

Exercise 3

1) Create a list with sales considering the following assumptions:

- initial valueSales =1000
- growth rate = 10%
- number of years = 6

▶ In [53]:

```
Out[53]: [1000, 1100.0, 1210.0, 1331.0, 1464.1000000000001, 1610.5100000000002]
```

2) Create a list with cost

- margin =70%

▶ In [27]:

▶ In [28]:

```
Out[28]: [700.0, 770.0, 847.0, 931.6999999999999, 1024.8700000000001, 1127.357]
```

3) create a list with the profit (profit = sales - cost)

▶ In [29]:

```
profit =[]  
for i in range(len(sales)):
```

4) Calculate a newProfit suposing 500 of fixed costs

▶ In [46]:

```
Out[46]: [200.0, 270.0, 347.0, 431.69999999999993, 524.8700000000001, 627.357]
```

5) Create a **newSales** with random generated values between 200 and 2000.

some ints:

- Import module, writing **import random**
- use the method **random.randint(a, b)**. This method is used to generate values between a and b (Return a random integer N such that a <= N <= b.):

▶ In [37]:

6) Create a new list with profits (newProfit)

▶ In [48]:

```
Out[48]: [-336.20000000000005,  
          381.29999999999995,  
          230.79999999999995,  
          -54.80000000000001,  
          523.4,  
          733.3999999999999]
```

7) What is the percentage of years having profits in the total.

▶ In [49]:

```
0  
1  
2  
3  
4  
5  
67%
```

8) Compare sales and newSales

```
▶ In [52]: import matplotlib.pyplot as plt  
plt.plot(sales)  
plt.plot(newSales)  
plt.ylabel('sales')  
plt.xlabel('years')
```

