Can You Hear Me Now?

Create a function "getWithRetry" that calls a function until it receives response that is not None, and then returns that response. If it continues to get no response, it should give up after a certain number of tries (to be decided by you)

After filling out the "getWithRetry" function, run all of the cells in this notebook in order to test the following scenarios:

- All services are up
- All services are down
- All services are down and making a request takes 0.1 seconds to execute

What is the ideal number of retries before giving up? How do you know whether the service is down or you're just unlucky?

In [1]:
```python
import random
import time
```

In [2]:
```python
servicesAreUp = True

def getData50():
    if servicesAreUp and random.random() < 0.5:
        return 'You got the data! That only happens 50% of the time!'

def getData25():
    if servicesAreUp and random.random() < 0.25:
        return 'You got the data! That only happens 25% of the time!'

def getData10():
    if servicesAreUp and random.random() < 0.1:
        return 'You got the data! That only happens 10% of the time!'
```

In [3]:
```python
# Your code here!
def getWithRetry(dataFunc):
    maxRetries = 20
    for _ in range(0, maxRetries):
        response = dataFunc()
        if response:
            return response
```

In [5]:
```python
def getWithRetry(dataFunc, retries=20):
    if retries == 0:
        return 'THE SERVICE IS DOWN!'
    return dataFunc() or getWithRetry(dataFunc, retries-1)
```

In [6]:
```python
# Should return 'You got the data! That only happens 50% of the time!'
getWithRetry(getData50)
```

Out[6]: 'You got the data! That only happens 50% of the time!'

In [7]:
```python
# Should return 'You got the data! That only happens 25% of the time!'
getWithRetry(getData25)
```

Out[7]: 'You got the data! That only happens 25% of the time!'

In [8]:
```python
# Should return 'You got the data! That only happens 10% of the time!'
getWithRetry(getData10)
```

Out[8]: 'You got the data! That only happens 10% of the time!'

In [9]:
```python
servicesAreUp = False
```

In [10]:
```python
# Returns None
getWithRetry(getData50)
```

Out[10]: 'THE SERVICE IS DOWN!'

In [11]:
```python
# Returns None
getWithRetry(getData25)
```

Out[11]: 'THE SERVICE IS DOWN!'

In [12]:
```python
# Returns None
getWithRetry(getData10)
```

Out[12]: 'THE SERVICE IS DOWN!'

In [13]:
```python
def getData50():
    time.sleep(.1)
    if servicesAreUp and random.random() < 0.5:
        return 'You got the data! That only happens 50% of the time!'

def getData25():
    time.sleep(.1)
    if servicesAreUp and random.random() < 0.25:
        return 'You got the data! That only happens 25% of the time!'

def getData10():
    time.sleep(.1)
    if servicesAreUp and random.random() < 0.1:
        return 'You got the data! That only happens 10% of the time!'
```

In [14]:
```python
servicesAreUp = True
```

In [15]:
```python
getWithRetry(getData50)
```

Out[15]: 'You got the data! That only happens 50% of the time!'

In [16]: `getWithRetry(getData25)`

Out[16]: `'You got the data! That only happens 25% of the time!'`

In [17]: `getWithRetry(getData10)`

Out[17]: `'THE SERVICE IS DOWN!'`

In [18]: `servicesAreUp = False`

In [19]: `getWithRetry(getData50)`

Out[19]: `'THE SERVICE IS DOWN!'`

In [20]: `getWithRetry(getData25)`

Out[20]: `'THE SERVICE IS DOWN!'`

In [21]: `getWithRetry(getData10)`

Out[21]: `'THE SERVICE IS DOWN!'`

In [ ]:

In [ ]: