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CSC220 -- Activity 2
2017-06-05

Part 1: Unix

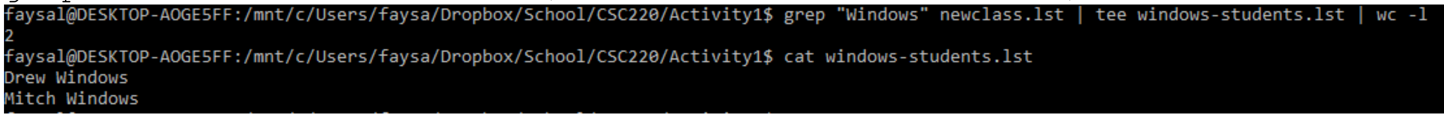
Question 2

a. `sort list.txt > sorted.txt`

b. `cat > notes.txt` (ctrl + d to quit and save)

c. `sort list1.txt list2.txt list3.txt -u > alllist.txt`

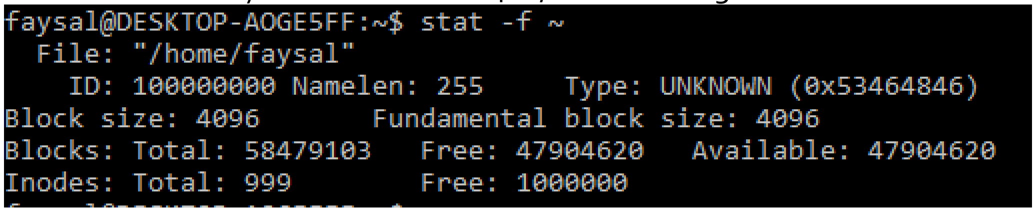
d. `grep "Windows" newclass.lst | tee windows-students.lst | wc -l`



```
faysal@DESKTOP-AOGE5FF:/mnt/c/Users/faysa/Dropbox/School/CSC220/Activity1$ grep "Windows" newclass.lst | tee windows-students.lst | wc -l
2
faysal@DESKTOP-AOGE5FF:/mnt/c/Users/faysa/Dropbox/School/CSC220/Activity1$ cat windows-students.lst
Drew Windows
Mitch Windows
```

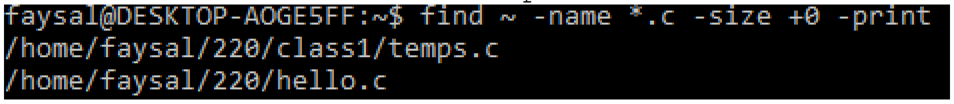
e. `find ~ -name *.c -print`

f. `stat -f ~` says the block size is 4kb, so we can't get resolution down to 1000 bytes.



```
faysal@DESKTOP-AOGE5FF:~$ stat -f ~
  File: "/home/faysal"
    ID: 100000000 Namelen: 255     Type: UNKNOWN (0x53464846)
Block size: 4096       Fundamental block size: 4096
Blocks: Total: 58479103    Free: 47904620    Available: 47904620
Inodes: Total: 999         Free: 1000000
```

`find ~ -name *.c -size +0 -print`

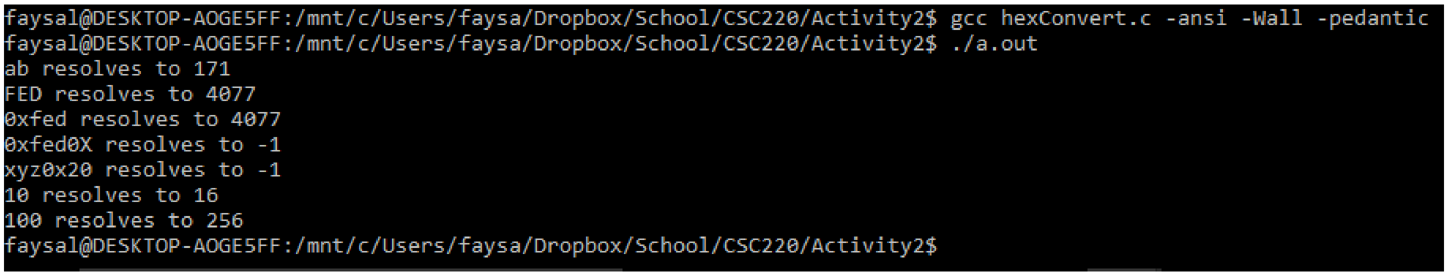


```
faysal@DESKTOP-AOGE5FF:~$ find ~ -name *.c -size +0 -print
/home/faysal/220/class1/temps.c
/home/faysal/220/hello.c
```

g. `ls | sort`

Part 2: hex to decimal

Sample Output



```
faysal@DESKTOP-AOGE5FF:/mnt/c/Users/faysa/Dropbox/School/CSC220/Activity2$ gcc hexConvert.c -ansi -Wall -pedantic
faysal@DESKTOP-AOGE5FF:/mnt/c/Users/faysa/Dropbox/School/CSC220/Activity2$ ./a.out
ab resolves to 171
FED resolves to 4077
0xfed resolves to 4077
0xfed0X resolves to -1
xyz0x20 resolves to -1
10 resolves to 16
100 resolves to 256
faysal@DESKTOP-AOGE5FF:/mnt/c/Users/faysa/Dropbox/School/CSC220/Activity2$
```

hexConvert.c

```c
#include <stdio.h>
#include <string.h>

int htoi(char []);
int power16(int);

int main() {

  char *test1 = "ab";
  char *test2 = "FED";
  char *test3 = "0xfed";
  char *test4 = "0xfed0X";
  char *test5 = "xyz0x20";
  char *test6 = "10";
  char *test7 = "100";

  printf("%s resolves to %d\n", test1, htoi(test1));
  printf("%s resolves to %d\n", test2, htoi(test2));
  printf("%s resolves to %d\n", test3, htoi(test3));
  printf("%s resolves to %d\n", test4, htoi(test4));
  printf("%s resolves to %d\n", test5, htoi(test5));
  printf("%s resolves to %d\n", test6, htoi(test6));
  printf("%s resolves to %d\n", test7, htoi(test7));
  return 0;
}

int htoi(char *hex) {
  int startIndex, endIndex;
  int place=0;
  int result=0;
  int i;

  /*Find out if leading 0x is present*/
  if ( (hex[0] == '0') && ( (hex[1] == 'x') || (hex[1] == 'X') ) ) {
    startIndex = 2;
  }
  else {
    startIndex = 0;
  }
  endIndex = strlen(hex) - 1;

  for (i = endIndex; i>=startIndex; i--) {
    int digit;
    if ( (hex[i] >= 'A' && hex[i] <= 'F') || (hex[i] >= 'a' && hex[i] <= 'f') ) {
      switch (hex[i]) {
        case 'A': case 'a':
          digit = 10;
       break;
        case 'B': case 'b':
          digit = 11;
          break;
        case 'C': case 'c':
          digit = 12;
       break;
        case 'D': case 'd':
          digit = 13;
       break;
        case 'E': case 'e':
          digit = 14;
       break;
        case 'F': case 'f':
          digit = 15;
       break;
      }
    }
    else if ( hex[i] >= '0' && hex[i] <= '9') {
      digit = (hex[i] - '0');
    }
    else {
      return -1;
    }

    result += (digit * power16(place) );
    place++;
  }

  return result;
}

int power16(int a) {
  int result = 1;
  int j = 0;
  for (j=0; j<a; j++) {
    result = result * 16;
  }
  return result;
}
```