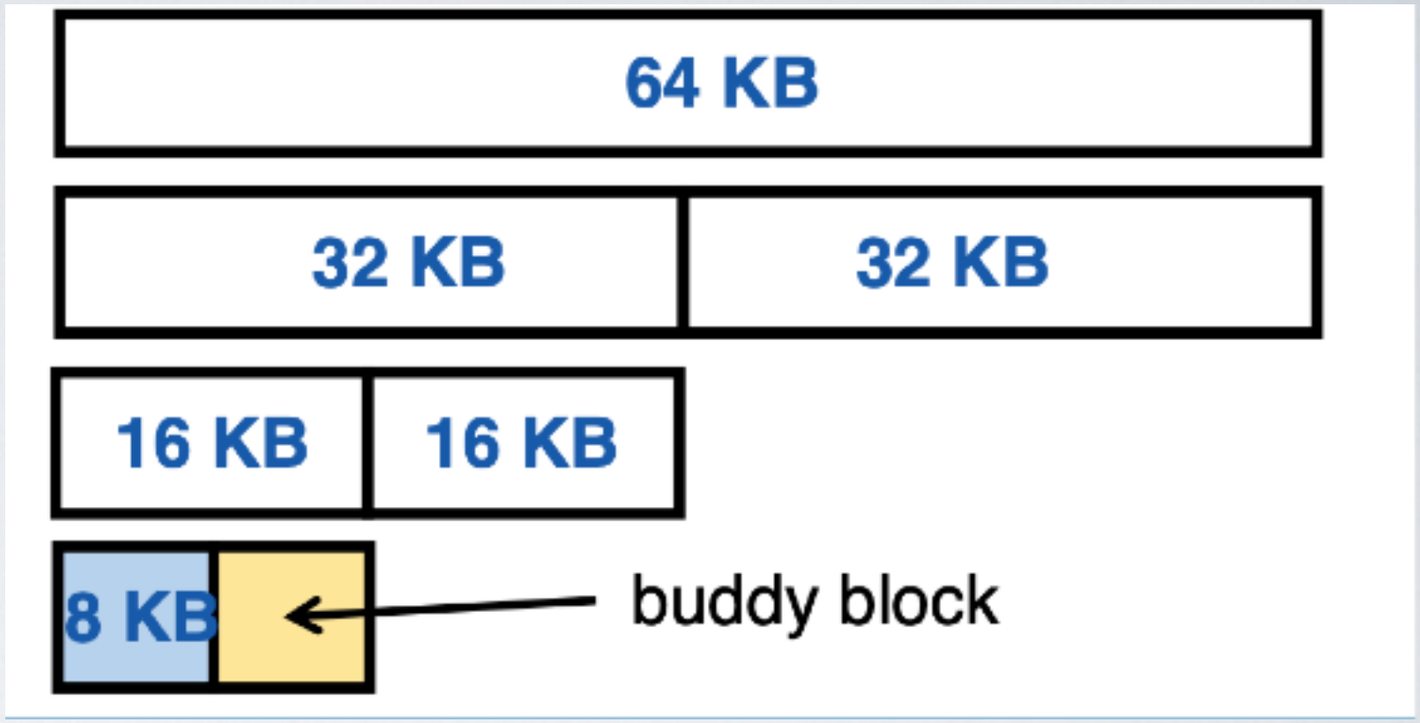
Buddy Allocation



➡ Allocate blocks in 2^k

Data structure

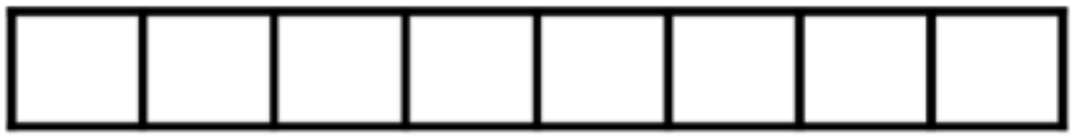
Maintain n free lists of blocks of size 2^0, 2^1, …, 2^n

Code

- recursively divide larger blocks until reach suitable block
- insert buddy blocks into free lists
- upon free, recursively coalesce block with buddy if buddy free

➡ the addresses of the buddy pair only differ by one bit

Example



freelist[3] = {0}

Note: 2^3

p1 = alloc(2^0)

freelist[0] = {1}, freelist[1] = {2}, freelist[2] = {4}

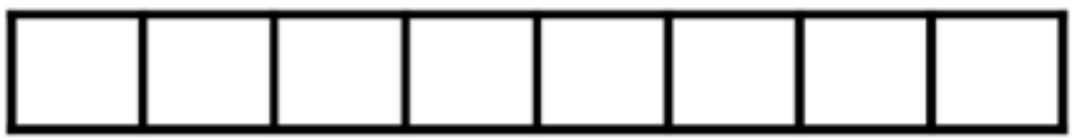
p2 = alloc(2^2)

freelist[0] = {1}, freelist[1] = {2}

free(p1)

freelist[2] = {0}

free(p2)



freelist[3] = {0}