

Exercises

- 1) Create a lambda function that filters prime numbers from a list.
- 2) Create a lambda function that filters palindrome strings from a list.
- 3) Create a lambda function that maps a list of numbers to their squares.
- 4) Create a lambda function that maps a list of numbers to their cubes.
- 5) Create a lambda function that maps a list of strings to their lengths.
- 6) Create a lambda function that reduces a list of numbers to their sum.
- 7) Create a lambda function that reduces a list of numbers to their product.
- 8) Create a lambda function that finds the factorial of a number.
- 9) Create a lambda function that finds the nth term of the Fibonacci sequence.
- 10) Create a lambda function that finds the nth prime number.

Exercises and solution

1) Filter prime numbers from a list:

```
is_prime = lambda n: n > 1 and all(n % i != 0 for i in range(2,
int(n**0.5)+1))
filter_prime = lambda lst: list(filter(is_prime, lst))
```

2) Filter palindrome strings from a list:

```
is_palindrome = lambda s: s == s[::-1]
filter_palindrome = lambda lst: list(filter(is_palindrome, lst))
```

3) Map a list of numbers to their squares:

```
square_map = lambda lst: list(map(lambda x: x**2, lst))
```

4) Map a list of numbers to their cubes:

```
cube_map = lambda lst: list(map(lambda x: x**3, lst))
```

5) Map a list of strings to their lengths:

```
length_map = lambda lst: list(map(lambda s: len(s), lst))
```

6) Reduce a list of numbers to their sum:

```
sum_reduce = lambda lst: functools.reduce(lambda x, y:
x+y, lst)
```

7) Reduce a list of numbers to their product:

```
product_reduce = lambda lst: functools.reduce(lambda x, y:
x*y, lst)
```

8) Find the factorial of a number:

```
factorial = lambda n: 1 if n == 0 else n * factorial(n-1)
```

9) Find the nth term of the Fibonacci sequence:

```
fibonacci = lambda n: n if n <= 1 else fibonacci(n-1) +  
fibonacci(n-2)
```

10) Find the nth prime number:

```
nth_prime = lambda n: next(x for x in itertools.count(2) if  
is_prime(x) and not (n := n-1))
```