Exercise 2: More variables, printing, strings and text

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Hey there again. Welcome to the third lecture on the course for programming in python. Bear with me if you're bored with printing stuff around. But, the first steps are always frustrating. Let's get on with the lecture.

Today, we'll learn about something called "format strings". Strings are pretty handy when we want the output from or inputs to a program to be very understandable (we will talk about user inputs in the following lectures). In plain english, they are nothing but well formed "sentences" conveying some meaning to the user. Every time you've put something inside the double quotes (" ") or single quotes (' ') after the `print`, you've created a string. It's pretty straightforward why we call a string as a "string". I'll let you think about this. Strings can be used with variables embedded inside them.

To embed variables, specialised format sequences are used with strings and then putting the variables at the end with a special syntax that tells Python that "this is a format string, put these variables in them". A simple example is given below. Notice how the variable `age` is embedded inside the string.

```
age = 23 #integer
print "My age is %d" % age #a format string
```

Let's understand what is happening in the above print statement which is printing the sentence "My age is 23". Strings may contain format characters that we will be touching on in the exercises. The above sentence prints the `age` variable because we have the format character `%d` embedded inside the string followed by the %(percent) character and the variable name after the double quotes ("") end.

One thing that might be running through your mind but are not asking me is that what the heck is the word "format" in the format string? Well, do some research on the god of information, the Internet, and let me know in the question in the exercises. Though I will also tell you in the classroom discussion.

Okay coming back to the point, what if you want to print a list of contents? Well, its pretty simple, you have to use parenthesis ( ) and , (comma) characters to club your variables as `%(variable1, variable2, variable3,...,variableN).`

This pretty much sums up the lecture for today. Let's move on to the exercises.

Exercise 1: Variables and printing

1. Create a file called **ex2_1.py** and add the following code to it. Pay attention to what you're typing.

```
print my_name = 'Rahul Sharma'
print my_age = 23 # not a lie
print my_height = 90 # inches
print my_weight = 88 # kg
```

```
print my_eyes = 'Black'
print my_teeth = 'White'
print my_hair = 'Black'
print "Let's talk about %s." % my_name
print "He's %d inches tall." % my_height
print "He's %d pounds heavy." % my_weight
print "Actually that's not too heavy."
print "He's got %s eyes and %s hair." % (my_eyes, my_hair)
print "His teeth are usually %s depending on the coffee." % my_teeth
print # this line is tricky, try to get it exactly right
print "If I add %d, %d, and %d I get %d." % (my_age, my_height,
my_weight, my_age + my_height + my_weight)
```

2. Try more format characters. %r is a very useful one. It's like saying "print this no matter what."
3. Search online for all the Python format characters.
4. Try to write some variables that convert the inches and kilos to centimetres and pounds.Do not just type in the measurements. Work out the math in Python.

BONUS: Why do you think we call a string as a "string"? Be a philosopher and write a print statement at the bottom of the file telling me the answer.

Exercise 2: Strings and Text

1. Create a file called **ex2_2.py** and write the following code in it:

```
x = "There are %d types of people." % 10
binary = "binary"
do_not = "don't"
y = "Those who know %s and those who %s." % (binary, do_not)
print x
print y
print "I said: %r." % x
print "I also said: '%s'." % y
hilarious = False
joke_evaluation = "Isn't that joke so funny?! %r"
print joke_evaluation % hilarious
w = "This is the left side of..."
e = "a string with a right side."
print w + e
```

2. Write a comment above each line explaining what is it doing?
3. Find all the places where a string is put inside a string. There are four places.
4. Are you sure there are only four places? How do you know? Maybe I like lying.
5. Explain why adding the two strings w and e with + makes a longer string.

BONUS: What would be the difference between a string and a format string?