Factorial of a Number

Factorial of a non-negative integer, is multiplication of all integers smaller than or equal to n. For example factorial of 6 is 6*5*4*3*2*1 which is 720.

1.Recursive approach:

Python

```python
  # factorial of given number
  def factorial(n):

      # single line to find factorial
      return 1 if (n==1 or n==0) else n * factorial(n - 1);

  # Driver Code
  num = 5;
  print("Factorial of",num,"is",
  factorial(num))
```

Output:

```
Factorial of 5 is 120
```

Time Complexity: O(n)
Auxiliary Space: O(n)

2. Iterative approach :

Method1:

Python

```python
# factorial of given number
def factorial(n):
    if n < 0:
        return 0
    elif n == 0 or n == 1:
        return 1
    else:
        fact = 1
        while(n > 1):
            fact *= n
            n -= 1
        return fact

# Driver Code
num = 5;
print("Factorial of",num,"is",
factorial(num))
```

Output:

```
Factorial of 5 is 120
```

Time Complexity: O(n)
Auxiliary Space: O(1)

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