

Project 4

Due: June 2
Points: 25

Write scripts to backup and restore files/folders from your laptop. In order to successfully complete this project, you need:

- Some platform (Cygwin/linux/OS X) from which you can run commands such as `tar`, `xargs`. Some compression/decompress utility, e.g. `gzip/gunzip`, `bzip/bunzip`, `zip/unzip` etc
- A scheduler that automatically starts the backup utility on a periodic basis
- You can write the script as a shell script or a Perl script
- Some method to transfer the compressed file from your laptop to a server that is backed up to a tape

Here are the steps you need to follow to accomplish the above goals:

1. To create a backup file:
 - Create a plain text file that consists of paths (use complete, absolute paths) to each folder that you would like to back up. If it is a directory, leave out the trailing slash.
 - `cat` this file and pipe the output using `xargs` to a `tar` command
2. To restore files that were backed up:
 - Transfer the compressed file to your laptop
 - Run the `tar` command. (Remember that the extraction process will clobber the existing files with same name, if there are any.)
3. To get the script to run periodically,
 - If your platform is Windows, create a scheduled task and run `.bat` file. Your `.bat` file could look something like

```
cd C:\\cygwin\\home\\userID\\backup
cmd.exe /c backup.pl
```

- If your platform has `cron` command, use that command

(Extra Credit) Once a compressed file is created, there are a few methods you can use to transfer the file to another machine:

- use secure copy command `scp` to transfer the file
- use secure file transfer protocol `sftp` to transfer the file
- use `mail` (available only on `unix`)

- use command-line mail tool like `mailx` or `mutt` (there is port of `mutt` on `cygwin`) as

```
$ mutt -s "Backup File May 25, 2006" -a backupFile.tar.gz \  
rthurimella@yahoo.com < backup.log
```

Check the following site for more details on how to use various mail tools:

<http://www.shelldorado.com/articles/mailattachments.html>

- The other methods include mapping a network drive using `samba` and moving the file to that drive.

Essentially, you need a method that can do the process of transfer without your interaction and batch the job if the laptop is not online.

(Extra Credit) Typically, a full backup of files is done less frequently. This process entails removing the old compress file and creating a new one from scratch. Incremental backups, i.e. creating a compressed file from only those files that changed from last full backup, are done more frequently.

See if you can extend your program that examines the dates and performs the appropriate kind of backup.