CSCI 141
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Lecture 26
Review
Announcements
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• All material for the exam has been presented: anything new is bonus extra fun stuff that won't be tested.
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• Wednesday and Friday will be review; no quizzes, attendance is not required. Bring your questions!
Today

- Review: your questions
- Review: a few "greatest hits"?
- Review: solution code for A4 and A5?
- List comprehensions?
How to Study

• Solve problems.
• Sources of problems:
  • Quizzes (many q???.py are posted alongside lectures)
  • Worksheets
  • ABCD exercises
  • Homework, Midterm
• Sample problems (to be released tonight)
What to study

• The final exam is cumulative.

• A comprehensive study guide can be generated by concatenating all **Goals** slides.
These are my notes on what to write problems about, generated from the goals slides.

hardware and interactions
pseudocode / algorithms
comments
data types and conversions: int, float, str, bool
function calls; arguments and return values
variables
math, comparison, and logical operators, precedence
statement vs expression
binary conversion
if/elif/else, nesting
while loop syntax and behavior
importing modules
for loops, range
defining functions with and without return values and parameters
docstrings, specs, pre/postconditions
local variables, variable scope; parameters are local variables
tuples - unpacking, packing, return values and parameters
function composition
strings: operators, len, indexing, negative indices, slicing, in, lexicographic ordering
string methods: upper, lower, find, replace
lists: same stuff as strings
lists: modifying using assignment, append, extend, concatenation, insert, remove, del
lists are mutable; variables hold references:
  multiple variables can refer to the same object
  you can pass a reference to a mutable object into a function
dictionaries: creation, assignment/indexing, in, del; iterating over keys and values
files: open function, "r" vs "w"
  read(), read(size), readlines(), write(string), seek(pos)
  iterating over a file object

Pre-midterm

Post-midterm
Greatest Hits: A5 Written
Suppose \( \text{len}(a) \) is 4. Give the output of each print function call in the following code. If a given line causes an error, write ERROR and assume that line is skipped going forward.

```python
a.append(a[-2:])
print(len(a))
a.extend(a)
print(len(a))
```
Greatest Hits: A5 Written

Which of the following types can be used as keys of a dictionary? Check all that apply:

- str
- int
- float
- list
- dict
Midterm Exam: Greatest Hits

• 2: syntax errors
• 3.4: 4*5+9**2
• 3.7: float(str(float(int(4.7) + 4) - 20)) // 3
• 5: day/mark
• 9: while x <= 5
• 15: average scores
def the_snap(avengers):
    """ Remove a randomly chosen half of the elements from the given list of avengers """
def sort(a_list):
    """ Return a new list containing the same elements as a_list, but in sorted order
Pre: all elements can be compared with < """"