

statement vs. expression

1. What is a statement? What is an expression?
2. Give examples of a Python statement and a Python expression?

variable

1. Write a Python statement that assigns a value to a variable.
2. What is the scope of a variable in Python?

function

1. Given a function `f` that takes two parameters (one of type integer and one of type string), write a statement/expression that calls this function. Use any appropriate expressions for the arguments.
2. Assume that the function `f` also returns an integer. Write a statement that calls this function (again: use any appropriate expressions for the arguments) and assigns the return value to a variable names `result`.
3. What effect does the statement `return x` have?
4. Write the first line of a statement that defines a function called `f2` which takes no parameter.
5. Write the first line of a statement that defines a function called `f3` which takes three parameters.

integer

1. Which of the following expressions refer to integers?

10 2.0 '1' -3 7+2

float

1. Write an expression that refers to a float with the value two.

string

1. Write an expression that refers to the string representing your name.
2. Given a string variable `s`, write a Python expression that evaluate to the length of the string and a Python expression that evaluates to the first character of the string.
3. Given two string variable `s1` and `s2`, write a Python expression that refers to the concatenation of the two strings. The two strings should be separated by a space.

boolean

1. List all possible values that a variable of type boolean can have.
2. What is the difference between `a = b` and `a == b`?
3. List the boolean connectives. That is all operators that allows you to combine two boolean expressions into one.

list

1. What do Python expressions referring to lists look like?
2. Given a variable `l` referring to a list, write an expression that returns the length of the list.
3. What is the index of the first element of a list?
4. Given a variable `l` referring to a list, write an expression that refers to the 3rd element of the list.
5. Given a variable `l` referring to a list, write an expression that refers to the sublist containing the second, third, and fourth element of the list.
6. How do you traverse a list in Python? I.e., what construct allows you to look at each element of a list (independently of how long the list is)? Give two versions - one which give you access to the indices as well and one which only gives you access to the elements of the list but not the indices of that list.

tuples

1. What is the difference between lists and tuples in Python?

dictionary

1. Write a Python statement that creates an empty dictionary and assigns it to a variable.
2. Given two variables `a` and `b`, write a statement that adds an entry to the dictionary you just created using `a` as the key and `b` as the value.
3. Given a variable `d` referring to a dictionary containing the key `tim`, write a statement that retrieves that value for that key from the dictionary and assigns it to the variable `val`.
4. How can you traverse all entries in a dictionary in Python?

if-statement

1. What do if-statements in Python look like? There are several variants; describe all of them.
2. What is the effect of an if-statement? That is, how does an if-statement affect the flow of control, which by default just executes one statement after the other from the top of the program to the bottom.

for-loop

1. What is the general structure of for-loops in Python?
2. What does a for-loop do?

while-loop

1. What effect does `while a!=0:` have?

game loop

1. What is the game loop? What happens in the each pass through the game loop?
2. What happens before the game loop is started? What happens after it has ended?

object

1. Given an object `o` and a method `m` which takes one integer parameter, write an expression which applies the `m` to `o`. Use any appropriate expression for the argument.
2. Assuming that `m` also has a return value, write a statement which applies the `m` to `o` and assigns the return value to a variable called `res`.

file objects

1. Write a Python statement that creates a file object and associates it with the name `f`.
2. Write Python code that reads the content of `f` line by line, uses the function `process` to process each line, and prints the result of processing that line to the screen.

IP address and port

1. What is an IP address? What is a port?