Objective: At the end of this lab, you will be able to use strings and its methods effectively to solve problems.

In class exercises

You should time to finish at least the following exercises in class

1. What is the result of each of the following? Try to not use a computer for this question.

    a. ‘Python’[1]

    b. “Strings are sequences of characters.”[5]

    c. len(“wonderful”)

    d. ‘Mystery’[:4]

    e. ‘p’ in ‘Pineapple’

    f. ‘apple’ in ‘Pineapple’

    g. ‘pear’ not in ‘Pineapple’

    h. ‘apple’ > ‘pineapple’

    i. ‘pineapple’ < ‘Peach’

2. Write a program that prints a neatly formatted multiplication table like this:

x	0	1	2	3	4	5	6	7	8	9	10	11	12
0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9	10	11	12
2	0	2	4	6	8	10	12	14	16	18	20	22	24
3	0	3	6	9	12	15	18	21	24	27	30	33	36
4	0	4	8	12	16	20	24	28	32	36	40	44	48
5	0	5	10	15	20	25	30	35	40	45	50	55	60
6	0	6	12	18	24	30	36	42	48	54	60	66	72
7	0	7	14	21	28	35	42	49	56	63	70	77	84
8	0	8	16	24	32	40	48	56	64	72	80	88	96
9	0	9	18	27	36	45	54	63	72	81	90	99	108
10	0	10	20	30	40	50	60	70	80	90	100	110	120
11	0	11	22	33	44	55	66	77	88	99	110	121	132
12	0	12	24	36	48	60	72	84	96	108	120	132	144

3. Write a function that will return the number of digits of its integer parameter.

4. Write a function that returns the reverse of its string parameter.

Homework

5. Write a function that recognizes if its string parameter is a palindrome. You could use your reverse function from the previous question. Hint: use a web search to find out what a palindrome is.

6. Write a function that removes all occurrences of a given letter from a string. The function should return the result string.

7. Write a function that removes all occurrences of a string from another string. The function should return the result string.

Advanced homework

These are more advanced exercises that you should try to finish before next tutorial.

8. Write a function that implements a substitution cipher. In a substitution cipher one letter is substituted for another to garble the message. For example A -> Q, B -> T, C -> G etc. The function accepts two parameters: the message you want to encrypt and a string that represents the mapping of the 26 letters in the alphabet, e.g. “QTGABCDEFHIJKLMNOPRSUVXYZW”. The function returns a string that is the encrypted version of the message.

9. Write a function that decrypts the message from the previous exercise. It should also accept two parameters: the encrypted message, and a string representing the mapping for decryption. The function returns a string that is the original unencrypted message.