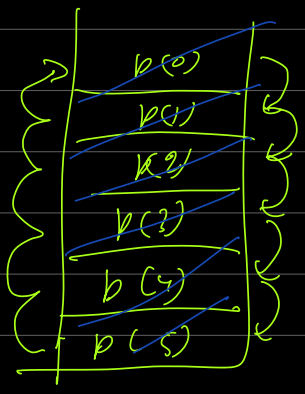
print Increasing

console.

1
2
3
4
5

```
print (n) {
  if(n==0)
    return
  print(n-1);
  syso(n);
}
```



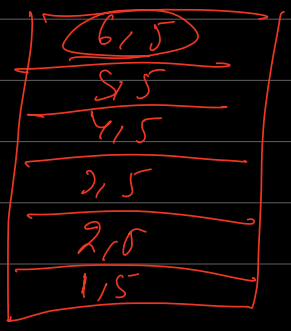
1
2
3
4
5

si ei

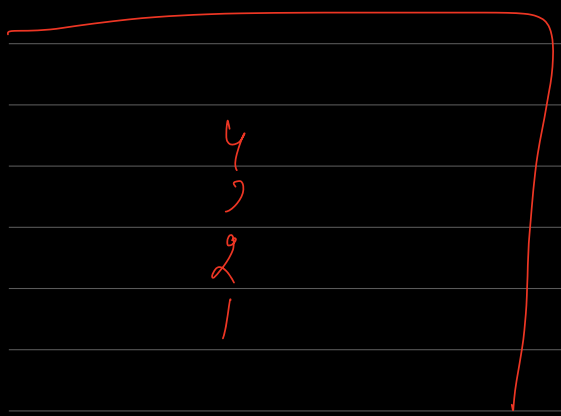
print (1, 5) {

syso(si)

print (si+1, ei)



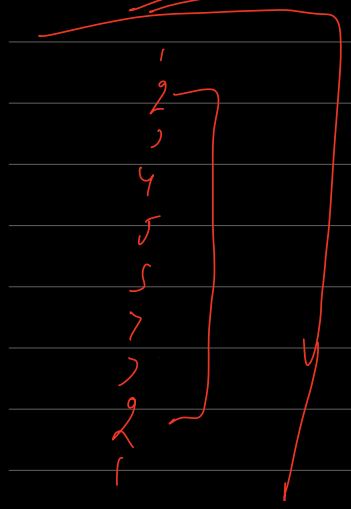
print Decreasing

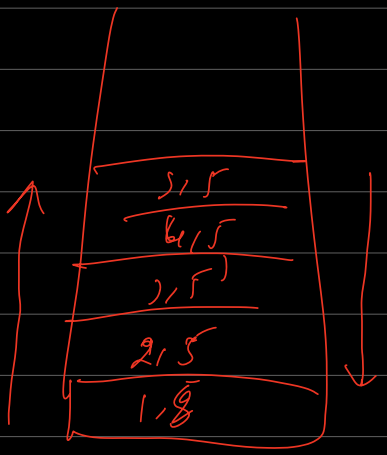



```
fun(n) :
print Decreasing (n-1)
```

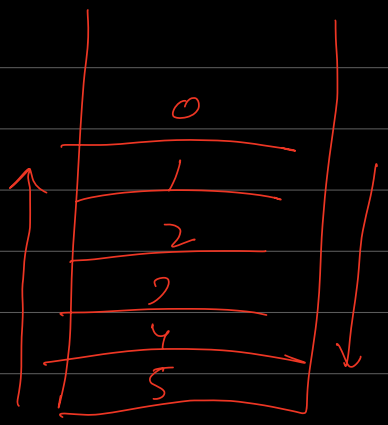
* print Increasing Decreasing

n = 5

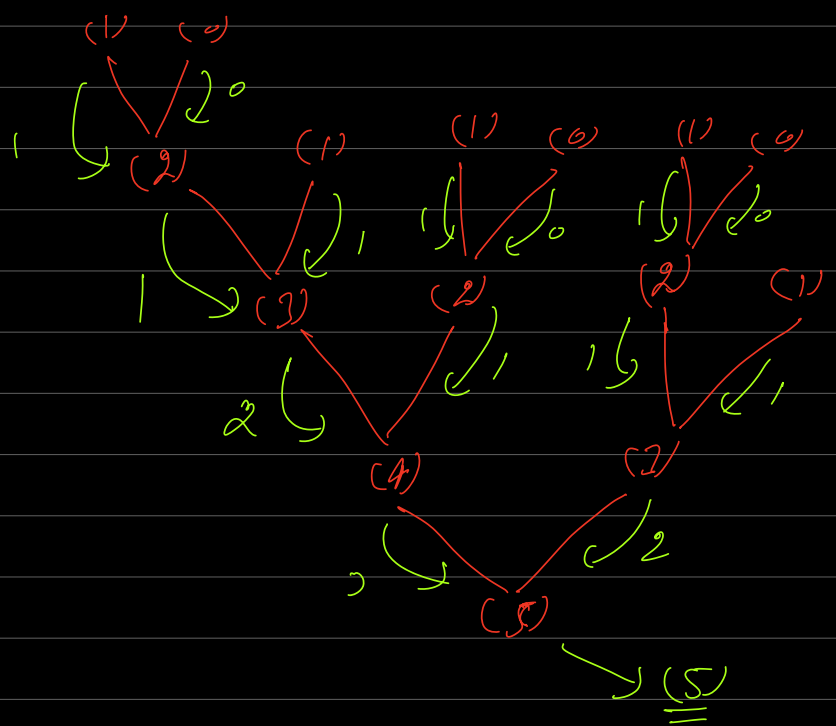




* pile Decreasing Incre.



Fig



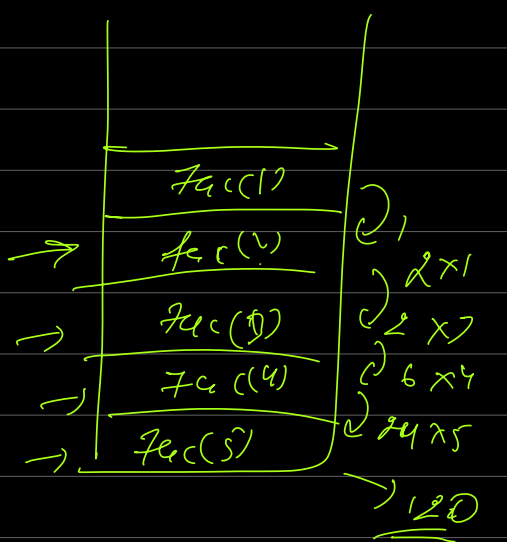
Factorial

→ fact(5) = 5 × 4 × 3 × 2 × 1

fact(6) = 6 × 5 × 4 × 3 × 2 × 1

fact(7) = 7 × 6 × 5 × 4 × 3 × 2 × 1

fact(n) = n × fact(n-1)

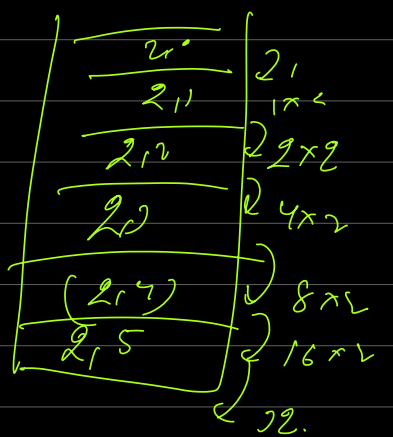


pow(a, b)

$a^6 = (a^{6/2}) * a$

a^5

T: O



$pow(a, b) = pow(a, b/2) * a^{b/2}$

$= a^{b/2} * a^{b/2}$

$= a^b$

---

pow(a, b/2):

b is even = pow * pow.

b is odd = pow * pow * a

$a^7 = a^3 * a^3 * a$

$T = \{6, 6/2, 6/4, 6/8, 6/16 \ldots\ldots 2\}$

GP

$r = (1/2)$

$A = 6$

GP formula

$a^n = a r^{n-1}$

$a^n = 1, \quad r = 1/2, \quad a = 6$

$1 = 6\left(\frac{1}{2}\right)^{n-1}$

$2^{n-1} = 6$

$\log_2 2^{n-1} = \log_2 (6)$

$n-1 = \log_2 (6)$

$\boxed{n = \log_2 (6+1)}$

$T(n) = O(\log_2 (n))$

$i = 0$	$a_1 0$	1
$i = 1$	$a_1 1$	$1 * 1 * a$
$i = 2$	$(a_1 2)$	$a * a$
$i = 5$	$(a_1 5)$	$a^2 * a^2 * a$
$i = 10$	$(a_1 10)$	$a^5 * a^5$

a^{10}