2. Copy-paste the below code in your Python terminal and observe the error, if any. Explain the code and any errors you get in a word/txt/pdf document. We spent a lot of time on this in class.

for idx in 12:

print(idx)

A screenshot of a computer

AI-generated content may be incorrect.

**Code we gave:**

for idx in 12:

print(idx)

**Error we observed:**  
TypeError: 'int' object is not iterable

**Explanation (in my own words):**

This code attempts to loop through the number 12 but Python does not permit looping through simple numbers. A for loop requires that it be able to iterate over something, such as a list, a string, or a range () thing. Python raises a TypeError since 12 is not an iterable, but a number.

**Correct Version of the Code:**

for idx in range(12):

print(idx)

This will correctly print numbers from 0 to 11.

3. Bonus points if you can explain why lists are iterable and not integers or float? Explain it in your simple words. This is optional and explanation expressed in 1-2 lines is much appreciated.

Ans: The lists are iterable as each list has several values that can be looped at a time end to end. Integrals and floats are simply single values thus nothing to iterate over.

C. Explain the why comprehensions are better in your own words. You can say it in 1-2 lines. Bonus points if you come up with your own examples. You can provide the explanation in the same word/txt/pdf file.

Ans: Use of list comprehension is preferred, since it allows us to code cleaner and shorter to make new lists by creating new ones based on existing lists. It is easier to read and tends to be faster compared with the loop.

Example:

# Without comprehension

squares = []

for x in range(5):

squares.append(x \* x)

# With comprehension

squares = [x \* x for x in range(5)]

**Explanation:**  
This gives a list of square between 0 and 4 multiplied into itself in one line rather than looping.