

## CSE 160 Section 5 Problems

1. After the following lines of code are executed, what values are stored in the set `output_set`?

```
input_list = [3, 1, 4, 1, 5, 9, 2, 6, 5, 3, 5, 9]
output_set = set()
for i in input_list:
    output_set.add(i)
```

2. In one line of code, print the set of all numbers that are in both the sets. (i.e. - their intersection)

```
set_one = {'a', 'b', 'c', 'd', 'e', 'f'}
set_two = {'a', 'c', 'd', 'g'}
```

3. Given the following code:

```
weather = {
    'Monday': {'low': 45, 'high': 62, 'precipitation': 0.3},
    'Tuesday': {'low': 48, 'high': 69, 'precipitation': 0.2},
    'Wednesday': {'low': 42, 'high': 58, 'precipitation': 0.5}
}
```

What does the following code print:

```
print(weather['Monday']['high'])
print(weather['Tuesday'][0])
print(weather['Wednesday'])
```

## Midterm Review

1. Evaluate the following Python expressions:

```
(5 / 2) + 2 * 2
["live", "long", "and", "prosper"][1][1:]
len({1:"one", 2:"two", 3:"three"}[2])
float(str(2 + 2) + "5") + 1
```

2. Write a function that reverses a list, without using the built-in reverse function. Your function should return the reversed list, and not modify the list passed as a parameter. For example:

`reverse_list([1, 2, 3])` returns `[3, 2, 1]`.

3. Consider the following Python program:

```
def pos_dif(y, x):
    """
    Returns the positive difference of two numbers.
    """
    # Location B
    return abs(x - y)

def percent_error(actual, expected):
    """
    Returns the percent error of an experimental result.
    """
    # Location A
    x = pos_dif(actual, expected)
    y = expected
    # Location C
    return x / y

a = 15.0
b = 10.0
print(percent_error(a, b))
```

For each of the locations indicated above, draw the environment frame(s) at that moment during execution.

## CSE 160 Section 5 Solutions

1. {1, 6, 3, 9, 5, 2, 4} (note values in random order)

2. `print(set_one & set_two)`  
The intersection is: {'a', 'c', 'd'}

3. 62  
KeyError: 0  
{'low': 42, 'high': 58, 'precipitation': 0.5}

4.  
1.  $(5 / 2) + 2 * 2$   
2.5 + 2 \* 2  
2.5 + 4  
6.5

```
["live", "long", "and", "prosper"][1][1:]  
"long"[1:]  
"ong"
```

```
len({1:"one", 2:"two", 3:"three"}[2])  
len("two")  
3
```

```
float(str(2 + 2) + "5") + 1  
float(str(4) + "5") + 1  
float("4" + "5") + 1  
float("45") + 1  
45.0 + 1  
46.0
```

2. `def reverse_list(original_list):`  
    `result = []`  
    for element in original\_list:  
        `result.insert(0, element)`  
    return result

### 3. Location A:

Global Environment            percent\_error  
a -> 15.0                    actual -> 15.0  
b -> 10.0                    expected -> 10.0  
pos\_dif -> (function)  
percent\_error -> (function)

### Location B:

Global Environment            percent\_error            pos\_dif  
a -> 15.0                    actual -> 15.0            y -> 15.0  
b -> 10.0                    expected -> 10.0        x -> 10.0  
pos\_dif -> (function)  
percent\_error -> (function)

### Location C:

Global Environment            percent\_error  
a -> 15.0                    actual -> 15.0  
b -> 10.0                    expected -> 10.0  
pos\_dif -> (function)        x -> 5.0  
percent\_error -> (function)    y -> 10.0

Name (first and last):

Email:

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a) Out of all the topics we have covered in this course, which topic do you feel the most uncertain about?

b) Do you feel prepared for the midterm?

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