Exercise 16.8.1

```
# Exercise_16.8.1


def factorial(n):
    if n <= 1:
        return 1
    else:
        return n * factorial(n-1)



number = input("Insert the number you want to compute the factorial of.")
number = int(number)
print(factorial(number))
```

```
Insert the number you want to compute the factorial of.5
120
```

Exercise 16.8.2

```
# Exercise_16.8.2


def reverse(list):
    if(len(list) == 0):
        return []
    else:
        return list[-1:] + reverse(list[:-1])
        # return (last item in list) + (everything but last item in list)
```

```
things = [1,'bird',3,'lion',5,'dog']
print(things)            # prints list in normal order
print(reverse(things))   # prints list reversed
```

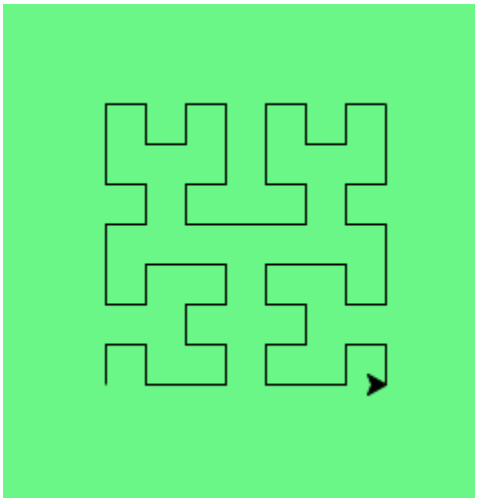
```
[1, 'bird', 3, 'lion', 5, 'dog']
['dog', 5, 'lion', 3, 'bird', 1]
```

original list on top, reversed list on bottom

Exercise 16.8.7

```
# Exercise_16.8.7


import turtle
wn = turtle.Screen()
wn.screensize(500,500)
wn.bgcolor("lightgreen")
zoomy = turtle.Turtle()
zoomy.speed(10)


def hilbert_curve(times, angle, size):
    if times == 0:
        return None


    else:
        zoomy.left(angle)
        hilbert_curve(times - 1, -angle, size)
        zoomy.forward(size)
        zoomy.right(angle)
```

```
    hilbert_curve(times - 1, angle, size)
    zoomy.forward(size)
    hilbert_curve(times - 1, angle, size)
    zoomy.right(angle)
    zoomy.forward(size)
    hilbert_curve(times - 1, -angle, size)
    zoomy.left(angle)


hilbert_curve(3, 90, 20)
wn.exitonclick()
```



Exercise 16.8.8

```
# Exercise_16.8.8


import turtle
wn = turtle.Screen()
wn.screensize(500,500)
```

```
wn.bgcolor("lightgreen")
zoomy = turtle.Turtle()
zoomy.speed(10)

def koch_snowflake(times, size):
    if times == 0:
        zoomy.forward(size)

    else:
            for angle in [60, -120, 60, 0]:
                koch_snowflake(times-1, size/3)
                zoomy.left(angle)



def main():
    count = 3
    while count > 0:
        koch_snowflake(2,300)
        zoomy.right(120)
        count = count - 1



main()
wn.exitonclick()
```

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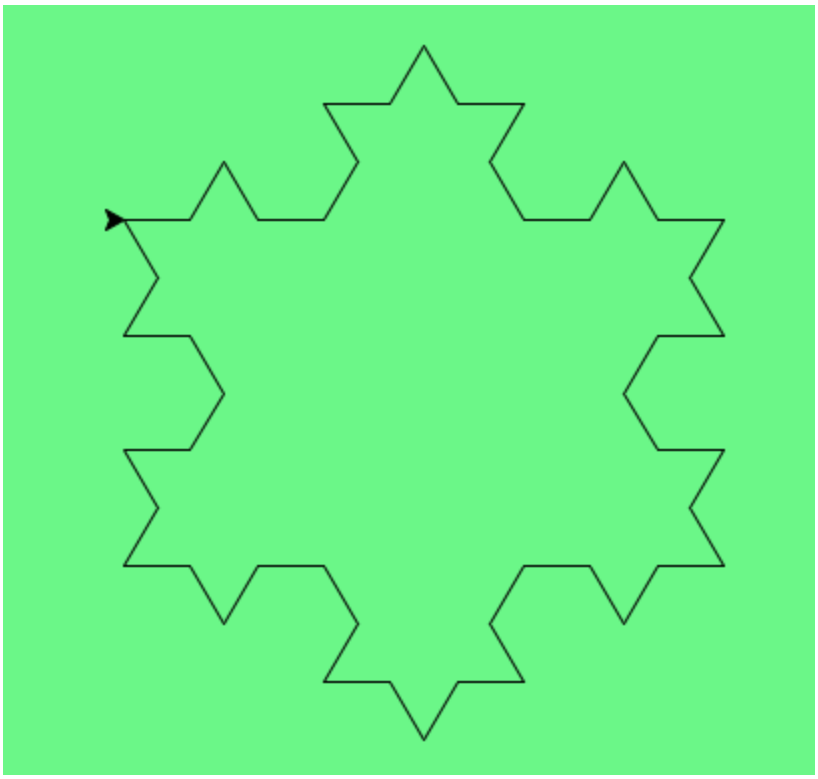

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