CSE 160 Section 5 Solutions

1. You have a file named students.txt where each line contains a student's name and age separated by a comma, like this:

```
Alice,20
Bob,22
```

Write a program that reads the file and prints each student's name and age separately.

Example output:

Name: Alice, Age: 20

```
students_file = open("students.txt")
for line in students_file:
    parts = line.split(",")
    name = parts[0]
    age = parts[1]
    print("Name:", name, "Age:", age)
students_file.close()
```

2. Write a function called **count_words(filename)** that reads the file and returns the total number of words across all lines. The file is formatted so that each line is a sentence.

For example, if you had a file quotes.txt that contains:

```
Hi my name is Annie.
Let's learn Python!
The returned value of count_words("quotes.txt") would be:
```

```
def count_words(filename):
    word_count = 0
    my_file = open(filename)
    for line in my_file:
        words = line.split()
        word_count += len(words)
    my_file.close()
    return word_count
```

3.. Create get_squares (number_list) that accepts a list of numbers and returns a dictionary mapping each number in the list to its square.

```
Ex: get_squares([1, 4, 4]) should return \{1:1, 4:16\}
```

```
def get_squares(nums):
    squares = {}
    for num in nums:
        squares[num] = num ** 2
    return squares
```

4. Write coldest_city (city temperatures) that takes in a dictionary and return the city (key) with the lowest temperature (value).

```
def coldest_city(city_temps):
    low_temp = None
    city_return = ""
    for city in city_temps:
        temp = city_temps[city]
        if (low_temp is None) or (temp < low_temp):
            low_temp = temp
            city_return = city
        return city_return</pre>
```

5. (a) Write pokemon_types (pokemon_dict) that takes parameter pokemon_dict and returns a new dictionary mapping each type of pokemon to the number pokemon in pokemon_dict with that type.

(b) Returns a new dictionary mapping each type of pokemon to the list of pokemon with that type.

```
For example, when pokemon_dict=
{"pikachu":"electric", "charmander":"fire", "charizard": "fire"}
 Then....pokemon_types(pokemon_dict) returns {'electric':
            ['pikachu'], 'fire': ['charmander',
            'charizard'}
 def get_num_types(pokemon_dict):
     '''takes a dictionary pokemon_types mapping pokemon
            to their type and returns a new dictionary
            mapping pokemon type to the a list of the
            pokemon in pokemon_type with that type.
     100
     result = {}
     for pokemon, pok_type in pokemon_dict.items():
         if pok_type not in result:
             result[pok_type] = []
         result[pok_type].append(pokemon)
     return result
```