

Review for finals #1

Due Tuesday 5/16/23 (6th period), Wednesday 5/17/23 (7th period)

We are going to review Python for two weeks. Your final exam will be on Python. Today we're going to review variables, while loops, and if/elif/else structures.

First, log back in to repl. Create a new repl, name it "Review 1".

Type the following then run the program:

```
print("howdy")
```

Not too exciting, but we've got to ease back into everything so I figured we'd start super easy.

Remember how Python uses indentation to separate blocks of code? Each block of code has the same indent level. So in the following, the indented lines under the **while** line tell Python that those lines are inside the loop, while the line afterwards is not.

```
x = 0
while (x<4):
    print(x)
    x=x+1
print("OK")
print("tiger"*x)
```

Try it. Just reading through this review will not help you remember how to do things. Copy the above code, paste it after the howdy line in your current program, save and run it. You may have to fix the indenting after you paste it into your repl window. You should get the following output:

```
howdy
0
1
2
3
OK
tigertigertigertiger
```

Notice the last line of the code above? By printing "tiger"*x you get Python to print "tiger" x times.

(continued on next page)

You can get data from a user using the **input** function:

```
name = input("Please enter your name: ")

or

count = int(input("Please enter a number: "))
```

The second one above uses the **int()** function to change what the user entered into a number.

Saying `print("hello"*count)` will print "hello" **count** times on a single line.

You can loop using a while loop (see example on previous page, plus one here):

```
while True:
    n = input("Enter your favorite class: ")
    if n == "math":
        print("you win!")
        break
    else:
        print("try again")
        continue
```

If you want to break out of a loop early you can use the **"break"** command. If you want to go back to the top of a loop from inside an if statement you can use the **"continue"** command. In the above code you actually don't need the "continue" because you're in a while True: loop so it would already loop until you said "break". I just included the continue so you could see that there are multiple ways to do things.

You can evaluate variables using an if or an if/else statement (see example below):

```
while True:
    a = input("Please enter the best pet: ")
    if a == "dog":
        print("Great choice, best pet ever!")
        break
    elif a == "cat":
        print("Cats are pretty OK. Please try again")
    else:
        print("Please try for something a bit more traditional.")
```

Here's another example:

```
n = int(input("Please enter your age: "))
if n > 18:
    print("You probably are done with high school.")
else:
    print("You are probably still in high school.")
```

That's a lot to remember. Let's try to put it to good use in a review assignment on the next page.

Today's task:

Empty out any practice work you did (the last two pages) from the repl, and then:

- Print "Part 1:" Ask the user their name.
- Ask the user their age.
- Print the user's name as many times as the user's age.
- Print a blank line, then "Part 2:". Print rows of stars from 1 to the user's age. You'll need a loop. Print the number of stars on each line after the stars on that same line. (First line, one star, second line two stars, and so on, see sample output on next page).
- Print a blank line, then "Part 3:" Use a while True: loop to ask the user to enter information (you choose the type of information; don't make your program ask about pets or teachers, those are my examples.)
 - Inside the while True: loop, use an if/elif/else statement to pass judgment on the user's entry. Make sure you have an if, an elif, and also an else in your code. I mean check if what they entered is one thing, or another thing, and if not one of those things, say something else. You must use an if/elif/else structure. One of the options must have a break in it, so you can get out of the loop.
 - Use a break to leave the loop when the user enters a particular answer, but after you comment on that answer.
- Print a blank line then print ("Part 4"). Use a try/except structure to ask the user for a number greater than 50. Give one error message if the user enters something that is not a number and a different one if the user enters a number less than 50. After you get the number, break out of the while True: and use a for loop to print the numbers 3 through the user's number in 6 columns.
- Say "Thanks for running my program." at the very end.
- Test your code completely, showing the three results of the if/elif/else parts. Select the entire output, copy it, then paste it inside of triple quotes after your code.
- Call me over to review what you have done, then turn it in on the Google Classroom.

See next page for sample output.

Here's a sample run (yours must be different):

```
Part 1:
Please enter your name: Frank
Please enter your age: 13
FrankFrankFrankFrankFrankFrankFrankFrankFrankFrankFrankFrankFrank
```

```
Part 2:
* 1
** 2
*** 3
**** 4
***** 5
***** 6
***** 7
***** 8
***** 9
***** 10
***** 11
***** 12
***** 13
```

```
Part 3:
We're going to talk about teachers.
Please enter one of your favorite teachers: Sauron
Woah, that's a little dark. I'm going to ask you to try again.
Please enter one of your favorite teachers: Gollum
Meh, please try again.
Please enter one of your favorite teachers: Gandalf
A real good guy, great choice.
```

```
Please enter a number greater than 50: hey
That is not a number.
Please enter a number greater than 50: 5
That is not greater than 50.
Please enter a number greater than 50: 57
```

```
3  4  5  6  7  8
9  10 11 12 13 14
15 16 17 18 19 20
21 22 23 24 25 26
27 28 29 30 31 32
33 34 35 36 37 38
39 40 41 42 43 44
45 46 47 48 49 50
51 52 53 54 55 56
57
```

```
Thanks for running my program.
```

Remember that you can look at your old programs to see things you have done before. Call me over to check you off in person before you turn it in. Review the bullet list of requirements, make sure you have done everything.

The help video does not cover the last two parts (the try/except) and the columns. You'll need to look at your old programs to figure that stuff out, or ask for help in class.

Turn a share link in when you are done.