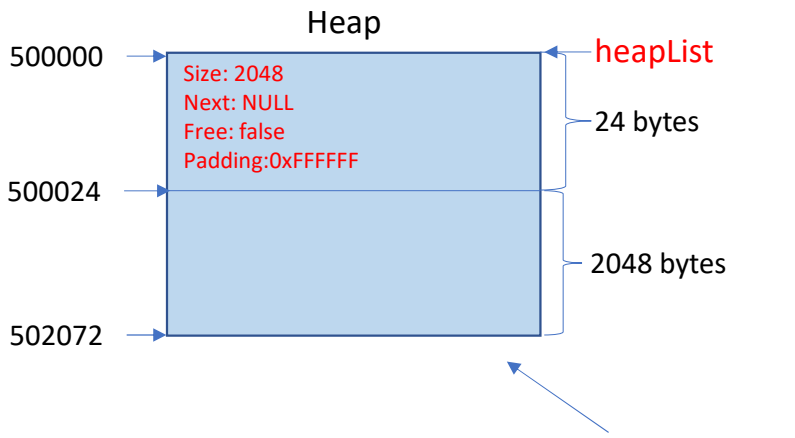
Code

```
unsigned char * ptr1 = NULL;
unsigned char * ptr2 = NULL;
unsigned char * ptr3 = NULL;
unsigned char * ptr4 = NULL;
ptr1 = malloc(2048)
```



User requests 2048 bytes.
We allocate 2048 + sizeof(struct_block)

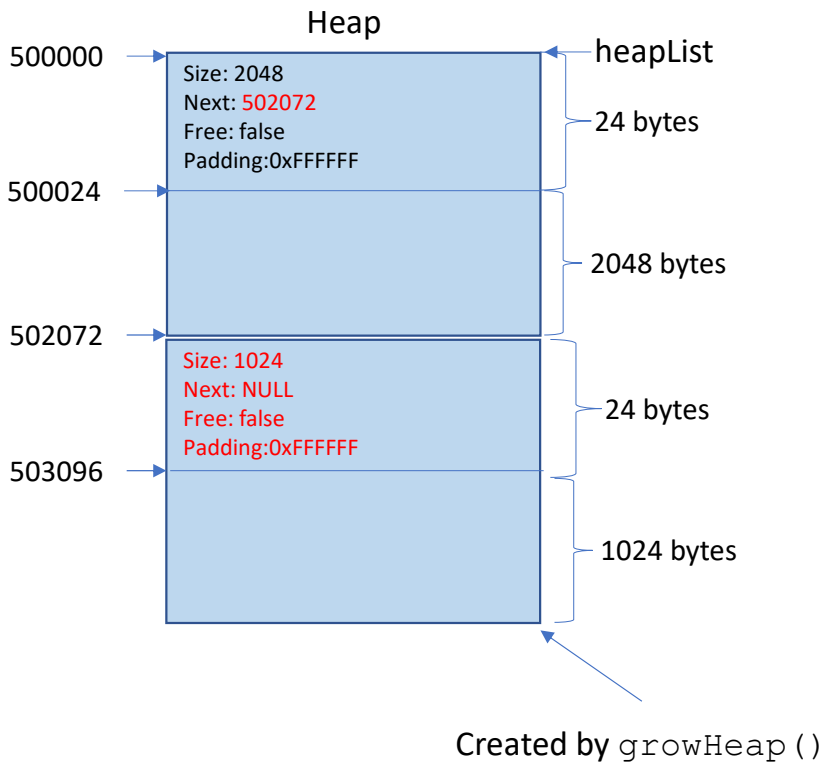
Created by `growHeap()`

Variable	Value
ptr1	500024
ptr2	NULL
ptr3	NULL
ptr4	NULL

Note: Starting address of 500000 is just notional

Code

```
unsigned char * ptr1 = NULL;
unsigned char * ptr2 = NULL;
unsigned char * ptr3 = NULL;
unsigned char * ptr4 = NULL;
ptr1 = malloc( 2048 )
ptr2 = malloc( 1024 )
```

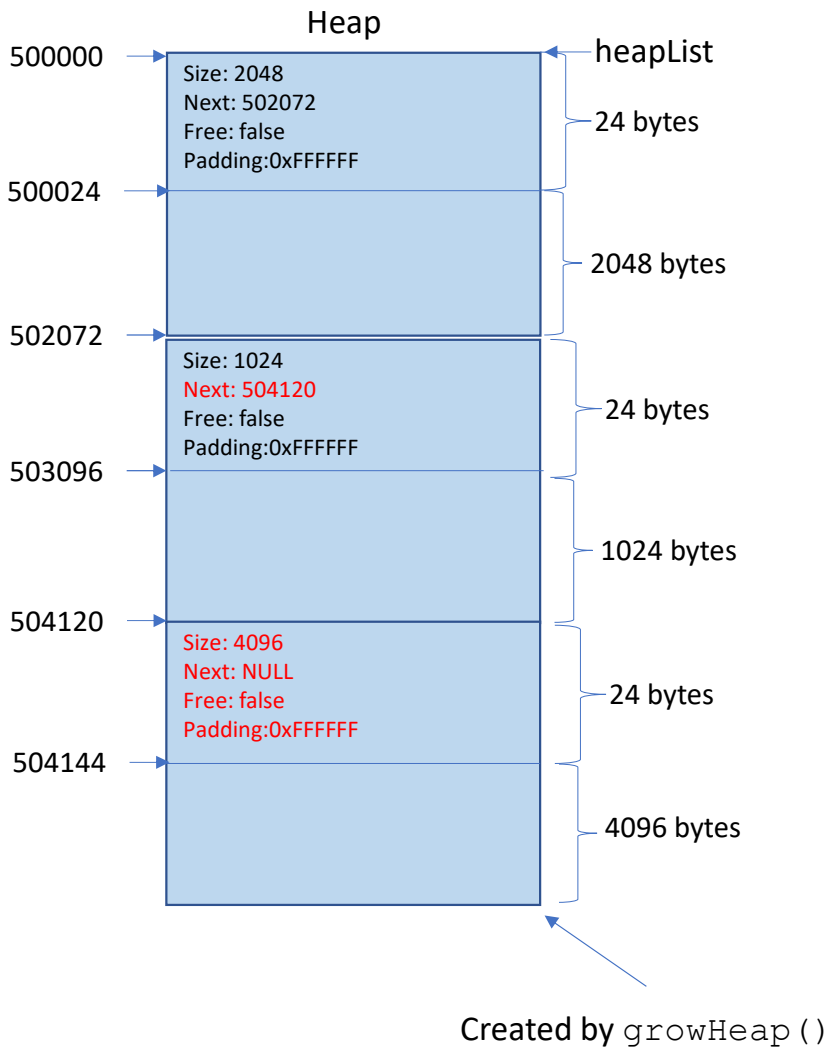


Variable	Value
ptr1	500024
ptr2	503096
ptr3	NULL
ptr4	NULL

Code

```
unsigned char * ptr1 = NULL;
unsigned char * ptr2 = NULL;
unsigned char * ptr3 = NULL;
unsigned char * ptr4 = NULL;
ptr1 = malloc( 2048 )
ptr2 = malloc( 1024 )
ptr3 = malloc( 4096 )
```

Variable	Value
ptr1	500024
ptr2	503096
ptr3	504144
ptr4	NULL

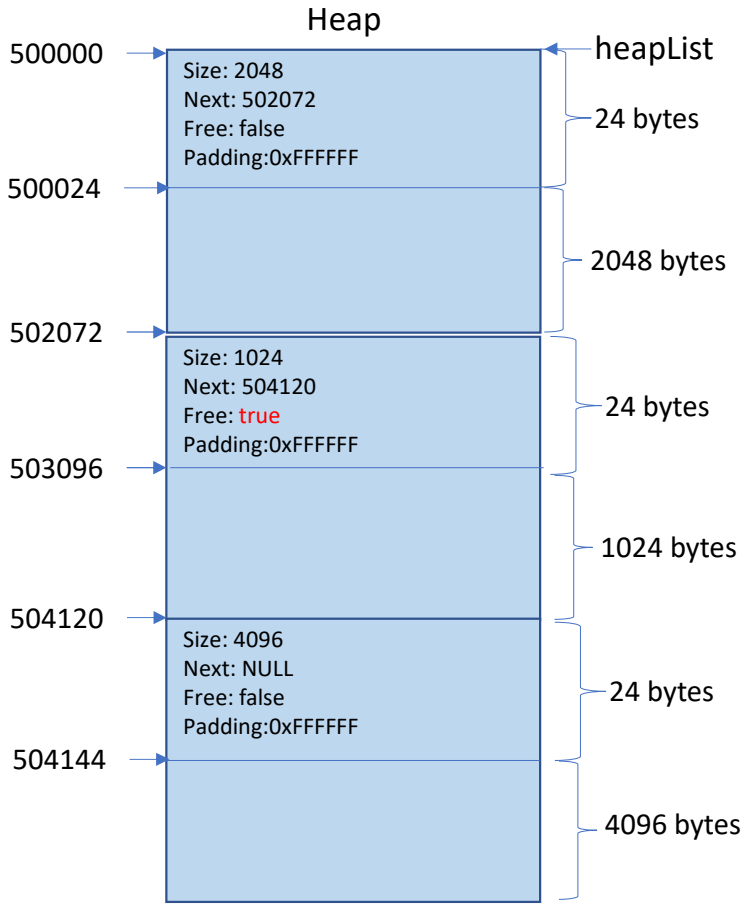


Code

```
unsigned char * ptr1 = NULL;
unsigned char * ptr2 = NULL;
unsigned char * ptr3 = NULL;
unsigned char * ptr4 = NULL;
ptr1 = malloc( 2048 )
ptr2 = malloc( 1024 )
ptr3 = malloc( 4096 )
free( ptr2 )
```

Variable	Value
ptr1	500024
ptr2	NULL
ptr3	504144
ptr4	NULL

Heap

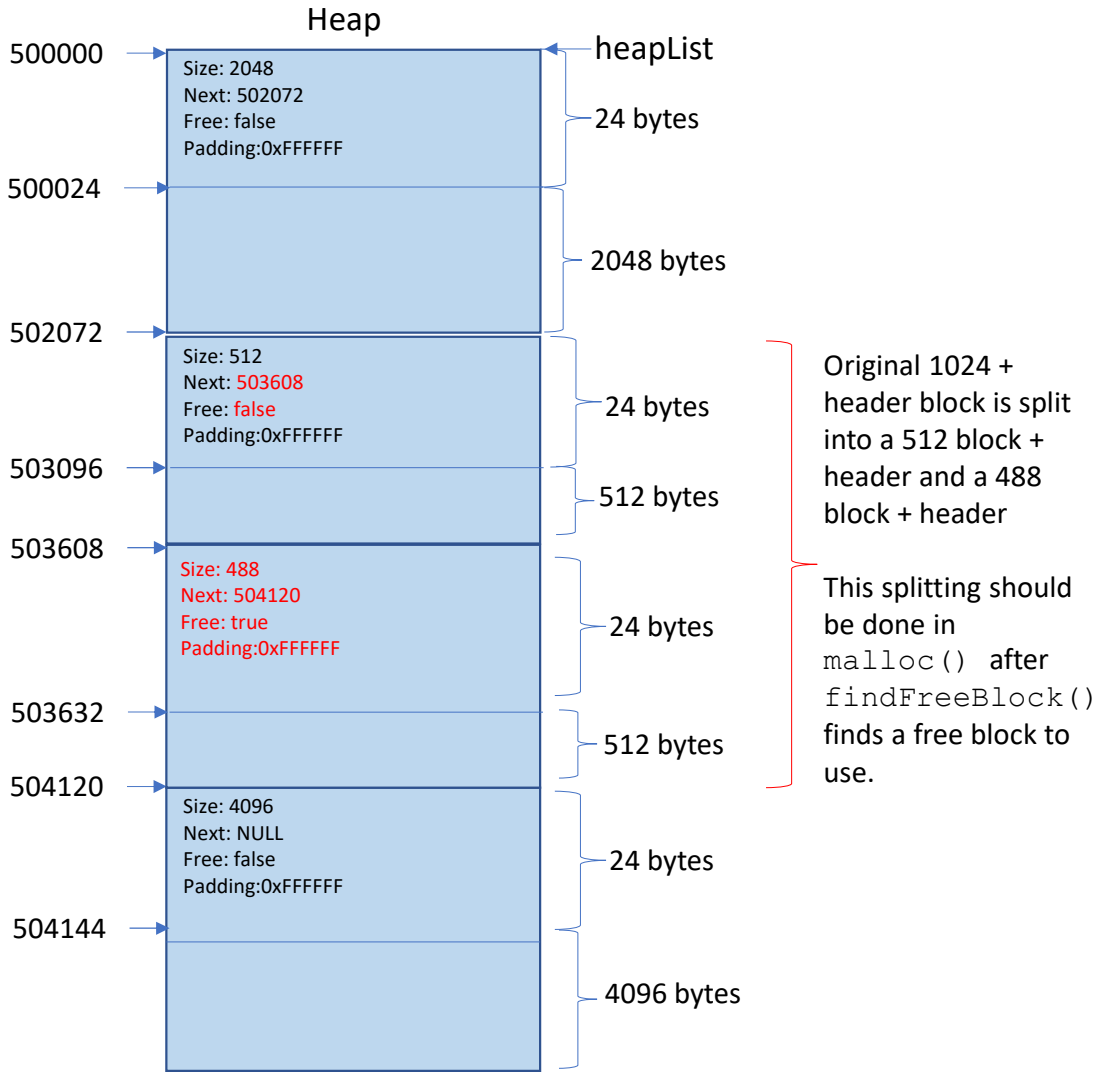


Code

```
unsigned char * ptr1 = NULL;
unsigned char * ptr2 = NULL;
unsigned char * ptr3 = NULL;
unsigned char * ptr4 = NULL;
ptr1 = malloc( 2048 )
ptr2 = malloc( 1024 )
ptr3 = malloc( 4096 )
free( ptr2 )
ptr4 = malloc( 512 )
```

Variable	Value
ptr1	500024
ptr2	NULL
ptr3	504144
ptr4	502072

Heap



Code

```
unsigned char * ptr1 = NULL;
unsigned char * ptr2 = NULL;
unsigned char * ptr3 = NULL;
unsigned char * ptr4 = NULL;
ptr1 = malloc( 2048 )
ptr2 = malloc( 1024 )
ptr3 = malloc( 4096 )
free( ptr2 )
ptr4 = malloc( 512 )
free( ptr4 )
```

Variable	Value
ptr1	500024
ptr2	NULL
ptr3	504144
ptr4	NULL

Heap