Why was the computer cold?

Because it left its Windows open!

Source: https://www.ducksters.com/jokes/computer.php

Thank you Ella!

CMPT 120

Lecture 8 – Chatbots
Iteration statement, for loop, in and range( )
Feedback from In-Class Activity 1

• Thank you!

• GPS
  • Comments
  • User interaction
Last Lecture

- Feedback from Assignment 0
- Improving grade-to-letter grade converter
  - Robustness -> User input Validation
  - Efficiency
- Step 4 Testing and Errors
- Our Guessing Game:

Your turn!

- Step 1 - Problem Statement
  - Write a guessing game, which allows a user to guess a number between 1 and 10.
Lecture 6 …

Robustness - User Validation

• What if the user enters "banana"?
  • Misbehaving user versus well-behaved user
    • Testing our new version of our guessing game:
      1. Test case 1: input != number to guess
         • How to know the number to guess?
           • The trick is to …
      2. Test case 2: input == number to guess
      3. Test case 3: invalid input: 53 (> 10)
      4. Test case 4: invalid input: -21 (< 1)
      5. Test case 5: invalid input: "banana"
Robustness - User Validation

- Test cases:
  - Test data
  - Expected result
  - Actual result

- Testing our new version of our guessing game:
  1. Test case 1: input != number to guess
  2. Test case 2: input == number to guess
  3. Test case 3: invalid input: 53 ( > 10)
  4. Test case 4: invalid input: -21 ( < 1 )
  5. Test case 5: invalid input: "banana"
Readings Review

1. What does this code output:

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

A list is a sequence
2. What does this code output:

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

The range function creates a sequence.
Readings Review

3. What does this code output:

```python
name = "Anne"
for char in name:
    print(char)
```

A string is a **sequence**
From a previous lecture: The **in** keyword (and **not in**)

```python
# howIsItGoing-v2.py
#
# Description: Chatbot that asks a user how their day is going, and make
# a comment that changes depending on how the user answered.
#
# Author: Anne Lavergne
# Date: M Jan. 15 2024
#
# Ask user how their day is going
# Read user's reply
userReply = input("Hey! How's your day going? ").strip().lower()

# Some possible replies when all is well!
wellResponses = ["great!", "fine!", "good!", "ok!"]

# Some possible replies when all is not well!
notWellResponses = ["not so good!", "not so well!", "terrible!", "bad!"]

# Make comment if user's day is going well
if userReply in wellResponses:
    print("Glad to hear!")
    print("Mine too!")
# Make comment if user's day is not going well
elif userReply in notWellResponses:
    print("Oh! Sorry to hear!")
else:
    # Make another type of comment otherwise
    print("Oh! I see ... !")
```

**Careful:** This **in** behaves differently than the **in** used in the **for** loop!
Repeated code -> Bad idea!

• What do you mean by repeated code?
• If the problem statement is: List some movies, then Solution 1 would solve the problem using repeated code -> bad idea!
  • Solution 1:
    ```python
    print("Superman")
    print("Frozen")
    print("X-Men")
    ```
  • Solution 2 would not -> good idea!
  • Solution 2:
    ```python
    movies = ["Superman", "Frozen", "X-Men"]
    for movie in movies:
        print(movie,"!")
    ```
Today’s Menu
Improving our guessing game

• Wouldn’t it be nice to play our guessing game many times without having to press Run over and over again?

• New Problem Statement
  • Write a guessing game, which allows a player to guess a number between 1 and 10 in 3 guesses!

• Let’s get coding!
Review - Syntax of a for loop

```python
<statement outside (before) the loop>
for <iterating variable> in <sequence>:
    <first statement to be repeated>
    <second statement to be repeated>
    ...
    <last statement to be repeated>
<statement outside (after) the loop>
```

- Can be a string
- Can be a list
- Can be produced using `range(...)"
Review - Syntax of a `for` loop

```python
<statement outside (before) the loop>
for <iterating variable> in <sequence> :
    <first statement to be repeated>
    <second statement to be repeated>
    ...
    <last statement to be repeated>
<statement outside (after) the loop>
```

- **Important** – About Indentation
  - *Statements inside the loop* (i.e., statements executed at each iteration of the loop) are the statements indented to the right with respect to the `for` keyword
  - *Statements outside the loop* (before and after the loop) are the statements that are **not** indented to the right with respect to the `for` keyword – these statements are considered to be at the same level of indentation as the `for` loop (as left-aligned as the `for` loop)
Review Questions

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

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

3. True or False? Functions (methods) can be **chained** from **left** to **right**?

4. Can you create a **List** containing all **variables**? Some **variables**?

**Reflection**: How would you go about answering this questions?
Next Lecture

• Introducing another field of study in Computing Science: **Cryptography and Encryption**

• Can we build programs that create secret(encrypted) messages using
  • Arithmetic operators
  • String indexing and slicing mechanism
  • etc...

• Let’s see 😊