

# Chapter19\_Exercises

June 8, 2017

## 1 Chapter 19 Exercises

### 1.1 Exercise 19.1

The following is a function computes the binomial coefficient recursively.

```
In [3]: def binomial_coeff(n, k):  
        """Compute the binomial coefficient "n choose k".  
        n: number of trials  
        k: number of successes  
        returns: int  
        """  
        if k == 0:  
            return 1  
        if n == 0:  
            return 0  
  
        res = binomial_coeff(n-1, k) + binomial_coeff(n-1, k-1)  
        return res
```

Rewrite the body of the function using nested conditional expressions.

```
In [5]: def binomial_coeff2(n, k):  
        """Compute the binomial coefficient "n choose k".  
        n: number of trials  
        k: number of successes  
        returns: int  
        """  
  
        return 0 if k == 0 else 1 if n == 0 else binomial_coeff(n-1, k) + binomial_coeff(n-1, k-1)  
  
In [9]: print(binomial_coeff(8,3))  
        print(binomial_coeff2(8,3))  
        print(binomial_coeff(5,3))  
        print(binomial_coeff2(5,3))  
        print(binomial_coeff(7,6))  
        print(binomial_coeff2(7,6))
```

56  
56  
10  
10  
7  
7