

Python for Automation QA Engineers

Lesson - 1

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LESSON PLAN

- 'for' / 'while' loops.
- Main methods used with lists.
- Working with lists using loops.
- Main methods used with strings.
- Working with strings using loops.
- Solving list/string problems.
- Mini test program.

'for' Loop

- Purpose: Repeating piece of code 'n' number of times.
- How to use:

```
for i in range(1, 3):  
    print(i)  
  
l = [1, 2, 3]  
for element in l:  
    print(element)
```

'while' Loop

- Purpose: Repeating piece of code while something True;
- How to use:

```
while 1 == 1:  
    print('Infinite loop.')  
i = 1  
while i < 10:  
    print('i is ' + str(i))
```

Must know list methods.

- `.append(x)` - adds 'x' to the end of the list;
- `.extend(t)` - adds list or string 't' to the list;
- `.count(x)` - counts 'x' occurrences in a list;
- `.index(x, i, j)` - finds index of 'x' on given range(from 'i' to 'j');
- `.insert(i, x)` - inserts 'x' on index 'i';
- `.remove(x)` - removes element 'x' from the list or returns error;
- `.pop(i)` - removes element with index 'i' and returns it;
- `.reverse()` - reverses list;
- `.sort(cmp, key, reverse)` - sorts list, possible reversed sorting.

Let's work with lists!

1. Define list 'l' with elements from 1 to 10 included, using range() method;
2. Create 'for' loop which will go through all elements in list 'l' and print each element multiplied by 2 and save new list;
3. Reverse the list and remove all elements '4';
4. Remove element with index 3;
5. Sort the list;
6. Add your name as a last element;
7. Print the result.



Must know string methods.

- `.lower()/.upper()` - makes all characters in a string lower/upper case;
- `.split(sep, maxsplit)` - splits string into list by 'sep' with maximum number of elements - 'maxsplit';
- `.count(sub, i, j)` - counts substring on range 'i' to 'j';
- `.join(iterable)` - returns string of joined 'iterable' by string;
- `.replace(old, new, count)` - replaces 'old' substring with 'new';
- `.find(sub, start, end)=index(sub, start, end)` - finds index of first 'sub' from the beginning on the 'start'-'end' range;
- `.isdigit()` - returns True/False if provided string is digit/non-digit.

Let's work with strings!

1. Define empty list 'l';
2. Using 'for' loop append 9 elements of str type from '1' to '9' to list 'l';
3. Transform list 'l' to string without any separation;
4. Using 'for' loop go through all elements in string 'l' and print the result of multiplication by 2 of each element;
5. Remove element with index 3;
6. Add your name to the end of the string;
7. Print the result.



Solving 3 problems together.



Problem 1:

New material:

- `randint(start, end)` - method in 'random' module which generates random 'int';
- '%' operation - 'mod' operator computes the remainder, e.g. `5 % 2` is 1.

1. Generate list 'l' with 30 random int elements in range from 0 to 99;
2. Compute the number of even ints in the given list 'l';
print the result.

Problem 2:

1. Generate list 'l' with 30 random int elements in range from 0 to 99;
2. Compute the difference between the largest and smallest values in the list, without using min(), max().

Problem 3:

Return the number of times that the string 'qa' appears anywhere in the given string include upper case letters. For example 'Qa' and 'QA' count.

String: 'fwerfgwfqawefwQafgeQfwefaqfeq'

Homework

1. Read about all new material. Look up for examples, play with it(3 hours);
2. Write a small program which will do the following(1.5 hour):
 - Generate list 'l' with 200 random elements from 0 to 99 each;
 - Take an input from user. Input should be a number from 0 to 99;
 - If user provides non-number print an error;
 - If user provides number less than 0 or bigger than 99 print an error;
3. Find all instances of that number in a list and print the amount and indexes of those instances. If nothing found - print it.