Python workshop 1 - in-class exercises

Function exercises

1. Write a function that prints out the string “Hello World!”, every time it is called.
2. Make the function from 1) return the string, instead of printing it. Call the function, store the returned value, then print the result.
3. Write a function that takes two numbers and returns their product.
4. Write a function that takes one number and returns it’s square.
5. Write a function that takes two numbers, and returns BOTH the sum and the difference of the numbers.
6. Write a function that takes a list and returns the second item in a list.
7. Write a function that takes a list and a number (n), and returns the nth item in the list.
8. Write a function that returns the length of a string.

If exercises

1. Write an if statement that ALWAYS executes (i.e. the test always evaluates to True). Re-write this using a number as the test, then rewrite it using a list as the test.

2. Write an if statement that NEVER executes (i.e. the test always evaluates to False). Re-write this using a number as the test, then rewrite it using a list as the test.

3. Write a function that takes two numbers and returns the one that is bigger.

4. Write a function that tests if a given number is even, then returns True if it is and False if it isn't. (Hint: use the modulus function described on page 8 of your handout)

5. Write a function that returns True if a given list's length is bigger than 10, or False otherwise.

6. Write a function that takes a list and a number (n) then returns True if the length of the list is larger than n and False otherwise.

For exercises

1. Write a function that prints out all of the numbers from 1 to 50.
2. Write a function that prints out the first 5 items in a given list.
3. Modify the function from 3. to test that the list has at least 5 items in it. If it doesn't return None.
4. Make a function that takes a number (n) and returns a list of all numbers from 1 to n.
5. Make a function that prints out all of the items in a list.
6. Make a function that prints out the harmonic mean of a given number (n).

$$harmonic\ mean = \sum_{i=1}^{n} 1/i$$

7. Make a function that calculates the mean of all the numbers in a list.
8. Write a function that counts and returns the number of even numbers in a given list. (Hint: use the function you wrote earlier in the "if exercises" section to test if a number is even.)
9. Write a function that calculates the sum of all items in a given list.
10. Write a function that, given a list and a number n, returns the first index of that number in a list or None if it is not found in that list.