

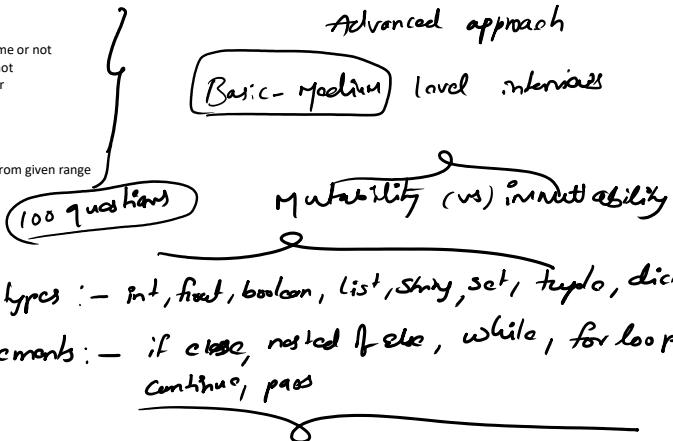
Python questions set1

16 January 2025 07:40

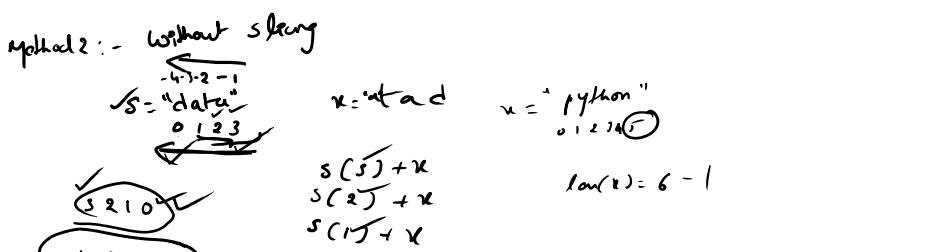
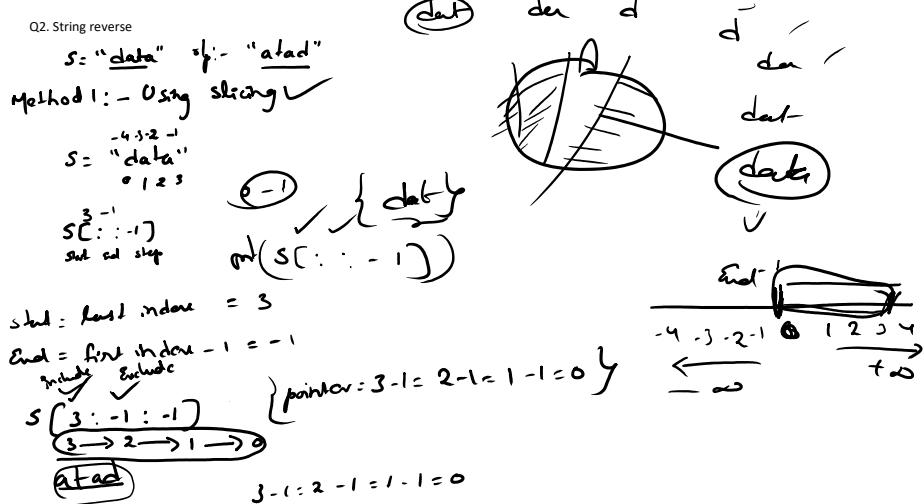
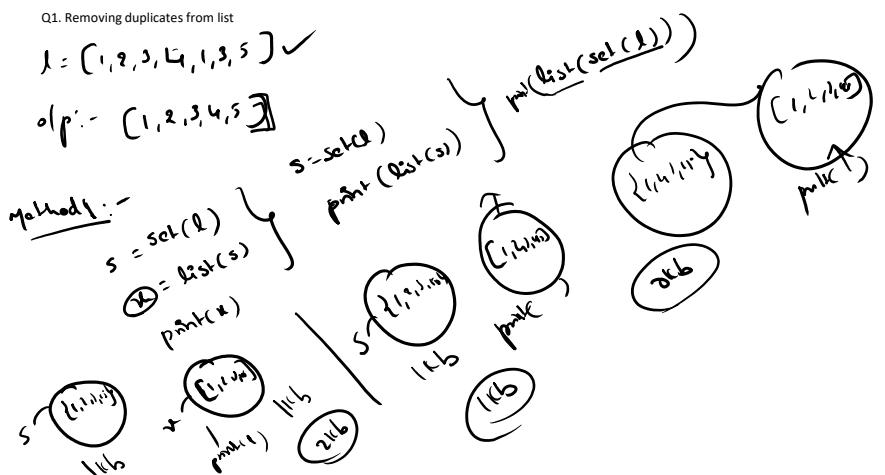
Recap

- Q1. Removing duplicates from list
- Q2. String reverse
- Q3. Check given string is palindrome or not
- Q4. Check 2 strings Anagrams or not
- Q5. Print factorial of given number
- Q6. Frequency Count
- Q7. Fibonacci Series
- Q8. Second largest number
- Q9. Two sum
- Q10. Generate a prime numbers from given range

Recap:-



- 1) Python datatypes :- int, float, boolean, list, strng, set, tuple, dict
- 2) Control statements :- if else, nested if else, while, for loop, break, continue, pass



$s(3) + x$
 $s(2) + x$
 $s(1) + x$
 $s(0) + x$

start: $\{ \text{length} = \text{len}(s)^{-1} = 4 - 1 = 3$
 End: $0 - 1 \quad x = "$

$\left\{ \begin{array}{l} \text{for } i \text{ in range(start, end, -1)} \\ x = x + s[i] \end{array} \right. \Rightarrow x + "a" \Rightarrow "a" + "a" = "aa" = x$

$"a" + "t" \Rightarrow "at" \Rightarrow x$
 $"at" + "a" \Rightarrow "ata" \Rightarrow x$
 $"ata" + "d" \Rightarrow "atad" \Rightarrow x$

$i = 3, 2, 1, 0$
 range $(3, -1, -1)$
 "end step" 3210

$\text{part}(u)$
"abjad"

~~super not X palidum~~

Q3. Check given string is palindrome or not

What is palindrome?

$x = \text{"Madam"} \quad \checkmark$
 $y = \underline{\text{M a d a m}} \quad \checkmark$
 $x = \text{"Malayalam"} \quad \checkmark$
 $y = \underline{\text{M a l a y a l a m}} \quad \checkmark$

Q4. Check 2 strings Anagrams or not

$s_1 = \text{"listen"} \Rightarrow \text{eiInst} = \text{ende}$ Cond 1: 6

$S_2 = \text{"silent"} \Rightarrow \circ \text{inst:andl Comd1 : 6}$

Anagrams

- ✓ Condition 1:- length should be same ✓
- ✓ Condition 2:- They should be of same characters ✓

and here $S_1 = \text{input}(\text{"Enter the string 1 : "})$
 and here $S_2 = \text{input}(\text{"Enter the string 2 : "})$

$\underline{S_1-\text{Length}} = \underline{\text{len}(S_1)}$: = assigned operator
 $\underline{S_2-\text{Length}} = \underline{\text{len}(S_2)}$: = comparing operator

✓ if $S_1\text{-Length} = S_2\text{-Length}$:

- ↳ $S_1\text{-sorted} = \underline{\text{sorted}(S_1)}$
- ↳ $S_2\text{-sorted} = \underline{\text{sorted}(S_2)}$
- ✓ if $S_1\text{-sorted} == S_2\text{-sorted}$:
 print ("given 2 strg are anagrams")
- Else : print ("given 2 strg are not anagrams")

Else print ("given 2 strg are not anagrams")

print("You two are not anagrams")

Cond 1: true
Cond 2: false loop

$S_1 = \text{input}$
 $S_2 = \text{input}$
 $S_1.\text{len} = \text{len}(S_1)$
 $S_2.\text{len} = \text{len}(S_2)$
 $\text{Count} = 0$
 $\text{if } S_1.\text{len} == S_2.\text{len}:$

```

for i in S1:
    if i in S2:
        Count = Count + 1
    if Count == S1.length:
        print("Anagrams")
    else:
        print("not anagrams")

```

$S_1 = \text{listen}$ $S_2 = \text{silent}$ $\text{Count} = 0$
 $S_1 = \text{bad}$ $S_2 = \text{dad}$ $\text{Count} = 1$

Q5. Print factorial of given number

$\text{num} = \text{input}(\text{"Enter the number: "})$

$4 \times 3 \times 2 \times 1$
 $-1 -1 -\cancel{5} \times \cancel{4} \times 3 \times 2 \times 1 = 120 = 5!$

$\text{fact} = 1 \times 2 \times 3 \times 4 \times 5$

$\text{for } i \in \text{range}(\text{num}, 0, -1):$

$\text{fact} = \text{fact} \times i$

$=) \text{fact} = 1 \times 2 \times 3 \times 4 \times 5$
 $=) \text{fact} = 5 \times 4$
 $=) \text{fact} = 20 \times 3$
 $=) \text{fact} = 60 \times 2$
 $=) \text{fact} = 120 \times 1$

$\text{num} = 5$
 $\text{fact} = 1$
 $\text{num} = 4$
 $\text{fact} = 1 \times 5$
 $= 5$
 $\text{num} = 4 - 1$
 $= 4$
 $\text{fact} = 5 \times 4$
 $= 20$
 $\text{num} = 4 - 1$
 $= 3$
 $\text{fact} = 20 \times 3$
 $= 60$
 $\text{num} = 3 - 1$
 $= 2$
 $\text{fact} = 60 \times 2$
 $= 120$
 $\text{fact} = 120$

$1 \rightarrow \text{num}$

$5 \times 4 \times 3 \times 2 \times 1 = 1 \times 2 \times 3 \times 4 \times 5$

print(fact)

$\text{num} = \text{input}()$

$\text{fact} = 1$

$\text{while num} > 0:$

$\quad \text{fact} = \text{fact} \times \text{num}$
 $\quad \text{num} = \text{num} - 1$

print(fact)

$$\text{num} = 5$$

$$1 + 2 + 3 + 4 + 5$$

$$1 + 2 + 3 + 4$$

for i in range(1, num + 1)

$i = 1$
 $i = 2$
 $i = 3$
 $i = 4$

$\text{num} = 5$	$\text{num} = 4$	$\text{num} = 3$
$\text{fact} = 1 \times 5$	$\text{fact} = 5 \times 4$	$\text{fact} = 20 \times 3$
$= 5$	$= 20$	$= 60$
$\text{num} = 4 - 1$	$\text{num} = 4 - 1$	$\text{num} = 3 - 1$
$= 4$	$= 3$	$= 2$

$\text{num} = 2$	$\text{num} = 1$	$\text{num} = 0$
$\text{fact} = 60 \times 2$	$\text{fact} = 120 \times 1$	$\text{fact} = \text{false}$
$= 120$	$= 120$	
$\text{num} = 2 - 1$	$\text{num} = 1 - 1$	
$= 1$	$= 0$	

$i = 1$
 $i = 2$
 $i = 3$
 $i = 4$

Q6. Frequency Count
 Q6. Excl
 $i=3 \rightarrow 1$
 $i=4 \rightarrow 1$
~~5~~
 6

Q6. Frequency Count
 $l = ["a", "b", "a", "b"]$, $l = [1, 2, 1, 2]$
 $\{ \text{if } l["a": 2, "b": 2] \text{ dict } \{1: 2, 2: 2, 3: 1\} \}$

Soln: ~~from collections import Counter~~ ✓

Counter(l)

Soln:- $l = [a, b, c, a, b]$
 $\{ \text{if } l["a": 2, "b": 2, "c": 1] \}$

$d = \{ "a": 1 \}$ $i = a$ $d[a] = 1$	$i = b$ $d[b] = 1$ $d = \{ "a": 1, "b": 1 \}$
---	---

$i = c$ $d[c] = 1$ $d = \{ "a": 1, "b": 1, "c": 1 \}$	$i = a$ $d[a] = d[a] + 1$ $= 1 + 1$ $d[a] = 2$ $d = \{ "a": 2, "b": 1, "c": 1 \}$
---	---

$i = b$
 $d[b] = d[b] + 1$
 $= 1 + 1$
 $d[b] = 2$

$d = \{ "a": 2, "b": 2, "c": 1 \} \rightarrow c: 4$

$d.get(a) \rightarrow d[a]$
 2
 $d.get(b) \rightarrow d[b]$
 2
 $d.get(c) \rightarrow d[c]$
~~Not found~~ Error
~~d.get(d)~~

Q8. Second largest number

whole numbers

$0 \rightarrow +\infty$

$l_1 = [3, 5, 2, 9, 7]$
 $l_2 = [243, 119, 167, 201, 0]$

$\rightarrow \max(l_1) \Rightarrow \text{first largest number}$
 $s-l_1 = \text{sorted}(l_1)$

$\rightarrow \max(l_1) \Rightarrow$ first largest number
 $s-l_1 = \text{sorted}(l_1)$
 $\text{print}(s-l_1) \neq [2, 3, 5, 7, 9]$

① sorted (w.r.t) sort → Mutable
 $l = [1, 2, 9, 5, 7]$

~~sorted(l) n-3 - 2 - 1~~
~~print(s) ≠ [1, 2, 5, 7, 9]~~

~~n(-2) / i : i : i : i : i~~
~~l = [1, 2, 9, 5, 7]~~

② don't use any of inbuilt function / methods,
~~first - larg = -3~~
~~if sum < first - larg~~
~~sublarg < first - larg~~
~~/ second - larg = -2~~
~~if sum < second - larg~~

for i in l:
 if i > first - larg:
 second - larg = first - larg
 first - larg = i
 else if i > second - larg:
 second - larg = i

Top product based
organ
print(second - larg)
HackerRank | LeetCode

Q9. Two sum

$l = [1, 2, 3, 9, 5, 7]$ $l = [2, 10, 4, 0, 1, 19]$
 (i) two-sum = 6 two-sum = 20
 $o/p :- [1, 5]$ $o/p :- [1, 19]$
 Sol:- using for loop
 for i in range(len(l)):
 for j in range

Explanation $l = [2, 3, 9, 10, 5]$

$$2+3 = 5x$$

$$5+9 = 12x$$

$$9+1 = 10x$$

$$7+1 = 8x$$

$$2+5 = 12x$$

$$1+5 = 6x$$

$$\begin{array}{l}
 \text{two_sum=6} \\
 \left\{ \begin{array}{l}
 2+3 = 5x \\
 2+4 = 4x \\
 2+7 = 9x \\
 2+1 = 3x \\
 2+5 = 7x
 \end{array} \right. \\
 \left\{ \begin{array}{l}
 3+9 = 12x \\
 3+7 = 10x \\
 3+1 = 4x \\
 3+5 = 8x
 \end{array} \right. \\
 \left\{ \begin{array}{l}
 7+9 = 16x \\
 7+1 = 10x \\
 7+5 = 12x
 \end{array} \right. \\
 \left. \begin{array}{l}
 1+7 = 8x \\
 2+5 = 12x
 \end{array} \right\} \quad \text{01) - 8x}
 \end{array}$$

Sol1:- $\text{two_sum} = \text{len}(l)$

```

for i in range(len(l)):
    for j in range(i+1, len(l)):
        if l[i] + l[j] == two_sum:
            print(l[i], l[j])
            break
    
```

$i = [0, 1, 2, 3, 4]$

$j = [1, 2, 3, 4, 5]$

$\text{if } l[i] + l[j] = \text{two_sum}$:
 $\text{print}(l[i], l[j])$

break

$d = \{0:0, 1:1, 2:2, 3:3, 4:4\}$

$6-2=4$

$6-3=3$

$6-9=-3$

$6-1=-1$

$6-0=6$

$d = \{2:0$

i
 $\text{range}(6) = (0, 1, 2, 3, 4, 5)$

$l[0]=2$

$d[2]=0$

```

for i in range(len(l)):
    if l[i] not in d:
        d[l[i]] = i
    else:
        print(l[i], two_sum-l[i])
        two_sum - l[i] = 1
        6 - 5 = 1
    
```

```

l = [2, 3, 9, 7, 1, 5]
d = {}
two_sum = 6
for i in range(len(l)):
    if l[i] not in d:
        d[l[i]] = i
    else:
        print(l[i], two_sum - l[i])
        break
    
```

$l = [2, 3, 9, 7, 1, 5]$

$i = 0 \times 2 \times 4 \times 5$

$d = \{2:0, 3:1, 7:2$

$9:3, 1:4, 5:5\}$

$d[4] = 3$

$6 - 5 = 1$
 $d[6 - l[i]] \text{ not in } d:$

$d[0] = i$