**Quiz 5**

To get credit for this quiz, use the Quiz tool at eee.uci.edu to enter your answers, within the Sunday-to-Tuesday quiz period.

**Problem 1** (8 points)

Fill in the blanks in the function definition below to make it consistent with its header and docstring. Each blank should contain just one identifier, constant, or operator. [Recall that an identifier is just a name: a variable name, a parameter name, a field/attribute name, a function name, a method name.]

```python
Dish = namedtuple('Dish', 'name price calories')
Restaurant = namedtuple('Restaurant', 'name cuisine phone menu')

def Restaurant_average_calories(R: Restaurant) -> float:
    ''' Return the average number of calories on the restaurant's menu.
    The menu is a list of Dish structures.
    '''
    return Menu_average_calories(R.menu)

def Menu_average_calories(M: 'list of Dish') -> float:
    ''' Return the average number of calories on the menu (a list of Dishes)
    '''
    if len(M) == 0:
        return 0
    else:
        sum = _______________
        for d in _______________:
            _______________ += _______________.calories
        return _______________ / _______________(M)
```

— If any terms or concepts in the preceding paragraph are unclear to you, now’s the time, before the next midterm, to learn or review what they mean.

— It may also mean that you’re not comfortable enough with the parts of Lab 5 that deal with dishes and collections. Processing lists, and processing lists of objects that themselves include lists, is an important aspect of the course.
Problem 2  (16 points)

Suppose we have a list of Student objects similar to those we’ve seen before:

```python
Student = namedtuple('Student', 'ID name level major studylist')
# All are strings except studylist, which is a list of Courses.
# An example showing the form of the data:
s1 = Student('11223344', 'Anteater, Peter', 'FR', 'PSB', [ics31, wr39a, bio97, mgt1])
```

Each Student object contains a list of Course objects defined as follows:

```python
Course = namedtuple('Course', 'dept num title instr units')
# All are strings except number of units
# An example showing the form of the data:
ics31 = Course('ICS', '31', 'Intro to Programming', 'Kay', 4)
```

(a)  (6 points) Complete the definition of the function below according to the header and docstring shown.

```python
def class_level_count(SB: [Student], class_level: str) -> int:
    ''' Return the number of students in the list SB whose class level matches the specified value. '''
    result = 0
    for s in SB:
        if s.level == class_level:
            result += 1
    return result
```

(b)  (10 points) Complete the definition of the function below according to the header and docstring shown. You may define a second function if it helps you organize your solution.

```python
def enrollments_for_instructor(SB: [Student], instructor_name: str) -> int:
    ''' Return the total number of students enrolled in courses taught by named instructor. (If a student is enrolled in two courses taught by the same instructor, that student counts twice.) '''
    result = 0
    for s in SB:
        result += enrollments_on_studylist(s.studylist, instructor_name)
    return result

def enrollments_on_studylist(courses: [Course], instructor_name: str) -> int:
    ''' Return the number of enrollments by this student in courses taught by named instructor '''
    result = 0
    for c in courses:
        if c.instr == instructor_name:
            result += 1
    return result
```
Problem 3 (6 points)

Below are two code segments; each one generates an execution error whose message is shown. Fix the code as simply as possible to remove the error and produce the intended result.

(a) (3 points)

```
L = ['Huey', 'Dewey', 'Louie', 'Donald', 'Daisy']
for i in range(10):
    print(L[i])
```

Traceback (most recent call last):
  File "/ICS/31/Quizzes/Quiz Code/quiz5.py", line 3, in <module>
    print(L[i])
IndexError: list index out of range

The index (or subscript or position) number, i, goes from 0 to 9 according to the for-loop. But when it hits 5, it runs off the end of the five-element list. The best correction is

```
for i in range(len(L)):
    print(L[i])
```

(b) (3 points)

```
Restaurant = namedtuple('Restaurant', 'name cuisine phone dish price')
RESTAURANTS = list of Restaurant objects
```

```
def Restaurants_serving_cuisines (RL: [Restaurant], cuisines: [str]) -> [Restaurant]:
    ''' Return a list of Restaurants serving any of the cuisines specified. 
    '''
    result = []
    for r in RL:
        if r.cuisine in cuisines:
            result.append(r)
    return r
```

```
print("Names of Southeast Asian Restaurants:")
SEAsian_restaurants = Restaurants_serving_cuisines(RESTAURANTS,
                                                   ['Thai', 'Vietnamese', 'Laotian', 'Cambodian'])
for each_rest in SEAsian_restaurants:
    print(each_rest.name)
```

Traceback (most recent call last):
  File "/ICS/31/Quizzes/Quiz Code/quiz5.py", line 16, in <module>
    print(each_rest.name)
AttributeError: 'str' object has no attribute 'name'