

CSC 3350 Systems Programming
Lab 2 -- File Copy-Backup Utility
Due: Friday, April 15, 2016 in class

Write a **C console** (command line application) program **BACKUP** that copies a specified file to create a backup copy of the file with a different name.

BACKUP.exe src dest
or BACKUP src

BACKUP obtains from the command line:

- 1) the name of an existing file (e.g., an unambiguous source filename, with optional path)
- 2) (optional) a backup filename (e.g., an unambiguous destination filename)

BACKUP creates an exact binary copy of the source file in the destination file.

It opens both files (source for reading, destination for writing) in binary mode using the <stdio.h> library, reads from the source file and writes to the destination file, and closes both files.

If the (optional) destination filename is not specified on the command line, then BACKUP must fabricate a backup filename that is the same as the source filename, except replacing any specified source filename-extension with the extension .bak .

Examples:

BACKUP	-- error: source file must be specified
BACKUP lab2.c lab2.org	-- copy <u>lab2.c</u> to <u>lab2.org</u>
BACKUP lab2.c	-- copy <u>lab2.c</u> to <u>lab2.bak</u>
BACKUP essay	-- copy <u>essay</u> to <u>essay.bak</u>
BACKUP C:\csc3350\lab2.c F:\lab2.c	-- copy <u>C:\csc3350\lab2.c</u> to <u>F:\lab2.c</u>
BACKUP C:\a\b\c\lab2.c	-- copy <u>C:\a\b\c\lab2.c</u> to <u>C:\a\b\c\lab2.bak</u>
BACKUP C:\a\b\c\essay	-- copy <u>C:\a\b\c\essay</u> to <u>C:\a\b\c\essay.bak</u>
BACKUP C:\cur.docs\report.docx	-- copy <u>C:\cur.docs\report.docx</u>
	to <u>C:\cur.docs\report.bak</u>
BACKUP "My Files\instructions.doc"	-- copy <u>My Files\instructions.doc</u>
	to <u>My Files\instructions.bak</u>

Notes & Observations:

- 1) You must use C-String arrays-of-characters for all string variables and manipulations and the <stdio.h> library for I/O operations.
- 2) All filenames must be unambiguous, e.g., no wildcard characters allowed.
- 3) Filename "extension": an optional portion of a filename.
 - a. A filename "extension" is the rightmost substring following a dot.
 - b. An extension can only occur in the portion of the file pathString following the rightmost '\' delimiter (if it exists).
- 4) Dots are legal in subdirectory names too. A filename pathString may have several dots. Rules for "filename extensions" are described above.
- 5) The left- and right- quote delimiters " ... " for arguments on a command line are removed automatically from the corresponding argv[] values by cmd.exe. However, they allow the user to specify file names or paths with embedded blank characters, and the argv[] value contains the full string value with the embedded blanks.

Turn in:

- 1) Commented program listing.
- 2) Several sample runs showing BACKUP program in execution. Be sure to include samples illustrating that each of the possible commandline options work properly. For each run, show the command line, and show a DIR listing both before and after the BACKUP program is run.