7% 0T0his is the review topic list we will cover in our review session.

This is not meant to be a comprehensive list of everything that could be on the exam. Everything from the content videos, programming activities, and homework assignments is fair game for the exam. This is simply meant to be a guide for you to know what concepts to study, and to gauge the topics that I find the most important.

Review Topics

* Why do we use Python, vs other programming languages?
* Understand naming conventions for python variables (identifiers)? An identifier is a variable or a function - something you give a name. A variable name must start with a letter or the underscore character. A variable name cannot start with a number. A variable name can only contain alpha-numeric characters and underscores (A-z, 0-9, and \_ ). Variable names are case-sensitive (age, Age and AGE are three different variables)
* Understand the different data types in Python, including: int, float, string, list
* Understand arithmetic operations: + - / // % \* \*\*
* // rounds down. Negative rounds down to lower (more negative number). I.e. -7//2 is -4 not -3
* Understand + symbol uses: 1. Addition 2. String concatenation
* Understand how to change (cast) data types i.e. int() float() and str() functions
* Dynamic Typing vs Hard Typing. Python uses dynamic typing, i.e. a variable can change types mid program. Garbage collection cleans up old unused variables if the value is changed to a different type.
* Understand pseudocode - the step before coding. Outlining your code logic.
* Understand while loop - it's like an if statement that keeps iterating while the test condition is true
* Understand sentinels, i.e. the value used to stop a while loop
* Understand sep= and end= argument in the print statement
* Nested if statements. Nesting an if statement in a loop
* Understand how to define and call a function
* Understand the four parts of a function: name, parameter list, logic, return statement
* Lists are used for homogenous data (same data type). Technically they can store heterogeneous data, but it is bad practice to do this. Best practice is to use Lists for homogenous data, and Dictionaries for heterogeneous data.
* Understand how to slice a list i.e. lst[start\_idx:end\_one\_higher\_idx]
* Understand how to insert into a list i.e. lst.insert(insert\_idx, value)

Programming Questions

* The exam contains programming questions where I ask you to write a short algorithm or function to solve a problem. You will write Python code, but I am not concerned with correct syntax. I am looking for good logic, variables, and program structure.
* To prepare for these programming questions, review the homeworks, and programming activities.

**Additional Notes**

Converting floats to strings

1234.467813896 -> “1234.467813896”

Dynamic types:

Msg = “hello”

Msg = 5.0

Msg = 1

Msg = {}

Arithmetic Operators

%=

\*=

y = y \*\* 2

y \*\*= (½)

//

/

Lists:

To access the first element in a list, use [0]

lst = [1,2,3,4,5]

print(lst[0]) # prints the first element