

Handed out: 01/15/2016  
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finished 33/30

## CS 3423.01

### Assignment 2 : Sed Exploration

Due 12:00 Midnight Monday, February 1, 2016

#### News Sed Script

You have set up a news server and your feed has just sent you his active file. You need to perform an addgroup on each of three thousand different newsgroups. Rather than typing and executing the commands on an individual basis you decide to write a sed function to create from the active file a file consisting of the necessary addgroup commands. You then plan to execute the file containing the addgroups.

1. The active file is /usr/local/courses/cs3423/assign2/active. In order to save yourself some typing, create a symbolic link in your assign2 directory with the command:  
`ln -s /usr/local/courses/cs3423/assign2/active active`
2. The lines in the active file has the following format:  
`comp.os.linux.announce 0000002587 02190 m`  
`comp.arch 0000028934 28874 y`  
`utsa.cs.3423 0000000004 0000000001 y`
3. Each line in the active file should be converted to an addgroup command. For example, the previous lines should generate the command:  
`addgroup comp.os.linux.announce m`  
`addgroup comp.arch y`  
`addgroup utsa.cs.3423 y`
4. The sed script **MUST** be in a file called news.sed in your assign2 file and you should be able to run the conversion with the command:  
`sed -f news.sed active > news.commands`

#### Man Page to Latex Conversion

You have a number of man pages that need to be converted to latex and have decided to do this in two stages. First you will convert the printer files to an ascii format and then from the ascii format to the latex format. For each conversion you will use a sed script only.

#### Man Page to Ascii Conversion

[Ct+I] + V + H

1. Delete all “^ H”. A “^ H” can be entered in vi by typing “^ V ^ H”. A “^ H” is a cntl-H character, a single character. Control characters are typed by holding down the Control key while typing the character. It is **not** the two characters “^” and “H”. This can be seen in vi by moving the cursor across the “^ H”, the cursor should jump since vi printed two characters but there is only one character in the file.
2. Delete all “\_” (underscore) characters.

3. The following headers (which are at the beginning of a line) have every character repeated. The repeat characters must be deleted. Thus NAME will appear as NNAAMMEE.

NAME	SYNOPSIS	HISTORY
OPTIONS	DESCRIPTION	NOTICE
SEE ALSO	STANDARDS	BUGS
TESTS	OPERATORS	VERSION
ACTIONS	EXPRESSIONS	SHARING

If you look at the above sequences of characters in terms of what they are doing relative to printing, namely backspacing and overprinting, you can develop a general algorithm, otherwise each word must be handled separately. Be **very** careful here!

4. The sed script for the ascii conversion **MUST** have a file name of `ascii.sed`.

## Ascii to Latex Conversion

- ✓ 1. Every "\\" must be changed to the string "\verb+\+".
  - ✓ 2. Every "%" must be changed to the string "\%".
  - ✓ 3. Every "^" must be changed to the string "\^{}".
  - ✓ 4. Every "--" must be changed to the string "-\hspace{.01cm}-".
  - 5. The latex file must start with the lines  
`\documentstyle[11pt]{article}`  
`\begin{document}`  
and end with the line:  
`\end{document}`
  - 6. The first line of the ascii file must be made into a centered title by putting the following line before the first line:  
`\begin{center} {\bf`  
and the following line immediately after first line:  
`} \end{center}`
  - 7. The remaining portion of the file will be a description list of the various headers.  
Thus everything in the ascii file except the first line of the ascii file must be preceded by  
`\begin{description}`  
and followed by  
`\end{description}`
  - 8. Every header line must be embedded in a line that has "\item[" before the header and "] \hfill \\" following the header.

9. Every line whose first nonblank character is either a "+" or a "-" must be terminated by a space and \\
10. The sed script for the ascii to latex conversion **MUST** have a file name of **tex.sed**.

### Specifics

1. All the necessary files for this project are tarred in a file  
`/usr/local/courses/cs3423/assign2/assign2.tar.gz`. In order to obtain this file do the following in your assign2 directory:  
`cp /usr/local/courses/cs3423/assign2/assign2.tar.gz  
tar -xzvf assign2.tar.gz  
rm assign2.tar.gz`
2. Write a sed script, which you must name **ascii.sed**, which should convert any one of the following man pages:  
`chmod.1 env.1 fold.1 find.1  
nice.1 pr.1 wc.1`  
to an ascii format. A sample command to convert the env man page would be:  
`sed -f ascii.sed env.1 > env.ascii`
3. There is, for comparison purposes, an example ascii file for **env.1** under the name **env.ascii.sample**.
4. Write a sed script, which you must name **tex.sed**, which should convert any of the ascii format files to latex format. A sample command to convert the env ascii file would be:  
`sed -f tex.sed env.ascii > env.tex`
5. There is, for comparison purposes, an example latex file for **env.1** under the name **env.tex.sample**.
6. There are a number of different techniques to test your output on each particular man page. First compare your env files to the sample env files with the commands:  
`diff env.ascii env.ascii.sample  
diff env.tex env.tex.sample`  
The differences should be minimal. You should notice that **env.1** does not contain examples of every change that you were asked to make. You will need to investigate your output for all of the \*.1 files since they have features that are not in **env.1**.
7. A reasonable test is to latex the tex files and look at the results under X (the results should look reasonable):  
`latex env  
xdvi env`

or you could convert the dvi file to a postscript and look at the postscript file with ghostview. You can also directly print the postscript since our printers are postscript printers.

`dvips env -o`

or if you would rather have a pdf (basically an extended postscript) file then you can convert either the dvi file or the postscript file to pdf (you can go the other way to postscript as well)

`ps2pdf env.ps env.pdf`

`dvipdf env.dvi env.pdf`

8. In order to turnin your assignment, clean up your assign2 directory so that it contains only the following files:

`active news.sed chmod.1`

`env.1 fold.1 nice.1`

`pr.1 wc.1 find.1`

`tex.sed ascii.sed env.ascii.sample`

`env.tex.sample`

9. In your cs3423 directory execute:

`submit assign2 project2 3423`

10. It is your responsibility to be certain that you turned in the correct assignment and that the assignment was correctly turned in. In order to verify what programs you actually turned in type:

`verify -c cs3423 -p project2`

11. Remember, the assignment **must** be turned in by the due time. The assignment will automatically be turned off at that time. If your project is late, then turn it in as **project2-late**. This will only extend for an additional week and there will be a penalty associated with a late project.