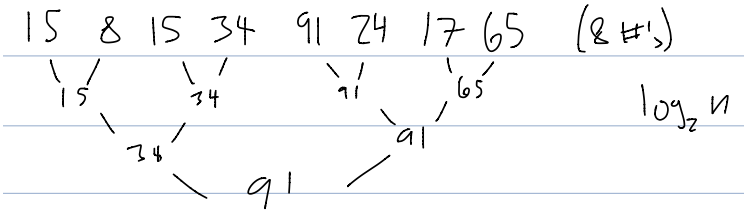


pthread_attr_init	pthread_mutex_init
pthread_create	pthread_mutex_wait
sem_init	pthread_mutex_unlock
sem_wait	pthread_mutex_destroy
sem_post	pthread_cmd_wait
sem_deploy	pthread_cmd_signal
	pthread_cmd_broadcast

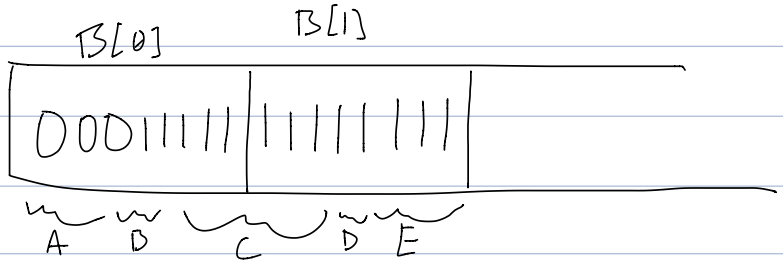
$1MB = 2^{20}$

$1KB = 2^{10}$

$2^{20} / 2^{10} = 2^{10} = 1024$ bits/blks

1024 bits — 0 free, 1 allocated

$1024 / 8 = 128$ chars.



A = 3 kB (free)

B = 21 kB (allo)

C = 5 kB (allo)

D = 1 kB (allo)

E = 5 kB (allo)

(1) memory-release operation

release block D: B[1] = B[1] & '11011111';

bitwise AND operation (&)
+
bit mask

release block: B[0] = B[0] & '11111000';
B[1] = B[1] & '00111111';

allocate the first 2kB of the hole A
B[0] = B[0] | '11000000';

search k consecutive blocks
logical right shift
+
bitwise AND operation

TEST = B[0] & '10000000';

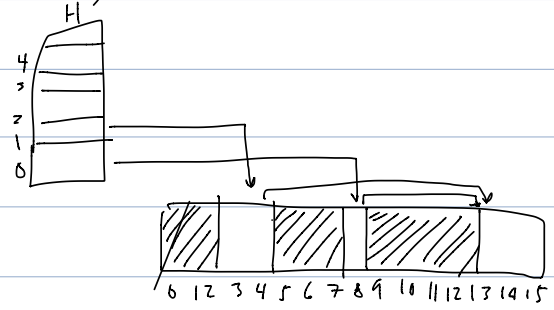
right shift for the mask: 01000000

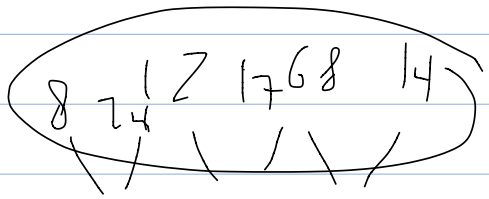
TEST = B[0] & '01000000';

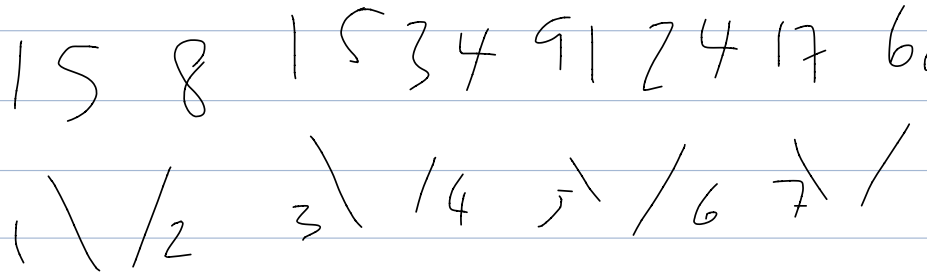
buddy system (static partitioning + dynamic part...)

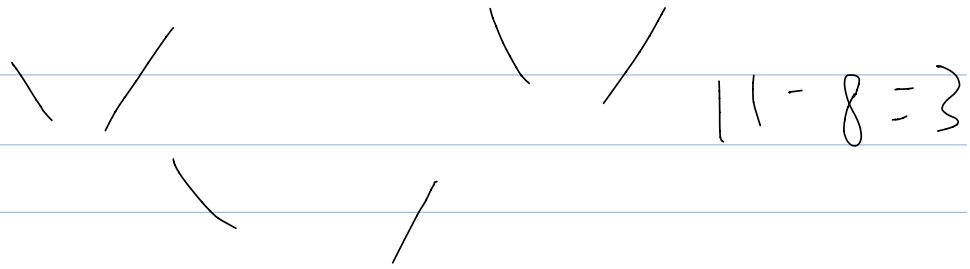
16 blocks (0...15)

0,1	0,1 & 2,3	0,1,2,3 & 4,5,6,7	0...15
2,3	4,5 & 6,7	8,9,10,11 & 12,13,14,15	
4,5	⋮		
⋮	12,13 & 14,15		
14,15			








11 - 8 = 3