Homework

October 7, 2017

0.0.1 Exercise 1 - Multiply every number in the list by 2

Write a program that takes a list as an input and multiplies every number in the list by 2

Example: - a = [1,2,3,4], output = [2,4,6,8]

Hint: to take a list from user as input: - Python 2 : list_numbers = input('Enter a list of numbers
') - Python 3 : list_numbers = eval(input('Enter a list of numbers'))

```
In [3]: input_list = input('Please enter the list of numbers, separated by commas:')
        # python 3 input_list = eval(input('Please enter the list of numbers, separated by com
        result_list = []

        for num in input_list:
            # another way: result_list += [num * 2]
            result_list.append(num*2)
        print(result_list)

Please enter the list of numbers, separated by commas:1,2,3,4,5
[2, 4, 6, 8, 10]
```

0.0.2 Exercise 2 - number is in list or not?

Write a program that takes as input a list of numbers and then a number. If the list of numbers
contains this number print 'exists' otherwise print 'doesn't exist'.

Example: - a = [1,2,3,4], element = 4, output => exists - b = [1,5,3,4], element = 2, output =>
doesn't exist

```
In [5]: input_list = input('Please enter a list of numbers, separated by comma:')
        element = input('Please enter an integer to search in this list:')

        element_found = False

        for num in input_list:
            print('---------------------------------------------')
            print('num=' + str(num))
            print('element=' + str(element))
            print('is num equal to element? ' + str(num==element))
            if num == element:
                element_found = True
```

```python
        print('element_found=' + str(element_found))

    if element_found:
        print('exists')
    else:
        print("doesn't exist")
```
```
Please enter a list of numbers, separated by comma:1,2,3,4,5
Please enter an integer to search in this list:2
-----------------------------------------------
num=1
element=2
is num equal to element? False
element_found=False
-----------------------------------------------
num=2
element=2
is num equal to element? True
element_found=True
-----------------------------------------------
num=3
element=2
is num equal to element? False
element_found=True
-----------------------------------------------
num=4
element=2
is num equal to element? False
element_found=True
-----------------------------------------------
num=5
element=2
is num equal to element? False
element_found=True
exists
```

0.0.3 Exercise 3 - Check if a string is a palindrome

Write a program that takes as input a string and checks whether it is a palindrome or not.

According to wikipedia "A palindrome is a word, phrase, number, or other sequence of characters which reads the same backward as forward"

Example: - input= 'madam', output = 'palindrome' - input = 'hello', output = 'not palindrome' - input = 'lol', output = 'palindrome' Hint: You can use the reverse function

0.0.4 Using reverse

```
In [6]: text = raw_input('Enter a string to check\n')
```

```python
        reverse = ''

        index = len(text) - 1
        while index >= 0:
            reverse = reverse + text[index]
            index = index - 1
        #print(reverse)


        if(text == reverse):
            print('palindrome')
        else:
            print('not palindrome')
```

```
Enter a string to check
madam
palindrome
```

0.0.5 Without using reverse

```python
In [14]: text = raw_input('Enter a string to check\n')

        start_index = 0
        end_index = len(text) - 1

        flag = True
        while(start_index < end_index ):
            if(text[start_index] != text[end_index]):
                flag = False
            start_index = start_index + 1
            end_index = end_index - 1

        if(flag == True):
            print('palindrome')
        else:
            print('not palindrome')
```

```
Enter a string to check

palindrome
```

0.0.6 Exercise 4 - Print a pyramid

- Take as input a number n from user and print a pyramid shape with base n.

- Example: input = 2 outputs: * **

```
input = 3
outputs:
*
**
***

input = 5
outputs:
*
**
***
****
*****
```

In [11]: # First way
```python
n = input('Enter size of base of pyrimad ')

i = 1

while i <= n:
    print("*"*i)
    i += 1
```

```
Enter size of base of pyrimad 5
*
**
***
****
*****
```

In [17]: # Second way:
```python
n = input('Enter size of base of pyrimad ')

row = 1

pyramid = ''
while row <= n:
    column = 1
    line = ''
    while column <= row:
        line += '*'
```

4

```
        column += 1
    pyramid  = pyramid + line + '\n'
    row += 1

print(pyramid)
```

```
Enter size of base of pyrimad 5
*
**
***
****
*****
```

In [ ]: