Lab 2: Jamby's Files

Instructions

Log in to the classes.csc server through PuTTy or another SSH client

Files you will interact with for this lab are found in my lab folder.

You may copy these files to your home directory to work on if that is more convenient

The path to this is /classes/cs3304/cs3304_don/class/lab_2/

Or from your home directory: ~/../cs3304_don/class/lab_2/

Problem 1: Jamby's Files

After finding the Cat's club house on the server, Lea has asked you for some assistance! Their mom, Jambalia (Jamby for short), is somewhat tech un-savvy. Despite being on a Linux server, she tries to run her programs as .exe. She has become increasingly frustrated that she cannot read her files! She tries cat.exe <filename> over and over again and is met with constant error messages! Lea has asked you to write a C program that reads in a file and prints it out to the screen (standard output!) so that their mom will finally be happy.

Requirements:

1. Write a C program that can be ran as $cat.exe <filename>
2. The program will read the file name from argv, open the file, read the file, and write the contents to the terminal.
3. You will only need to support 1 file per run, as Jamby is a bit old
4. Your program should use either the stdio (fread, fwrite) or universal I/O (read, write) functions to do this.

Hint: Test your code with lyrics.txt first…

Problem 2: Finding excess

Jamby thinks that her computer files are taking up too much space! But she just doesn't know how to check this! Modify the program from the previous problem so that after writing the output of a file, it prints out a new line that contains the file's size in bytes.

Problem 3: XORBO

In running her new cat.exe program, Jamby says that some of the output is garbage! Being the excellent C programmer you are, you doubt this is a

problem with your code. Talking to Jamby, she went on and on about her kittens and how they're all big now! One thing that perked up your ears is that she mentioned Gumbo loved little data puzzles, and had the gamer tag of XORBO157 for online games. What's more interesting is that she now mentions that not all the files were hers! She said Gumbo gave her some files for safe keeping, and they ended up on her computer! Perhaps these files are **encrypted** in some fashion! Figure out the likely encryption scheme and key used by Gumbo!

(Hint: It's an operation that's self-reversible)

Once you find the method used, implement a decryptor! This should work by decrypting byte by byte on the input, then output it. It may be useful to start writing this output to another file, rather than the ephemeral terminal! (Hint, it's just changing which file descriptor you write to)

Problem 4: Gumbo's secret sauce! (+10 bonus)

After properly decrypting the previous file, reading it should let you in on a secret! The secret should give your insight on how to decrypt Gumbo's most closely held secret! (Hint: the **file** command may help you if you're a bit confused)

Submission

Submit your C code to moodle (under the Lab 2 submission).

Make sure that all group member's names are commented inside the code.