Introductory Python Exercises

1. Make a string from “Hello World”, and assign a variable reference to it.
    a. What is the length of this string? (len function)
    b. Take the first 5 letters of this string and assign to a new variable.
    c. Concatenate that result with the word “big” in the middle, and the last part of the string. It should print as Hello Big World
    d. Print the new String all Upper case, then in lower case.
    e. Capitalize only the first letter of each word (hint: look at the str.title() method)
2. Establish a file directory for your lab files if you have not already done so. Write a string that resolves to this directory.
3. Write a Pyton script: When the user runs the script, prompt the user for their name, then print the string “Hello, <name>.”
4. World Cup: You are traveling to brazil, and wish to convert your dollars to reals. The exchange rate is 1 real to 0.45 US Dollars. You know your hotel costs 100 real, use python to convert that to dollars.
    a. You keep converting things, so you decide to make a script which asks the user to enter “amount in reals”, and your script will return the amount in dollars.
5. Under Python 2.XX, what will the following expression return? 10 / 4
    a. How can you change this behavior? (list two ways, one with type casting and one with an import)
6. Write a script which asks the user for a lower number and a higher number, then calculates and returns the range.
7. You wish to decide on a “fun” rating for people. You realize this comes down to date of birth and the corresponding weekday and month. People born on Sundays are the most fun, while those born on Monday are the least fun.
    a. Your script should prompt the user for the birthday in the following format: YYYY/MM/DD

    b. Your script should then figure out what day of the week they were born on, and subsequently assign a fun value. The max value should be 10 (Sundays), and the minimum fun value should be 1 (Mondays), with evenly spaced values in between. (Hint: You will need to convert the range…)
8. Write a for loop which generates the numbers 1 to 99 (by 3), and squares them
9. Write a loop which accepts a list of numbers and returns their sum
10. Write a loop which accepts a list of numbers and returns their product
11. As your world cup vacation approaches, you get tired of converting miles to kilometers. Write function to ask the user to input miles, and convert it to kilometers and return it.
    a. 1 mile = 1.6 kilometers
    b. Use a lambda function for the conversion
12. Write a script which prompts the user for an initial sum of money, an interest rate, a target amount of money, and a start year. Print a list with the running balance each year until the balance exceeds the target amount of money.
13. Write a function which asks the user for their first name and then their last name, store them in a tuple, then unpack the tuple as arguments to a str.format() call to print "Welcome, <user fname> <user lname>".
14. Write a function which asks the user to input an integer, which you will then take the square root of. Put in an exception statement to cover the possibility of the user not putting in an integer, and request they put in the integer.
15. Do the list comprehension version of 8
    a. Make this conditional on values being odd (use the modulo operator, %)
16. Do the generator version of 8, and generate values from the generator until the value exceeds 5000