

Outline for January 30

Reading: *text*, §5.1

Assignments: Homework 2, due on February 1 at 11:55pm

1. Sequences
 - a. Sequences are a series of values in a particular order
 - b. In Python predominantly strings and lists but also sets and tuples
2. Strings
 - a. Sequence of characters (characters are strings of length 1)
 - b. Strings are immutable; really important for functions
3. Basic string operations
 - a. `+`, concatenation for strings
 - b. `*`, repetition repeats given value
 - c. `len()` returns length of sequence
 - d. `s in str` returns True if `s` is a substring of `str`, False otherwise
4. Indexing, `var[position]`
 - a. Count from 0 to `len(var) - 1`
 - b. Position can be a negative number to count from right
5. Assignment with indexing doesn't work as strings immutable
`x = 'hEllo'; x[1] = 'e'` produces an error
6. Slicing, `var[start:end]`
 - a. Value at index end not included in slice
 - b. If omitted, starting value defaults to 0 and ending value defaults to last index + 1
 - c. Can use negative index
7. Example program [*strstuff.py*]
8. Looping over strings: `for i in str`
9. Example program [*strstuff.py*]
10. String methods
 - a. Rule: methods that change, add, or delete characters do *not* alter the string to which they are applied; they return a new string that is a copy of the old string, suitably modified
11. String methods: type of characters in string (return True or False) [*strtype.py*]
 - a. `S.isalpha()` — True if only alphabetic (letters) in `S`
 - b. `S.isalnum()` — True if only alphanumerics (letters or digits) in `S`
 - c. `S.isdigit()` — True if only digits in `S`
 - d. `S.isspace()` — True if only white space (blanks, tabs, newlines) in `S`
 - e. `S.isupper()` — True if all letters in `S` are upper case
 - f. `S.islower()` — True if all letters in `S` are lower case
12. String methods: changing case of letters in string (return result of applying method) [*strchcase.py*]
 - a. `S.capitalize()` — If the first character of `S` is a letter, capitalize it
 - b. `S.title()` — Capitalize each word in `S`
 - c. `S.lower()` — Change all upper case letters in `S` to lower case
 - d. `S.upper()` — Change all lower case letters in `S` to upper case
 - e. `S.swapcase()` — Change all upper case letters in `S` to lower case and *vice versa*
13. String methods: stripping blanks from strings (return result of applying method) [*strstrip.py*]
 - a. `S.lstrip()` — Delete all leading white spaces from `S`
 - b. `S.rstrip()` — Delete all trailing white spaces from `S`
 - c. `S.strip()` — Delete all leading and trailing white spaces from `S`
14. String methods: find characters and substrings (return position or cause exception) [*strfind.py*]
 - a. `S.find(s)` — Return the index of the first occurrence of `s` in `S`; `-1` if `s` not in `S`

- b. `S.index(s)` — Return the index of the first occurrence of `s` in `S`; `ValueError` exception if `s` not in `S`
- c. `S.rfind(s)` — Return the index of the last occurrence of `s` in `S`; `-1` if `s` not in `S`
- d. `S.rindex(s)` — Return the index of the last occurrence of `s` in `S`; `ValueError` exception if `s` not in `S`