Python Programs for Interviews

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1. Reverse a String in Python

Theory: Reversing a string is a common operation in coding interviews.

Code:

```
str1 = 'hello'
reversed_str = str1[::-1]
print(reversed_str)
```

Output: 'olleh'

2. Find Factorial of a Number

Theory: Factorial of n is the product of all positive integers up to n.

Code:

```
def factorial(n):
  if n == 0:
    return 1
  return n * factorial(n-1)
print(factorial(5))
```

Output: 120

3. Check if a Number is Prime

Theory: A prime number is only divisible by 1 and itself.

Code:

```
def is_prime(n):
  if n < 2:
    return False
  for i in range(2, int(n**0.5) + 1):
    if n % i == 0:
      return False
  return True
print(is_prime(7))
```

Output: True

4. Find Fibonacci Series

Theory: The Fibonacci series follows the rule: Fn = Fn-1 + Fn-2.

Code:

```
def fibonacci(n):
```

```
  a, b = 0, 1
  for _ in range(n):
    print(a, end=' ')
    a, b = b, a + b
fibonacci(10)
```

Output: 0 1 1 2 3 5 8 13 21 34

5. Check if a String is a Palindrome

Theory: A palindrome is a string that reads the same forward and backward.

Code:

```
def is_palindrome(s):
  return s == s[::-1]
print(is_palindrome('radar'))
```

Output: True

6. Find the Largest Element in a List

Theory: The max() function can be used to find the largest element.

Code:

```
numbers = [10, 25, 88, 12]
print(max(numbers))
```

Output: 88

7. Remove Duplicates from a List

Theory: Sets in Python automatically remove duplicate elements.

Code:

```
list1 = [1, 2, 2, 3, 4, 4, 5]
unique_list = list(set(list1))
print(unique_list)
```

Output: [1, 2, 3, 4, 5]

8. Sort a List

Theory: The sorted() function returns a sorted list.

Code:

```
numbers = [4, 1, 3, 9, 2]
print(sorted(numbers))
```

Output: [1, 2, 3, 4, 9]

9. Find the Second Largest Number in a List

Theory: Sorting the list and selecting the second last element.

Code:

numbers = [10, 20, 4, 45, 99]
numbers.sort()
print(numbers[-2])
Output: 45

10. Count the Frequency of Elements in a List

Theory: The Counter class from collections is used for counting elements.

Code:

from collections import Counter
nums = [1, 2, 2, 3, 3, 3]
print(Counter(nums))
Output: Counter({3: 3, 2: 2, 1: 1})