Assignment 1: FZIP

Due Date: Wednesday March 1st, 2017.

Objective: Write a program to archive and extract one file or directory tree.

Test tool:
Testing whether files or directories are the same:
diff -rq file1 file2
diff -rq dir1 dir2

Testing file or dir size:
du -sk file
du -sk dir

Instructions:

Your program must follow the parsing logic as provided in the skeleton code where -a is archive and -x is extract. When extracting it must output the (relative or absolute) path to the directory that was extracted as the last output line. The relative path would just be the name of the directory or file that is extracted because you should output it into the current working directory of your running program. When archiving, it must output the relative or absolute path to the .fzip archive file generated as the last output line.

If a file with the same name as your output name already exists, then you need to output the following error string: “output name exists in the directory”
You must fill out your name and student id at the top of main.cpp that you turn in.

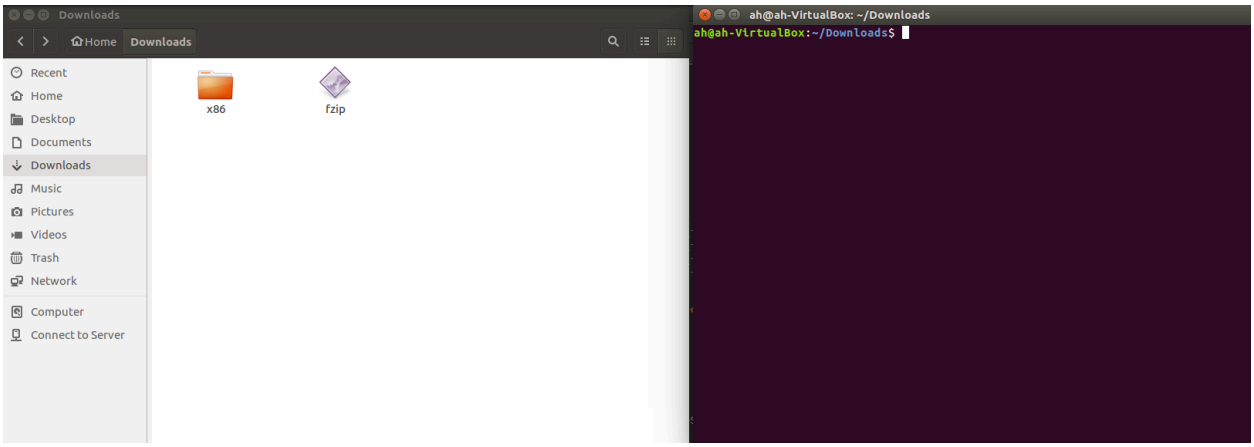
You program must compile without error using the following command:
g++ main.cpp -o zip

The usage information:

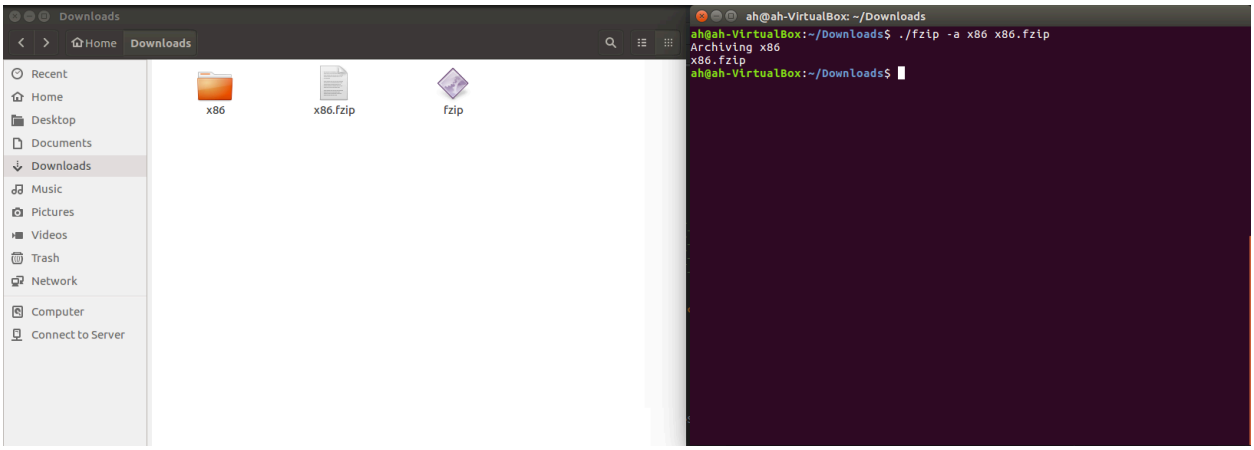
To archive a file:	fzip -a INPUT_FILE_NAME OUTPUT_FILE_NAME
To archive a directory:	fzip -a INPUT_DIR_NAME OUTPUT_DIR_NAME
To extract a file:	fzip -x INPUT_FILE_NAME OUTPUT_FILE_NAME
To extract a directory:	fzip -x INPUT_DIR_NAME OUTPUT_DIR_NAME

Example Run:

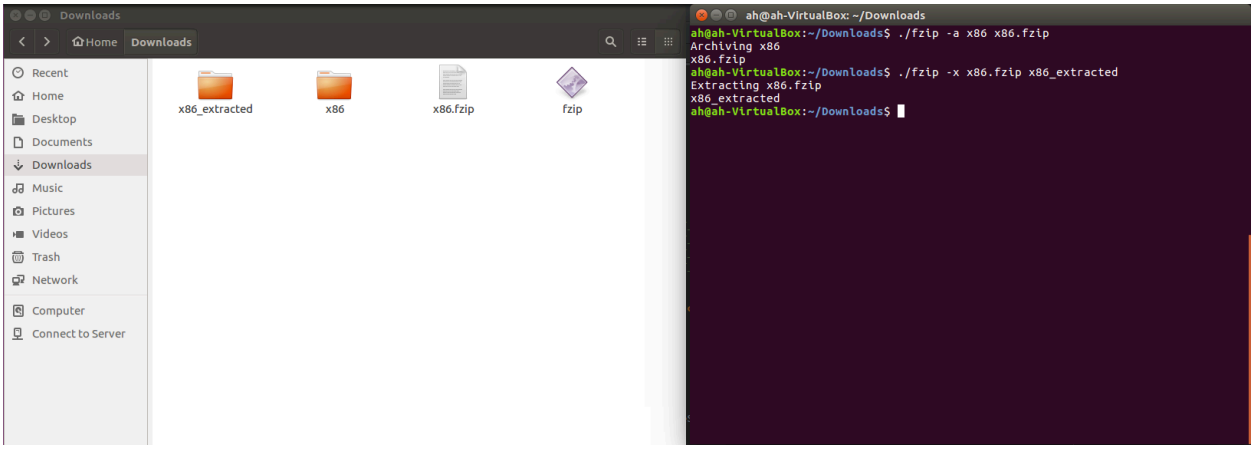
Starting files:



Archiving:



Extracting:



Extra credit: +5% of assignment total if your fzip archive file is smaller than the original input file or directory.

Resources:
main.cpp: skeleton code provided to you.
example.cpp for file i/o examples.

Online Resources:
https://www.classes.cs.uchicago.edu/archive/2017/winter/51081-1/LabFAQ/lab2/fileio.html
https://en.wikipedia.org/wiki/File_descriptor
http://advancedlinuxprogramming.com/alp-folder/alp-apB-low-level-io.pdf
Listing Directory:
http://www.gnu.org/software/libc/manual/html_node/Simple-Directory-Lister.html
https://github.com/perusio/linux-programming-by-example/blob/master/book/ch08/ch08-nftw.c

Submission:
main.cpp