**Python for Everyone: Notes**

**Chapter 6: Strings**

* String data type
  + A string is a sequence of characters
  + A string literal uses quotes ‘’ or “”
  + For strings, + means concatenate
  + When a string contains numbers, it is still a string
  + We can convert numbers in a string into a number using int()
* Reading and converting
  + We prefer to read data in using strings and then parse and convert the data as we need
  + This gives us more control over error situations and or bad user inputs
  + Input numbers must be converted from strings
* Looking inside strings
  + We can get at any single character in a string using an index specified in square brackets
  + The index value must be an integer and starts at zero
  + The index value can be an expression that is computed
* A character too far
  + You will get a python error if you attempt to index beyond the end of a string
  + So becareful when constructing index values and slices
* Strings have length
  + The built in function len gives us the length of a string
* Len function
  + A function is some stored code that we use. A function takes some input and produces an output
* Looping through strings
  + Using a while statement, an iteration variable, and the len function, we can construct a loop to look at each of the letters in as tring individually
  + A definite loop using a for statement is much more elegant
  + The iteration variable is completely taken care of by the for loop
  + Simple loop loops through each letter in a string and counts the number of times the loop encouters the a character
* Looking deeper into in
  + The iteration variable iterates through the sequence
  + The block (body) of code is executed once for each value in the sequence
  + The iteration variable moves through all of the values in the sequence
  + The iteration variable iterates through the string and the block (body) of code is executed once for each value in the sequence
* Slicing strings
  + We can also look at any continuous section of a string using a colon operator
  + The second number is one beyond the end of the slice – up to by not including
  + If the second number is beyond the end of the string, it stops at the end
  + If we leave off the first number or the last number of the slice, it is assumed to be the beginning or end of the string respectively
* String concatenation
  + When the + operator is applied to strings, it means “concatenate”
* Using in as a logical operator
  + The in keyword can also be used to check to see if one string is in another string
  + The in expression is a logical expression that return True or False and can be used in an if statement
* String library
  + Python has a number of string functions which are in the string library
  + These functions are already built into every string – we invoke them by appending the function to the string variable
  + These functions do not modify the original string, instead they return a new string that has been altered
  + Str.capitalize(), str.center(width[, fillchar]), str.endswith(suffix[, start[, end]), str.find(sub[, start[, end]])
* Searching a string
  + We use the find() function to search for a substring within another string
  + Fint() finds the first occurrence of the substring
  + If the substring Is not found, find() returns -1
  + Remember that string position starts at zero
* Making everything upper case
  + You can make a copy of a string in lower case or upper case
  + Often when we are searching for a string using find() we first convert the string to lower case so we can search a string regardless of case
* Search and replace
  + The replace() function is like a search and replace operation in a word processer
  + It replaces all occurences of the search string with the replacement string
* Stripping whitespace
  + Sometimes we want to take a string and remove whitespace at the beginning on or at the end
  + Lstrip() and rstrip() remove whitespace at the left or right
  + Strip() removes both beginning and ending whitespace