SI502 - Midterm Review

Details

- Will be given in discussion section - week of March 9
- Multiple Choice / Short Answer
- No more than 3 lines of technical stuff - "put code in here"
- What would this code do? What is wrong with this code?
- Notes: 2 pieces of paper - front and back is OK

Two Topics

- Python Knowledge
- Internet Materials (2 weeks)

Chapter 1

- Input - Processing - Output
- Compiler versus Interpreter
- Programming patterns - Sequential, Conditional, Repeated and stored/reused
- Variables and Assignment Statements
- Python Comments

Chapter 2

- Variable names / identifiers - what are legal variable names
- Reserved words - don't memorize
- Expressions / operations - Order of operation
- Input statements (input .vs. raw_input)
- Definite loops like for i in range(10):

Chapter 3 - Numbers

- Understand the concept of Type
- Literals have types too 1 1.0 "Hello Bob"
- Operator precedence what goes first - ( ) * / + -
- Operators behave differently for different types
- Converting between float, integer, and string - int() float() and str()
- Math functions - No

Chapter 4 - Strings

- Sequence of characters - indexing starts at zero
- String Literals
- String slicing x[2] x[2:4] x[3:]
- Difference between input() and raw_input()
- The len function
- Multiplying a string - nah

Chapter 4 - Strings

- String library - don't memorize - I will give you definitions from the book if needed
- Know about "import string"
- Know difference between split(str) and split(str,' ')
- Opening a file
- Looping through a file for line in infile:

Chapter 7 - Conditions

- If statements and if - else statements
- elif statements
- Indenting including nesting of if statements
- Comparison operators - know the difference between == and =
- try / except

Chapter 8 - Loops

- Definate loops for i in range(10):
- File looping
- Loop patterns: Counting, summing, averaging, searching, detecting, maximum, minimum
- break and continue
- Understand the use of None to indicate a variable has no value at all
- Boolean Operations - and or not

Chapter 11 - Data Structures

- Lists - append, sort, max, min - for loops - in operator
- Dictionaries - how to make empty dictionary - how to fill up a dictionary, how to use get() to initialize dictionary entries, know how to loop through dictionaries, know dictionary literals

Inernet History

- Understanding the phases of the Internet: Research, The First Internet, Commercialization of the Internet, Ubiquity
- Understand how NSFNet was a basic change w.r.t. Society
- Review videos: Larry Smarr, Robert Cailiau, Joseph Hardin

Internet Protocols

- Know the Internet Protocol stack and understand the purposes of each of the layers
- Know about IETF - Internet Engineering Task Force and the RFC standards
- Know about the Link/Physical layer, IP Layer, and TCP layer
- Understand how the layers make use of the services of the other layers

Internet Protocols

- Understand IP Addresses and Domain Name addresses - how they are similar and how they are different and how they work together
- Understand network numbers
- Understand how network numbers are used in the body of the Internet for routing and how this allows the network to scale

Internet Protocols

- Understand the nature of reliability at each of the layers - how TCP compensates for the unreliability in IP using buffering
- Understand how the traceroute program works and what it measures
- Understand how the domain name system is administered

Internet Protocols (2)

- Understand how the Secure Socket layer works - understand what it protects from
- Understand the purpose of a TCP Port
- Know the port numbers for SMTP(Mail), Telnet, and POP (Post Office Protocol)

HyperText Protocol (HTTP)

- Understand the Request/Response Cycle
- Be able to describe in some detail what happens when you press on a link in the browser - how the browser contacts the server, what is sent, and what comes back to the browser

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