

# PLF Session 3a For Loops & Future Value of Money

UCLA, Econ 10P: Introduction to Python for Economists

## Exercises

1. a) Write code that (i) asks a user to input a number, and (ii) prints the sign of the number (e.g., positive, negative, or zero). Example Output: "-1 is a negative number."  
b) Same thing as in 1a), But update your code so that if the number is positive, tell whether the number is larger than 5 using a nested if...else... statement.

2. Sum the integers from 0 to 5 using a `for` loop. Print your result.

3. Print odd number 1 to 9 using a `for` loop

4. Compute the monthly interest rate. Prompt the user to enter the initial deposit amount, the future value of deposit, and the duration of the deposit (in months). You can use the formula

$$FV = PV(1 + r)^n$$

,

$$\frac{FV}{PV} = (1 + r)^n$$

,

$$1 + r = \left(\frac{FV}{PV}\right)^{\frac{1}{n}},$$

$$r = \left(\frac{FV}{PV}\right)^{\frac{1}{n}} - 1,$$

where  $PV$  = present value of the initial deposit,  $r$  = monthly rate, and  $n$  = number of months. Output the result to the screen.

Note: You can use the function `math.log(x, base)`. Remember to import `math` module

# PLF Session 3b Lists & Dictionaries

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## Exercises

1. Given a list of numbers [1, 2, 3, 4, 5, 6, 7]. Write a program to turn every item of a list into its square.

Expected Output: [1, 4, 9, 16, 25, 36, 49]

2. Write code where you ask the user to create a list of 5 numbers. Write a program to find value 20 in the list, and if it is present, replace it with 200. Only update the first occurrence of an item.

Inputted Array: [5, 10, 15, 20, 25]

Expected Output: [5, 10, 15, 200, 25]

3. Given a list list1 = [5, 20, 15, 20, 25, 50, 20], write a program to remove all occurrences of item 20. USE A WHILE LOOP

Expected Output: [5, 15, 25, 50]

4. Below are the two lists. Write a Python program to convert them into a dictionary in a way that item from list1 is the key and item from list2 is the value.

keys = ['Ten', 'Twenty', 'Thirty']

values = [10, 20, 30]

Expected output: {'Ten': 10, 'Twenty': 20, 'Thirty': 30}