Csci 1523
1523 Module 08 Laboratory - Dictionaries and Sets

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This lab contains **??** pages (including this cover page) and **??** problems. Check to see if any pages are missing.

It is our expectation that students will collaborate and share equally in the conduct of this exercise. However, we understand that often times students will not allocate sufficient time to the exercise thereby transferring responsibility for the completion of the exercise to their partner.

In the event a laboratory team is facing a situation in which one partner feels that an undue amount of the work in completion of the laboratory has been transferred on to them. This partner may elect to submit this work as a solo effort.

Your work in this case will be graded for you individually. No credit will be deducted in the event that partners decide to submit individual weekly efforts.

The laboratories typically consist of some short answer questions followed by a brief programming exercise. in answering your questions please PRINT your answers. In the event we cannot read your answers credit will be taken from your effort.

Also please PRINT LEGIBLY your full name in the space provided on this cover sheet. In the event we cannot read your name we will not award credit for the laboratory. All names should contain both your first name and last name.

Laboratory Exercises

1. This lab exercise provides practice with a dictionary in Python. You will work with a partner on this exercise during your lab session. Two people should work at one computer. Occasionally switch the person who is typing. Talk to each other about what you are doing and why so that both of you understand each step.

Listing 1: Python Dictionary Exercise

```
# This code is to accompany the laboratory on Dictionaries
# and Sets in the event of multiline output, simply separate
# each item in your answer with a / symbol on the horizontal
# answer-sheet provided

# Below we define a dictionary of NFL Teams

M = { 100:'Vikings', 200:'Bears', 300:'Packers', \
      400:'Lions', 500:'Browns', 600:'Steelers', \
      700:'Patriots', 800:'Comboys' }

# Question 1 - write on the lab guide the value(s) output
A = 100 in M
print(A)

# Question 2 - write on the lab guide the value(s) output
B = 'Browns' in M
print(B)

# Question 3 - write on the lab guide the value(s) output
M[300] = 'Chargers'
print(M[300])

# Question 4 - write on the lab guide the value(s) output
M[700] = 'Colts'
print(M[700])

# Question 5 - write on the lab guide the value(s) output
print(M.keys())

# Question 6 - write on the lab guide the value(s) output
print(M.values())

# Question 7 - write on the lab guide the value(s) output
for key in M.keys():
    print(key)

# Question 8 - write on the lab guide the value(s) output
for value in M.values():
```

```
40      print(value)
41
42  # Question 9 - write on the lab guide the value(s) output
43  for key, value in M.items():
44      print(key, value)
45
46  # Question 10 - write on the lab guide the value(s) output
47  for X in M:
48      print(X)
```

(a) Question 1:

True

(b) Question 2:

False

(c) Question 3:

Chargers

(d) Question 4:

Colts

(e) Question 5:

dict_keys([400, 600, 700, 100, 200, 500, 300, 800])

(f) Question 6:

dict_values(['Lions', 'Steelers', 'Colts', 'Vikings', 'Bears', 'Browns', 'Chargers', 'Cowboys'])

(g) Question 7:

```
400
600
700
100
200
500
300
800
```

(h) Question 8:

```
Lions
Steelers
Colts
Vikings
Bears
Browns
Chargers
Cowboys
```

(i) Question 9:

```
400 Lions
600 Steelers
700 Colts
100 Vikings
200 Bears
500 Browns
300 Chargers
800 Cowboys
```

(j) Question 10:

```
400
600
700
100
200
500
300
800
```

2. After completing the answers to the program above create a program to check your answers or use the Python interactive prompt.

3. This lab exercise provides practice with sets in Python use the Python code listing below for the questions in the exercise and the spaces below to answer then in. You will work with a partner on this exercise during your lab session. Two people should work at one computer. Occasionally switch the person who is typing. Talk to each other about what you are doing and why so that both of you understand each step.

Listing 2: Python Sets Exercise

```
1 # This code is to accompany the laboratory on
2 # Python set data structures. Please follow the
3 # instructions in the comments found in the
4 # code listing below and write your answers in
5 # the block provided in the event of multiline
6 # output, simply separate each item in your answers
```

```
7  # with a / symbol on the horizontal
8  # answer-sheet provided
9
10 # Below we define a set of mammals
11
12 M = { 'dog', 'mouse', 'cat', 'horse', 'shrew', 'donkey', \
13       'cow', 'goat', 'sheep', 'racoon', 'bear', \
14       'lion', 'monkey' }
15
16 # Below we define a set of reptiles
17
18 R = { 'snake', 'alligator', 'lizard', 'turtle', \
19       'crocodile' }
20
21 # Question 1 - write on the lab guide the value(s) output
22 A = 'dog' in  M
23 print(A)
24
25 # Question 2 - write on the lab guide the value(s) output
26 B = 'lizard' in M
27 print(B)
28
29 # Question 3 - write on the lab guide the value(s) output
30 C = 'monkey' in R
31 print(R)
32
33 # Question 4 - write on the lab guide the value(s) output
34 D = 'platapus' in M or 'platapus' in R
35 print(D)
36
37 # Question 5 - write on the lab guide the value(s) output
38 E = len(R)
39 print(E)
40
41 # Question 6 - write on the lab guide the value(s) output
42 F = M & R
43 print(F)
44
45 # Question 7 - write on the lab guide the value(s) output
46 print(R)
47
48 # Question 8 - write on the lab guide the value(s) output
49 for animal in R:
50     print(animal)
51
52 # Question 9 - write on the lab guide the value(s) output
53 A = M | R
```

```
54 print(A)
55
56 # Question 10 - write on the lab guide the value(s) output
57 G = M in A
58 print(G)
```

(a) Question 1:

True

(b) Question 2:

False

(c) Question 3:

{'crocodile', 'snake', 'alligator', 'lizard', 'turtle'}

(d) Question 4:

False

(e) Question 5:

5

(f) Question 6:

set()

(g) Question 7:

{'crocodile', 'snake', 'alligator', 'lizard', 'turtle'}

(h) Question 8:

```
crocodile
snake
alligator
lizard
turtle
```

(i) Question 9:

```
{'horse', 'crocodile', 'sheep', 'alligator', 'goat', 'bear', 'monkey',
 'lion', 'donkey', 'snake', 'mouse', 'shrew', 'cow', 'turtle', 'cat',
 'dog', 'racoon', 'lizard'}
```

(j) Question 10:

```
False
```

4. After completing the answers to the program above create a program to check your answers or use the Python interactive prompt.