TMTplus Introduction to Scientific Programming

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Chapter 7

Files

Ex 7.1

```
def get_points(file_path):
    points = []
    file = open(file_path)
    for line in file:
        l = line.split()
        points.append(l)
    return points

points_list = get_points('points.txt')
print(points_list)
```

Ex 7.2

```
import csv

def read_csv_file(file_path):
    data = []
    file = open(file_path)
    csv_reader = csv.reader(file)
    for row in csv_reader:
        data.append(row)
    return data

def list_gps_commands(data):
    dictionary = dict()
    for row in data:
        gps_cmd = row[0]
        if gps_cmd in dictionary:
            dictionary[gps_cmd] += 1
        else:
            dictionary[gps_cmd] = 1
    return dictionary
```

```
gps_list = read_csv_file(r'GPS.csv')
gps_dict = list_gps_commands(gps_list)

print(gps_dict)
```

Ex 7.3

```
import string

def word_count(file_path):
    file = open(file_path)
    dictionary = {}

    for line in file:
        line = line.strip(string.whitespace +
                          string.punctuation).lower().split()
        for word in line:
            if word in dictionary:
                dictionary[word] += 1
            else:
                dictionary[word] = 1

    file.close()
    return dictionary

word_table = word_count('snark.txt')
print(word_table["and"])
```

Ex 7.4

```
def store_dict(dictionary, file_path):
    file = open(file_path, "w")
    for key in dictionary:
        file.write("%s: %i\n" %(key, dictionary[key]))

file.close()

store_dict(wordtable, "result32.txt")
```

Ex 7.5

```
word_table = word_count('snark.txt')

def most_often(dictionary):
    count = 0
    word = ''
    for key in dictionary:
        if dictionary[key] > count:
            count = dictionary[key]
            word = key
    return word, count
```

```
print(most_often(word_table))

def most_often_5_chars(dictionary):
    count = 0
    word = ''
    for key in dictionary:
        if len(key) == 5:
            if dictionary[key] > count:
                count = dictionary[key]
                word = key
    return word, count

print(most_often_5_chars(word_table))
```

```
def most_often_n_chars(dictionary, length):
    count = 0
    word = ''
    for key in dictionary:
        if len(key) == length:
            if dictionary[key] > count:
                count = dictionary[key]
                word = key
    return word, count

print(most_often_n_chars(word_table, 5))
```

Ex 7.6

```
def begin_with_b(file_path):
    word_table = word_count(file_path)
    count = 0
        for key in word_table:
            if key[0] == 'b':
                count += 1
    return count

print(begin_with_b('snark.txt'))
```

```
def begin_with_char(file_path, char):
    word_table = word_count(filename)
    count = 0
    for key in word_table:
        if key[0] == char:
            count += 1
    return count

print(begin_with_char('snark.txt', 'b'))
```