

Name:

Introduction to Programming in Python, I Semester, 2011–2012
Quiz 4, 22 September 2011

Answer the question in the space provided. Don't forget to fill your name!

Do these two Python programs behave the same? Explain your answer.

```
def f(l,x):  
    l = l + [x]
```

```
m = list(range(10))  
f(m,10)  
print(m)
```

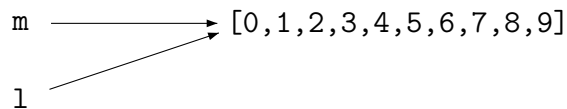
```
def f(l,x):  
    l.append(x)
```

```
m = list(range(10))  
f(m,10)  
print(m)
```

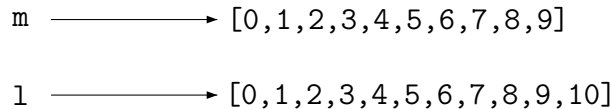
(10 marks)

Solution

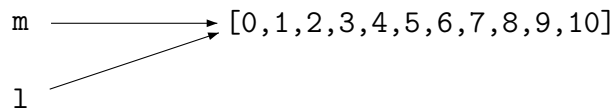
In both programs, calling the function `f()` makes the local name `l` in `f` point to the same list object as `m`.



In the first program, the update `l = l + [x]` creates a new list object and makes `l` point to this new object. The name `m` continues to point to the original object, so the final value printed is `[0, 1, 2, 3, 4, 5, 6, 7, 8, 9]`



In the second program, `l.append(x)` updates the original list object pointed to by both `m` and `l`.



The list object pointed to by `m` has been updated, so the final value printed is `[0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10]`.

You can run both programs and verify the claims above.