetic
- C. Incorrect inputs, incorrect outputs
- D. Typos, Logicos, Woopsos



Question 2

What does the **strip** function do?

- A. Removes the last character of a string.
- B. Removes “garbage” characters from the start of a string.
- C. Removes “garbage” characters from the end of a string.
- D. Removes “garbage” characters from the start and end of a string.



Question 3

What could be wrong with this code?

```
reply = input()
if reply.lower().strip(" ") == "GOOD"
    print("Good!")
```

- A. It strips out all characters except the space.
- B. Variable name should be improved.
- C. The if statement should check for "Good" not "GOOD"
- D. The code will never print "Good!"



Question 4

What does this code output?

```
movies = ["Superman", "Frozen", "X-Men"]  
print("x-men" in movies)
```

- A. True
- B. False
- C. "x-men" in movies
- D. x-men

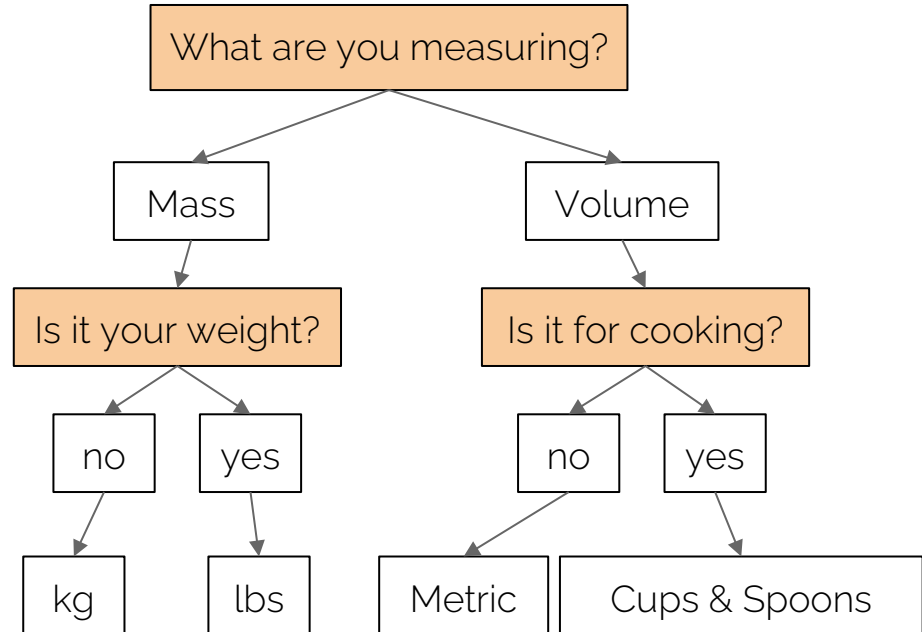


Branching More

Nested Conditionals



How to measure things like a Canadian



Adapted from: https://www.reddit.com/r/HelloInternet/comments/czcf7u/canadian_measurement_flowchart/

Nested Conditionals

pass is a keyword that means “do nothing”, useful if you want to temporarily have a branch that performs no action (e.g. for debugging purposes)

```
1 # How to Measure Things in Canada
2 # Authors: Angelica Lim, Victor Cheung
3 # Date: Sept. 17, 2020
4
5 print("I can tell you what to use for measurements in Canada!")
6 measure = input("What are you measuring (mass/volume)? ").lower()
7     .strip("!.")
8
9 # Left branch – mass. If weight, lbs. Otherwise kg
10 if measure == "mass":
11     is_weight = input("Is it your weight?").lower()
12     if is_weight == "yes":
13         print("Use lbs.")
14     else:
15         print("Use kg.")
16
17 # Right branch – volume. If cooking, cups & spoons. Otherwise
18 # metric.
19 elif measure == "volume":
20     # TODO: Add this branch
21     pass
```

<https://runestone.academy/runestone/books/published/thinkcspy/Selection/Nestedconditionals.html>

Nested Conditionals

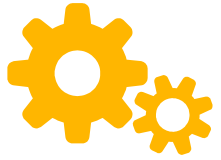
Use indentation carefully to match up your else's with their corresponding if's.

```
1 # How to Measure Things in Canada
2 # Authors: Angelica Lim, Victor Cheung
3 # Date: Sept. 17, 2020
4
5 print("I can tell you what to use for measurements in Canada!")
6 measure = input("What are you measuring (mass/volume)? ").lower().strip("!.")
7
8 # Left branch - mass. If weight, lbs. Otherwise kg
9 if measure == "mass":
10     is_weight = input("Is it your weight? ").lower()
11     if is_weight == "yes":
12         print("Use lbs.")
13     else:
14         print("Use kg.")
15
16 # Right branch - volume. If cooking, cups & spoons. Otherwise metric.
17 elif measure == "volume":
18     is_cooking = input("Is it for cooking? ").lower()
19     if is_cooking == "yes":
20         print("Use cups and spoons.")
21     else:
22         print("Use metric!")
```

<https://runestone.academy/runestone/books/published/thinkcspy/Selection/Nestedconditionals.html>



A Party Game Bot



This lesson

- Creating lists on-the-fly as opposed to "hard-coded"
- **for** loop with a **list**
- **for** loop with **range**



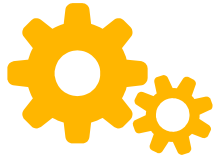
Mind Reader Game Host

This is a 2-player party game, hosted by your chatbot.

Rules

- The 1st player reads a **word**, and secretly enters 3 words they associate with it.
- The 2nd player must then try to guess at least one of the words. If it's a match, they win!





Mind Reader Game

```
1 # How Well Do You Know Me?
2 # Author: Angelica Lim
3 # Date: Jan. 16, 2018
4
5 # This is a 2-player game where you The 1st player reads a word,
6 # and secretly enters 3 words they associate with it.
7 # The 2nd player must then try to guess at least one of the words.
8 # If it's a match, they win!
9
10
11 # Introduce the game
12
13 # Ask the first player to enter 3 words associated with a given word
14
15 # Clear the screen
16
17 # Ask the 2nd player to guess an associated word
18
19 # Check if they match and tell them if they won!
20
```

Mind Reader Game

```
1 # Mind Reader Game
2 # Author:
3 # Date:
4 # This is a 2-player game. The 1st player reads a word,
5 # and secretly enters 3 words they associate with it.
6 # The 2nd player must then try to guess at least one of the words.
7 # If it's a match, they win!
8
9 # Introduce the game
10 print("Welcome to Mind Reader")
11
12 # Ask the first player to enter 3 words associated with a given word
13 print ("Player 1, enter 3 words you think of when I say cat:")
14
15 # Get the 3 words from the user
16 first_word = input("First word: ")
17 second_word = input("Second word: ")
18 third_word = input("Third word: ")
19
20 # Clear the screen
21 print(100*\n")
22
23 # Ask the 2nd player to guess
24 print("Player 2, what is one word you think Player 1 associates with cat?")
25 guess = input()
26
27 # Check if they match and tell them if they win!
28 if guess in [first_word, second_word, third_word]:
29     print("You got it!")
```

Prints 100 carriage returns

```
30
31 # Otherwise, if they got it wrong
32 else:
33     print("No match! They said " + first_word + ", " + second_word +
34           " and " + third_word)
```

Yes, you can **construct lists using variables**. This is especially useful to make lists **on-the-fly** based on input!

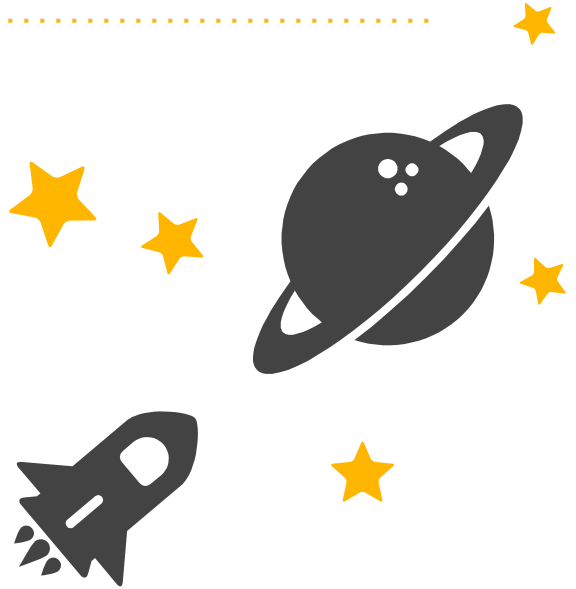


How could we play multiple rounds?

Loops

For doing things over, and over, and over...!

<http://interactivepython.org/runestone/static/thinkcspy/PythonTurtle/TheforLoop.html>



Method 1:

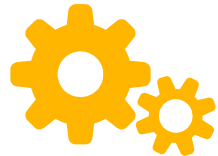
Looping over a list

for

in

This means: **for** every *word* **in** the *words* list, do the following (indented)

```
1 # Mind Reader Game
2 # Angelica Lim
3 # Jan. 24, 2021
4 # This is a 3 round 2-player game. The 1st player reads a word, and secretly
5 # enters 3 words they associate with it. The 2nd player must then try to guess
6 # at least one of the words. If it's a match, they win!
7 import random
8
9 # Introduce the game and create word list
10 print("Welcome to Mind Reader")
11 words = ["cat","snow","hot"]
12
13 # Do 3 rounds
14 for word in words:
15
16     # Ask the first player to enter 3 words associated with a given word
17     print ("Player 1, enter 3 words you think of when I say " + word)
18
19     # Get the 3 words from the user
20     first_word = input("First word: ")
21     second_word = input("Second word: ")
22     third_word = input("Third word: ")
23
24     # Clear the screen
25     print(100*" \n")
26
27     # Ask the 2nd player to guess
28     print("Player 2, what is one word you think Player 1 associates with " +
29           | word + "?")
30     guess = input()
31
32     # Check if they match and tell them if they win!
33     if guess in [first_word, second_word, third_word]:
34         print("You got it!")
35
36     # Otherwise, if they got it wrong
37     else:
38         print("No match! They said ",first_word,second_word,
39               "and",third_word)
```





Range

Generates a list of numbers

<http://interactivepython.org/runestone/static/thinkcspy/PythonTurtle/TheforLoop.html>

```
› list(range(10))  
[0, 1, 2, 3, 4, 5, 6, 7, 8, 9]  
› list(range(3,6))  
[3, 4, 5]
```

```

1 # Mind Reader Game
2 # Angelica Lim
3 # Jan. 24, 2021
4 # This is a 3 round 2-player game. The 1st player reads a word, and
5 # secretly enters 3 words they associate with it.
6 # The 2nd player must then try to guess at least one of the words.
7 # If it's a match, they win!
8 import random
9
10 # Introduce the game
11 print("Welcome to Mind Reader")
12
13 words = ["cat", "snow", "hot", "coffee", "Canada", "sport"]

```

```

30 # Ask the 2nd player to guess
31 print("Player 2, what is one word you think Player 1 associates with " +
32 | selected_word + "?")
33 guess = input()
34
35 # Check if they match and tell them if they win!
36 if guess in [first_word, second_word, third_word]:
37 | print("You got it!")
38
39 # Otherwise, if they got it wrong
40 else:
41 | print("No match! They said ", first_word, second_word,
42 | "and", third_word)

```

```

14
15 # Do 3 rounds
16 for i in range(3):

```

Remember to change the word variable **inside** the loop, or else it will stay the same for all 3 rounds!

```

17
18 # Ask the first player to enter 3 words associated with a given word
19 selected_word = random.choice(words)
20 print ("Player 1, enter 3 words you think of when I say " + selected_word)
21
22 # Get the 3 words from the user
23 first_word = input("First word: ")
24 second_word = input("Second word: ")
25 third_word = input("Third word: ")
26
27 # Clear the screen
28 print(100*" \n")
29

```

We have found another way to select a word, since we are not looping over a list of strings.

Method 2: Looping with range

Let's
Code





Readings Review

What does this code output?

```
movies = ["Superman", "Frozen", "X-Men"]  
for movie in movies:  
    print(movie, "!")
```

What would this code output?

```
for i in range(3):  
    print(i)
```

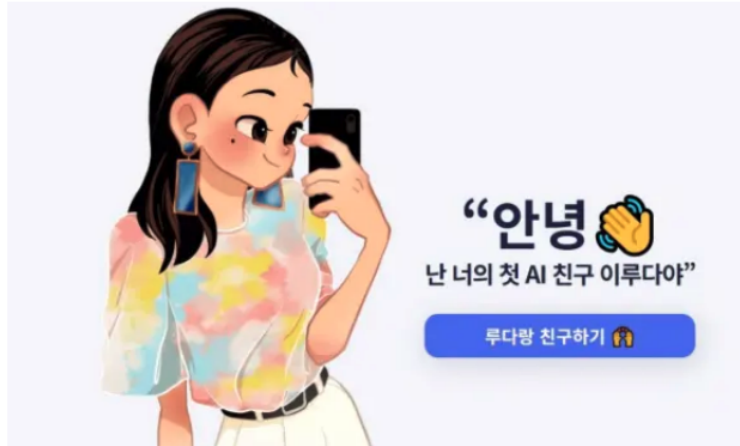


Ethical Considerations



South Korean AI chatbot pulled from Facebook after hate speech towards minorities

Lee Luda, built to emulate a 20-year-old Korean university student, engaged in homophobic slurs on social media



▲ Lee Luda, a Korean artificial intelligence chatbot, has been pulled after becoming abusive and engaging in hate speech on Facebook. Photograph: Scatter Lab

A popular South Korean chatbot has been suspended after complaints that it used hate speech towards sexual minorities in conversations with its users.

Lee Luda, the **artificial intelligence** [AI] persona of a 20-year-old female university student, was removed from Facebook messenger this week, after attracting more than 750,000 users in the 20 days since it was launched.

Discussion

What guidelines can we follow to ensure chatbots are a good and positive technology for society?

<https://www.theguardian.com/world/2021/jan/14/time-to-properly-socialise-hate-speech-ai-chatbot-pulled-from-facebook>



Let's **review** some concepts

What are the **keywords** needed to make a **loop**?

In a **loop**, what do you need to do to the code that you want to repeat?

True or false? Methods can be **chained** from **left** to **right**.

Can you create a **list** containing all variables?
Some variables?