NATIONAL UNIVERSITY
OF COMPUTER & EMERGING SCIENCES
PESHAWAR CAMPUS

Problem Set:	Semester Project	**Semester**:	Fall 2020
Points:	*See autograder*		
Date Set:	*See autograder*	**Due Date**:	*See autograder*
Course:	CS118 Programming Fundamentals	**Instructor**:	Engr. Sara Rehmat

1 Dictionaries

Since you are reading this, you have already downloaded and extracted the zip file.
Read through the whole description below before starting with the assignment.

1.1 Tasks to do

1. For all of the following tasks, we will have a list with a certain structure. The structure is explained with the help of the following example. (Zoom in for a clear view)

```
[

    {
        "Company Name": "Roshan",
        "Company Motto": "Roshan began operations in 2003 in an environment where there was virtually no telecommunications infrastructure.",
        "City": "Kabul",
        "Country": "Afghanistan",
        "Contact": {
            "Phone Number": "+93 79 997 1333",
            "Email": "roshanca@roshan.af",
            "Website": "http://www.roshan.af/"
        },
        "Social Accounts": {
            "Facebook": "https://www.facebook.com/RoshanConnects",
            "Twitter": "https://www.twitter.com/roshanconnects",
            "LinkedIn": "https://www.linkedin.com/company/roshan"
        }
    },
    {
        "Company Name": "Gjirafa",
        "Company Motto": "Gjirafa is a video content and e-commerce platform for the Balkans built on top of an Albanian language specialized search engine.",
        "City": "Tirana",
        "Country": "Albania",
        "Contact": {
            "Phone Number": "37744991206",
            "Email": "info@gjirafa.com",
            "Website": "http://www.gjirafa.com/"
        },
        "Social Accounts": {
            "Facebook": "http://www.facebook.com/gjirafa",
            "Twitter": "https://twitter.com/gjirafashqip",
            "LinkedIn": "https://www.linkedin.com/company/gjirafa-inc-"
        }
    },
    {
        "Company Name": "Shqiperia Com",
        "Company Motto": "ShqiperiaCom primarily provides web developing services and consultancy in the region of Balkan.",
        "City": "Tirana",
        "Country": "Albania",
        "Contact": {
            "Phone Number": "35542403910",
            "Email": "mandi@shqiperia.com",
            "Website": "http://www.shqiperiacom.info"
        },
        "Social Accounts": {
            "Facebook": "https://www.facebook.com/shqiperiacom",
            "Twitter": "http://twitter.com/ShqiperiaCom",
            "LinkedIn": "https://www.linkedin.com/company/shqiperiacom"
        }
    }
]
```

2. Let's explain the structure in detail. Above, we have a list of dictionaries. Each dictionary represents a company and contains the following information:

- Company Name
- Company Motto
- City
- Country
- Contact (Phone Number, Email, Website).
- Social Accounts (Facebook, Twitter, LinkedIn).

The type for the "Contact" and "Social Accounts" is a dictionary, while for others, it's a string.

3. Read the description in detail and carefully to make sure you understand it fully. Then, read the description of tasks below. Do the tasks in order and they should be easier to complete.

A. Write a function with the name "get_companies_names". The function will be given a list of dictionaries following the above specifications. The function should return a list containing "Company Name" from each dictionary in the given list. For example, if the above list is given as input to the function, it should simply return [Roshan, Gjirafa, Shqiperia Com].
B. The second function should be called "get_countries". This function will also be given a list of dictionaries, however, it has to return a dictionary. Each key in the dictionary is a distinct country in the given list. The value of each key is the number of companies in the country represented by the key. For example in the above example, the function should return { 'Afghanistan': 1, 'Albania': 2 } if the above list is given as input.
C. Another function you need to write is called "get_companies". It takes the list of dictionaries representing companies along with a dictionary representing location. This dictionary will have "City" and "Country" as its keys. The values of these keys can be any strings. Your function should return a list of companies which are located in the location provided as a dictionary to the function. For example, if we give {"city": "Tirana", "country": "Albania"} as location along with the above list of dictionaries, the function should return ["Gjirafa", "Shqiperia Com"]. If there is no company that matches the location, the function should simply return None.

4. Run local tests and if they pass, submit the assignment using the submission command given on the Autograder assignment page. (Same as the first assignment.)