

✓ Congratulations! You passed!

TO PASS 80% or higher

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100%

Practice Python Assessment II

TOTAL POINTS 13

1. Which of the following list comprehensions will extract the number of square miles that a city covers as a float? Select as many as apply.

2 / 2 points

```
1 city_data = [("New York", "New York", 8622698, "301.5 sq mi"),
2 ("Los Angeles", "California", 3999759, "468.7 sq mi"),
3 ("Chicago", "Illinois", 2716450, "227.3 sq mi"),
4 ("Houston", "Texas", 2312717, "637.5 sq mi"),
5 ("Phoenix", "Arizona", 1626078, "517.6 sq mi"),
6 ("Philadelphia", "Pennsylvania", 1580863, "134.2 sq mi"),
7 ("San Antonio", "Texas", 1511946, "461.0 sq mi"),
8 ("San Diego", "California", 1419516, "325.2 sq mi"),
9 ("Dallas", "Texas", 1341075, "340.9 sq mi"),
10 ("San Jose", "California", 1035317, "177.5 sq mi")]
```

city_sizes = [float(city[4].split()[0]) for city in city_data]

city_sizes = [float(city[3].split()[0]) for city in city_data]

✓ Correct

Topics to review: list comprehension, nested data, type conversion, indexing, tuples, lists, strings, split, order of operations

city_sizes = [float(city.split()[0]) for city in city_data[-1]]

city_sizes = [float(city[-1].split()[0]) for city in city_data]

✓ Correct

Topics to review: list comprehension, nested data, type conversion, indexing, tuples, lists, strings, split, order of operations

city_sizes = [float(city.split()[0]) for city in city_data[3]]

2. Which of the following lines of code will sort the list of dictionaries called `state_econ` by the values stored in the key called "low_ses_prcnt" from smallest to largest value? Select as many as apply.

1 / 1 point

sorted(state_econ, key = lambda k: k["low_ses_prcnt"], reverse = True)

sorted(state_econ, key = lambda k: k["low_ses_prcnt"], reverse = False)

✓ Correct

Topics to review: sorting, nested data, dictionaries, optional parameters, key parameter for sorting, reverse parameter for sorting, lambda functions

sorted(state_econ, key = lambda k: k["low_ses_prcnt"])

✓ Correct

Topics to review: sorting, nested data, dictionaries, optional parameters, key parameter for sorting, reverse parameter for sorting, lambda functions

sorted(state_econ, key = lambda k: state_econ[k]["low_ses_prcnt"])

sorted(state_econ, key = lambda k: state_econ["low_ses_prcnt"], reverse = False)

3. Assume that a json-structured string has been stored in a file named "retrieved_data.json". Which solution would read in the data and convert it to a python object? json has been imported in each case. Select all that apply

1 / 1 point

```
1 f = open("retrieved_data.json").read()
2 p_object = json.loads(f)
3 f.close()
4
```

✓ Correct

Topics to review: reading from files, json

1 f = open("retrieved_data.json", "r")
 2 f_string = f.read()
 3 p_object = json.dumps(f_string)
 4 f.close()
 5

1 f = open("retrieved_data.json")
 2 f_string = f.read()
 3 p_object = f_string.json()
 4 f.close()
 5

1 f=open("retrieved_data.json").readlines()
 2 p_object = json.loads(f.readlines())
 3 f.close()
 4

1 f = open("retrieved_data.json", "r")
 2 p_object = json.loads(f.readlines())
 3 f.close()
 4

4. Which of the following while loops has an infinite loop? Select as many as apply.

1 / 1 point

1 y = True
 2 t = 13
 3 while y:
 4 | if t <= 12:
 5 | | y = False
 6 | t = t-1

1 while True:
 2 | x = 8
 3 | if x > 10:
 4 | | print(x)
 5 | x += 1

✓ Correct

Topics to review: while loops, infinite loops, conditionals, break

1 x = 20
 2 while True:
 3 | x += 2
 4 | if x <= 20:
 5 | | break

✓ Correct

Topics to review: while loops, infinite loops, conditionals, break

1 q = ""
 2 words = []
 3 while q != "stop":
 4 | q = input("Please enter a word: ")
 5 | words.append(q)

5. Assume that you are creating a function that is working on a list of dictionaries. Each dictionary stores data about different interest groups. In each dictionary is a key called "questions_req" which has the value of True or False, depending on whether the group requires people to answer questions before they can join. Which of the following functions would create a list of groups that require someone to answer questions before they can join?

2 / 2 points

1 def req_questions(data):
 2 | requires = []
 3 | for group in data:
 4 | | if group["questions_req"] == True:
 5 | | | requires.append(group)
 6 | return requires

1 def req_questions(data):
 2 | requires = []
 3 | for group in data:
 4 | | if group["questions_req"]:
 5 | | | requires.append(group)
 6 | return requires

 Correct

Topics to review: function definition, for loops, conditionals, booleans, nested data, dictionaries, lists, return statements

```
1 def req_questions(data):
2     requires = []
3     for group in data:
4         if group["questions_req"] == True:
5             | requires += group
6     return requires
```

```
1 def req_questions(data):
2     | return [group for group in data if group["questions_req"] == False]
```

6. The next two questions will be focused on creating a class to represent a school. For this question, provide the line that would serve as the function definition for the following class:

2 / 2 points

*note that in the next question you will be completing the function. This problem is just to provide the function definition.

```
1 class School():
2
3     def __init__(self, name, num_students, departments = []):
4         self.name = name
5         self.student_population = num_students
6         self.number_departments = len(departments)
7         self.departments = departments
8
9     # Below is the method definition for a method called add_department.
10    # This method will take a string as input, called new_dept, which will be added to
11    # the instance variable self.departments. The value stored in
12    # self.number_departments will also be updated.
13    # Your task for this prompt is to write the method definition.
14    # Note that we have already written the code to update self.number_departments.
15
16        self.number_departments += 1
17
18    def graduate(self, class_size):
19        self.student_population = self.student_population - class_size
20
21    def add_students(self, class_size):
22        self.student_population += class_size
```

```
def add_department(self,new_dept):
```

 Correct

Topics to review: Classes, class methods, function definitions, parameters

Remember, when you create a class method you must always use self (or whatever keyword you use in the __init__ method of the class definition) as the first parameter, regardless of how many parameters you set up for the method.

7. This question continues to use the same prompt as before, focusing on creating a class to represent a school. For this particular question, assume that you have correctly provided the function definition. Now, your task is to write a line that will update self.departments with the new information provided by the function's parameter:

1 / 1 point

```
1 class School():
2
3     def __init__(self, name, num_students, departments = []):
4         self.name = name
5         self.student_population = num_students
6         self.number_departments = len(departments)
7         self.departments = departments
8
9     # Below is the method definition for a method called add_department.
10    # This method will take a string as input, called new_dept, which will be added to
11    # the instance variable self.departments. The value stored in
12    # self.number_departments will also be updated.
13    # Your task for this prompt is to write the line that would update self.departments, assuming
14    # Note that we have already written the code to update self.number_departments.
15
16    # [function definition goes here]
17    # your line would go here
18        self.number_departments += 1
19
20    def graduate(self, class_size):
21        self.student_population = self.student_population - class_size
22
23    def add_students(self, class_size):
24        self.student_population += class_size
```

```
self.departments.append(new_dept)
```

 **Correct**

Topics to review: classes, class instances, concatenation, lists, strings

For this solution, you would be using the append method for lists, to add the item to the end of the list. Since the type of the item does not matter when you are using append, this is permissible by python.

8. What is printed when the following code is executed?

1 / 1 point

```
1 def winner(winning_number, guess):
2     try:
3         if float(guess) < float(winning_number):
4             return "Sorry, your guess is lower."
5         elif float(guess) > float(winning_number):
6             return "Sorry, your guess is higher."
7         return "Yes, that is correct!"
8     except:
9         return "Sorry, please enter a digit."
10
11 print(winner(23, 1))
12 print(winner(52, 54))
13 print(winner("eight", "eight"))
14
```

Sorry, your guess is lower.

Sorry, your guess is higher.

Yes, that is correct!

Sorry, your guess is lower.

Sorry, your guess is higher.

Sorry, please enter a digit!

Sorry, your guess is higher.

Sorry, your guess is lower.

Sorry, please enter a digit!

Sorry, your guess is higher.

Sorry, your guess is lower.

Yes, that is correct!

 **Correct**

Topics to review: function definition, conditionals, try/except, return statements

9. [Practice Jupyter Notebook] What is the output if you print the following code at the end of the file:
hatcher.can_check_out(Book("Webster's Dictionary", "Merriam-Webster"))

1 / 1 point

Please copy and paste the output here.

```
The book you are looking for has not been added to this library yet.
```

 **Correct**

That is correct. The Webster Dictionary has not been included in the list_of_books file, so we should get this output, not 0 or False.

10. [Practice Jupyter Notebook] What is the output if you print the following code at the end of the file:
hatcher.can_check_out(Book('How to Lie with Statistics', 'Darrell Huff'))

1 / 1 point

Please copy and paste the output here.

```
True
```

 **Correct**

This is correct. Because there is 1 or more copies of "How to Lie with Statistics" available, the output should be True.