CPSC 1301, Computer Science I Quiz

Quiz 7a

This is a timed test. You have thirty minutes to complete the test. Your deliverable will be a plain text file, that is, an ASCII file with a `.txt` file extension. When you finish the test, upload your deliverable to Canvas. Do not publish your answer to your `git` repository.

You may work with your study partner for this quiz. In fact, working together is strongly encouraged. If you work with a partner, you must each make a seperate submission for credit, but you must also include the names of both authors in your submission.

1   Instructions

This quiz will give you the experience of doing something that you will do very often in your programming career: munge data. You will typically open a data file, read the data into some kind of data structure, and manipulate the data. I have given you the data and have read it into a data structure. This consists of a `presidents` list. Each element of the list consists of a president's data. The details are given in section 2.

Take a good look at the data list in section 3. The records (representing presidents) are in a *list*. There are six elements to the president's list. Each president is in a *dictionary*. Note carefully that each dictionary is anonymous, that is, it does not have a name. Each dictionary consists of four named elements: an integer, a string, a list, and a dictionary. All of these have names.

For convenience, I have also given you a `month` dictionary, where integers map to strings. In other words, `month[1]` will return "January" and `month[12]` will return "December."

The output, shown in section 4, prints a series of sentences, like: `President 6, John Quincy Adams, from Massachusetts, was born on November 7, 1767`. In order to product this output, you should use a `for` loop to iterate through the presidents list, and for each president: (1) create a new variable `name` that consists of the president's first, middle, and last name, (2) create a new variable `dob` that consists of the president's birth month name (not an integer!), birth date, a comma, and the birth year. In the print statement, you will use the format operator (%), and print the president's order, name, birth state, and dob.

In lines 56, 57. and 58 of section 3, you will notice a series of question marks (?). These represent the slots for your data. Your assignment is to fill these slots so that the Python script produces the required output. This quiz is not particularly hard, but it's also not particularly easy. Once you figure out the first one, the remainder will become a lot easier.

Here is a hint. Open your interactive Python prompt. Import your module with something like `import quiz07a as q`. Read a month like `print(q.month[2])`. This should print "February." You can print the entire month dictionary with `print(q.month)`. You can print the entire president's list like `print(q.presidents)`. You can print the first row of presidents like `print(q.presidents[0])`. This should be enough to get your juices flowing.

2   Data

The data consists of a file in CSV (comma separated values) format. The first row is the header containing the names of the columns (fields).
- the order of the president, i.e., first, second, third, etc. (int)
- the president's first name (string)
- the president's middle name (string)
- the president's last name (string)
- the president's birth state (string)

- the president's birth year (int)
- the president's birth month (int)
- the president's birth day (int)

The data is something that you would retrieve from a database. This is the data:

```
order,firstName,middeName,lastName,birthState,birthYear,birthMonth,birthDay
1,"George","","Washington","Virginia",1722,2,22
2,"John","","Adams,"Massachusetts",1735,10,30
3,"Thomas","","Jefferson","Virginia",1743,4,13
4,"James","","Madison","Virginia",1751,3,16
5,"James","","Monroe","Virginia",1758,4,28
6,"John","Quincy","Adams","Massachusetts",1767,11,7
```

3   Template

```python
1   # quiz07a.py
2
3   # initialize month dictionary
4   month = {
5           1:'January',
6           2:'February',
7           3:'March',
8           4:'April',
9           5:'May',
10          6:'June',
11          7:'July',
12          8:'August',
13          9:'September',
14          10:'October',
15          11:'November',
16          12:'December'
17          }
18
19  #initialize presidents list
20  presidents = []
21  #append data to presidents list
22  presidents.append(
23          {'order': 1, #this is an integer
24          'name':   {'firstName': 'George', 'middleName': '', 'lastName': 'Washington'}, #this
                       is a dictionary of string:string
25          'birthState': 'Virginia', #this is a string
26          'birthDay': [1722,2,22] }) #this is a list of integers
27  presidents.append(
28          {'order': 2,
29          'name':   {'firstName': 'John', 'middleName': '', 'lastName': 'Adams'},
30          'birthState': 'Massachusetts',
31          'birthDay': [1735,10,30] })
32  presidents.append(
33          {'order': 3,
34          'name':   {'firstName': 'Thomas', 'middleName': '', 'lastName': 'Jefferson'},
35          'birthState': 'Virginia',
36          'birthDay': [1743,4,13] })
37  presidents.append(
38          {'order': 4,
39          'name':   {'firstName': 'James', 'middleName': '', 'lastName': 'Madison'},
40          'birthState': 'Virginia',
41          'birthDay': [1751,3,16] })
42  presidents.append(
43          {'order': 5,
44          'name':   {'firstName': 'James', 'middleName': '', 'lastName': 'Monroe'},
45          'birthState': 'Virginia',
46          'birthDay': [1758,4,28] })
```

```
47   presidents.append(
48          {'order': 6,
49          'name':    {'firstName': 'John', 'middleName': 'Quincy', 'lastName': 'Adams'},
50          'birthState': 'Massachusetts',
51          'birthDay': [1767,11,7] })
52
53   #print presidents in friendly user format
54   print('————————————here are the presidents————————')
55   for i in range(len(presidents)):
56       name = "%s %s %s" % (?, ?, ?)
57       dob = "%s %s, %s" % (?, ?, ?)
58       print("President %d, %s, from %s, was born on %s" % ( ?, name, ?, dob))
```

4   Output

```
---------------here are the presidents-----------
President 1, George  Washington, from Virginia, was born on February 22, 1722
President 2, John  Adams, from Massachusetts, was born on October 30, 1735
President 3, Thomas  Jefferson, from Virginia, was born on April 13, 1743
President 4, James  Madison, from Virginia, was born on March 16, 1751
President 5, James  Monroe, from Virginia, was born on April 28, 1758
President 6, John Quincy Adams, from Massachusetts, was born on November 7, 1767
```