# COSC 3337 - Information System Design and Management

# (Assignment 1)

**Please submit through Blackboard by 11:59pm September 15.**

1. Make necessary changes for the following program to work with your chosen language. **C is not a valid choice; this code must be converted to another acceptable language for this class.** See red text at the bottom. (20 points)

#include <stdio.h>

#include <fcntl.h>

main()

{

char c;

int fd;

char filename[100];

printf("Enter the name of the file to read text from: ");

gets(filename);

fd = open(filename, O\_RDONLY);

while(read(fd,&c,1) != 0)

write(STDOUT, &c, 1);

close(fd);

}

1. Follow the instructions in steps a-d below.
2. Write a program to read a series of names, one per line from standard input, and write out these names to standard output while reversing the order of the characters in each name. (10 points)
3. Input a series of names that are typed in from the keyboard and write the names out, with the order of the characters reversed in each name, to a file called ***file1***. Example: James Kirk becomes kriK semaJ (10 points)
4. Read the names in from ***file1****;* then write them out, re-reversed, to a file called ***file2***. (10 points) Example: kriK semaJ becomes James Kirk
5. Read the names in from ***file2***, reverse them again, and then sort the resulting list of reversed words and write them to standard output. (15 points)

Notes:

Please do steps a, b, c, d in one program. This is the cleanest way for you and me.

When I say read the names in from a file, that’s exactly what it means; it doesn’t mean keep the names around from an earlier step and re-use them.

1. Based on the relationships among cylinder, track and sector, estimate the amount of disk space needed for the following file. Suppose we want to store a file with 20000 fixed-length data records on a tiny 300 megabyte hard drive with the following characteristics:

Number of bytes per sector = 512

Number of sectors per track = 50

Number of tracks per cylinder = 11

Number of cylinders = 1331

How many cylinders does the file require if each data record requires 256 bytes? (15 points)

1. If there are fifteen 256-byte records per block, each block holds 5,120 bytes of data, and uses 600+5,120, or 5,720 bytes of track space when non-data overhead is taken into account.
2. Find number of blocks & records that fits on a 60,000 byte track. (10 points)
3. If there are fifty 256-byte records per block, each block holds 12,800 bytes of data, and uses 12,800+500 bytes of track space, find the number of blocks & records that can fit on a 60,000 byte track. (10 points)

**Note: When submitting your assignment, include the source code and screen output for each program to receive credit for the assignment. Be careful that screen output has not scrolled off the screen.**

**Any assignment not using one of the class required languages/development environments as specified on Blackboard will receive no credit. Do NOT turn in C code for question 1!**