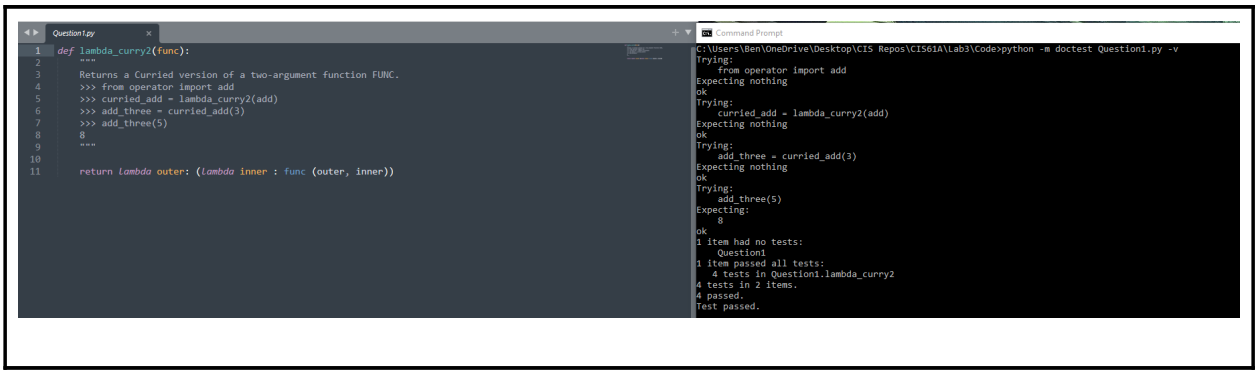
CIS 61 :: Lab 03 - Higher Order Functions - Template

[DO NOT USE **RECURSION**, **FOR LOOP or LISTS** IN ANY OF YOUR SOLUTIONS]

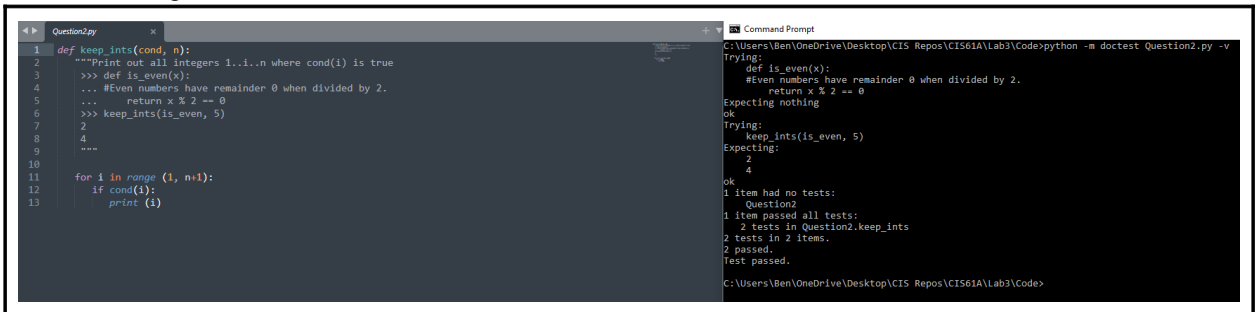
Student Name:

Question 1: Lambdas and Currying

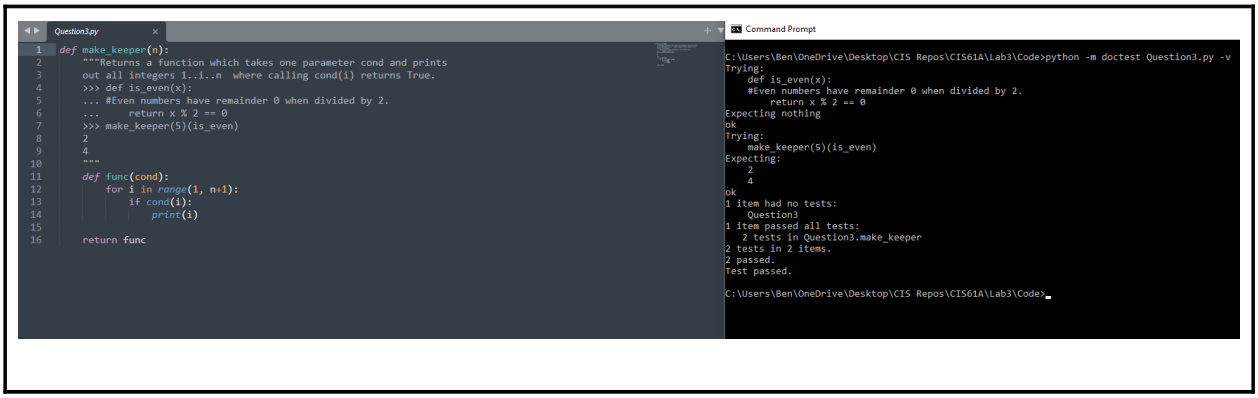
Write a function `lambda_curry2` that will curry any two argument functions using lambdas. See the doctest or refer to the textbook if you're not sure what this means.



Question 2: Write a function that takes in a function cond and a number n and prints numbers from 1 to n where calling cond on that number returns True.



Question 3: Write a function similar to keep_ints like before, but now it takes in a number n and returns a function that has one parameter cond. The returned function prints out numbers from 1 to n where calling cond on that number returns True.



Question 4: Write a function **`and_add`** that takes a one-argument function `f` and a number `n` as arguments. It should return a function that takes one argument, and does the same thing as the function **`f`**, except also adds **`n`** to the result.

Question4.py

```
def and_add(f, n):
    """Return a new function. This new function takes an
    argument x and returns f(x) + n.
    >>> def square(x):
    ...     return x * x
    >>> new_square = and_add(square, 3)
    >>> new_square(4) # 4 * 4 + 3
    19
    """
    return lambda x: f(x) + n
```

Command Prompt

```
C:\Users\Ben\OneDrive\Desktop\CIS Repos\CIS61A\Lab3\Code>python -m doctest Question4.py -v
Trying:
    def square(x):
        return x * x
Expecting nothing
ok
Trying:
    new_square = and_add(square, 3)
Expecting nothing
ok
Trying:
    new_square(4) # 4 * 4 + 3
Expecting:
    19
ok
1 item had no tests:
    Question4
1 item passed all tests:
   3 tests in Question4.and_add
3 tests in 2 items.
3 passed.
Test passed.

C:\Users\Ben\OneDrive\Desktop\CIS Repos\CIS61A\Lab3\Code>
```

Question 5 - Draw an environment diagram for the following code and predict what Python will output. You need to do these problems on paper to develop familiarity with Environment Diagrams. Scan or take a picture of your solution and paste here.