

Christian Suasi & Alec Fray  
mymalloc() / myfree() programming assignment #2  
systems programming 198:214

-----Makefile-----  
so we have a makefile which runs various compiler commands.

```
all: main

mymalloc.o: mymalloc.c mymalloc.h
    gcc -c mymalloc.c

main: main.c mymalloc.o
    gcc -o main main.c mymalloc.o

mysat: mysaturate.c mymalloc.o
    gcc -o mysat mysaturate.c mymalloc.o

clean:
    rm -rf *.o main sat
```

-these commands will first create object files for the various files in this program (mymalloc.o)  
-finally we run the executable that was created which should run the code and any input files that were created along the whole assignment

----- Command Line -----  
running in the command line:

```
make
./main
```

-with the main.c file, it will call upon all the methods that were invoked in the mymalloc.c file that is now linked along with the object and header files from calling make

----- Algorithmic Analysis -----  
mymalloc() runs through the array of the memory blocks which then searches for unallocated memory to be returned. Doing this gives essentially a big O analysis of  $O(n)$  for the amount of blocks that it searches through.

myfree() also has the same big O running time as it searches through the blocks of allocated memory to find the correct address to free up which can be all the way at the last block again giving an  $O(n)$  time.