Quiz: Functional Programming (Practice Problems)

Note 1. The format of this quiz will be the same as the previous quiz (4 problems, each worth 1 point). 1 of these problems will be taken from the material from topic 0, and the other 3 problems will be on functional programming following the problems below.

Note 2. I will generate new problems from the problems below by: (1) changing the expressions in the lambda functions, (2) changing the values in the range function.

Problem 1. Write the output of the final command in the following terminal session. If the command has no output, then leave the problem blank.

```
$ cd
$ rm -rf quiz
$ mkdir quiz
$ cd quiz
$ cat > foo.py <<EOF
def foo(x):
    return x+1
xs = [1, 2, 3]
xs = [foo(x) for x in xs]
print("xs=", xs)
EOF
$ python3 foo.py
```

Problem 2. Write the output of the final command in the following terminal session. If the command has no output, then leave the problem blank.

```
$ cd
$ rm -rf quiz
$ mkdir quiz
$ cd quiz
$ cat > foo.py <<EOF
def foo(x):
    return x+1
xs = [1, 2, 3]
xs = map(foo, xs)
xs = list(xs)
print("xs=", xs)
EOF
$ python3 foo.py
```

Problem 3. Write the output of the final command in the following terminal session. If the command has no output, then leave the problem blank.

```
$ cd
$ rm -rf quiz
$ mkdir quiz
$ cd quiz
$ cat > foo.py <<EOF
xs = range(3, 5)
xs = map(lambda x: x+1, xs)
xs = list(xs)
print("xs=", xs)
EOF
$ python3 foo.py
```

Problem 4. Write the output of the final command in the following terminal session. If the command has no output, then leave the problem blank.

```
$ cd
$ rm -rf quiz
$ mkdir quiz
$ cd quiz
$ cat > foo.py <<EOF
foo = lambda x: x*2
xs = range(5, 1, -2)
xs = map(foo, xs)
xs = list(xs)
print("xs=", xs)
EOF
$ python3 foo.py
```

Problem 5. Write the output of the final command in the following terminal session. If the command has no output, then leave the problem blank.

```
$ cd
$ rm -rf quiz
$ mkdir quiz
$ cd quiz
$ cat > foo.py <<EOF
foo = lambda x: x < 5
xs = range(10)
xs = [x for x in xs if foo(x)]
xs = list(xs)
print("xs=", xs)
EOF
$ python3 foo.py
```

Problem 6. Write the output of the final command in the following terminal session. If the command has no output, then leave the problem blank.

```
$ cd
$ rm -rf quiz
$ mkdir quiz
$ cd quiz
$ cat > foo.py <<EOF
foo = lambda x: x < 5
xs = range(10)
xs = filter(foo, xs)
xs = list(xs)
print("xs=", xs)
EOF
$ python3 foo.py
```

Problem 7. Write the output of the final command in the following terminal session. If the command has no output, then leave the problem blank.

```
$ cd
$ rm -rf quiz
$ mkdir quiz
$ cd quiz
$ cat > foo.py <<EOF
xs = range(10)
xs = [x*2 for x in xs if x<5]
xs = list(xs)
print("xs=", xs)
EOF
$ python3 foo.py
```

Problem 8. Write the output of the final command in the following terminal session. If the command has no output, then leave the problem blank.

```
$ cd
$ rm -rf quiz
$ mkdir quiz
$ cd quiz
$ cat > foo.py <<EOF
xs = range(10)
xs = map(lambda x: x*2, xs)
xs = filter(lambda x: x<5, xs)
xs = list(xs)
print("xs=", xs)
EOF
$ python3 foo.py
```

Problem 9. Write the output of the final command in the following terminal session. If the command has no output, then leave the problem blank.

```
$ cd
$ rm -rf quiz
$ mkdir quiz
$ cd quiz
$ cat > foo.py <<EOF
xs = range(10)
xs = filter(lambda x: x<5, xs)
xs = map(lambda x: x*2, xs)
xs = list(xs)
print("xs=", xs)
EOF
$ python3 foo.py
```

Problem 10. Write the output of the final command in the following terminal session. If the command has no output, then leave the problem blank.

```
$ cd
$ rm -rf quiz
$ mkdir quiz
$ cd quiz
$ cat > foo.py <<EOF
xs = map(lambda x: x*2, filter(lambda x: x<5, range(10)))
xs = list(xs)
print("xs=", xs)
EOF
$ python3 foo.py
```

Problem 11. Write the output of the final command in the following terminal session. If the command has no output, then leave the problem blank.

```
$ cd
$ rm -rf quiz
$ mkdir quiz
$ cd quiz
$ cat > foo.py <<EOF
xs = filter(lambda x: x<5, map(lambda x: x*2, range(10)))
xs = list(xs)
print("xs=", xs)
EOF
$ python3 foo.py
```