

CSE2050 Sample Test

Notes:

- The midterm may include more questions with different levels of difficulty.
- The midterm is closed book and closed notes.

Section 1:

- True or False: every method that's defined for a given class must be part of its API
(answer: False, you can have private methods)
- Fill in the blank: If a variable has a value that's not _____, you cannot change it
(answer: mutable)
- Fill in the blank: The value {"a":1, "bc": 2, "def" : 3} has datatype _____
(answer: dictionary)

Section 2:

- `x = "Banina"`
`x[3] = "i"`

What's wrong? (meaning, why will this cause an error)

Answer: strings are not mutable, so we cannot change part of a string

- `x = [1,2,3]`
`x[3] = "three"`

What's wrong? (meaning, why will this cause an error)

Answer: list indices start at 0, so this list has no element at index 3

- `x = 17`
`while x > 14:`
 `x -= 2`
 `print(x)`

what does this code print?

answer: 15, 13

Section 3:

- The following Range class represents sequences between two given numbers. For example, for the range [2, 5] the sequence will be 2, 3, 4 (not including 5).

class Range:

```
def __init__(self, start, end):  
    self._start = start  
    self._end = end
```

Implement an iterator for the Range class so that you can print the elements of the sequence using for loop:

```
for x in Range(2,5):  
    print(x)
```

In this case, the output will be

```
2  
3  
4
```

- The following Point class represent a point in two-dimensional space. Add your code to the class so that the code snippet that follows the class definition will work.

```
class Point:  
    def __init__(self, x, y):  
        self._x = x  
        self._y = y
```

```
p = Point(2,6)  
print(p[0], p[1]) → 2 6  
print(p["x"], p["y"]) → 2 6  
print(p[3], p["z"]) → raises an exception with appropriate message
```

- Assume we have a string **s**, and we want to calculate the frequency of each of its characters. The function `getFreqs` receives **s** as a parameter and returns the expected result. Implement `getFreqs`!

```
def getFreqs(s):
```

```
    .
```

```
    .
```

```
    .
```