CSCI 2132
Software Development

Lab 10:

Shell Scripting

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Lab Overview

- Practice in Shell scripting

Step 1: Login and Lab Setup

- Login to bluenose
- Create `lab10` directory in SVN and submit

Step 2: Starting with Shell Scripting

- Create file `current.sh`:

```
#!/bin/bash
# Print current status
whoami
pwd
ls
```

- Save it, make executable, and run it: `./current.sh`

- Update `./current.sh`:

```
#!/bin/bash
# Print current status
echo "Your username is:"
whoami
echo "Your current directory is:"
pwd
echo "The contents of your current directory are:"
ls
```

- Save and run this script
- Add `current.sh` and commit the files to SVN

Step 3: Simple "Add" Script

- Edit file `add.sh` with the contents:

```
#!/bin/bash
(( sum = $1 + $2 ))
echo the sum of $1 and $2 is $sum
```

- Save it, make executable, and run it:

```
./add.sh 5 8
```

- Edit the file `add.sh` to be:

```
#!/bin/bash

if (( $# != 2 )); then
    echo usage: $0 num1 num2
    exit
fi

(( sum = $1 + $2 ))
echo the sum of $1 and $2 is $sum
```

- Run it: `./add.sh`
- and: `./add.sh 5 8`
- Add `add.sh` and commit the files to SVN

Step 4: Using for-Loop

- Edit the file `gen-files.sh` by entering:

```
#!/bin/bash

if (( $# != 1 )); then
    echo usage: $0 num1
    exit
fi

for (( i = 1; $i <= $1; i = $i + 1 )) do
  f=tmpfile-$i.txt
  echo "Appending file $f"
  echo Updated on `date` >> $f
done
```

- Save the script, make it executable, and run it:

```
./gen-files.sh 10
```

- Notice the files created:

`tmpfile-1.txt`, `tmpfile-2.txt`, `...`, and `tmpfile-10.txt`.

- Add `gen-files.sh` and commit the files to SVN

Step 5: Another form of for-Loop

- Edit `report-lines.sh` and enter the following:

```
#!/bin/bash

for file in *.txt
do
    lines=`wc -l $file| cut -d" " -f1`
    echo "The file $file contains $lines lines."
done
```

- Save it, make executable, and run it
- Add `report-lines.sh` and commit the files to SVN

Step 6: Using the case-Statement

- We will write a script for exercise 5.2 in Glass and Ables, page 209
- Implement utility `junk` as a safe alternative to `rm`
- Does not remove files, but moves them to `~/.junk` directory
- Option `-l` is used to print contents of the `.junk` directory
- Option `-p` is used to purge the `.junk` directory

- Edit `junk.sh` and enter:

```
#!/bin/bash
case $1 in
  -l)
    ls ~/.junk
    ;;
  -p)
    rm ~/.junk/*
    ;;
  *)
    if [ ! -d ~/.junk ]; then
      mkdir ~/.junk
    fi
    for file in $@
    do
      mv $file  ~/.junk/$file
    done
esac
```

- Add `junk` and commit the files to SVN

Step 7: Save Example

- Write the script `save.sh`, which can be used to save the current version of a file (or files)
- It creates directory `saved.d` if it does not exist
- Copies any file `f` into `saved.d` with a timestamp
- For example, `f` could be copied to
  `saved.d/f-2013-11-26-093000`
  if it is saved at 9h 30min 0sec, on Nov 26, 2013.
- You can first try solving the problem at least partially by yourself
- Or, you can use the provided solution

Sample Solution

- Edit the file `save.sh` by inserting:

```
#!/bin/bash

if [ ! -d saved.d ]; then
  mkdir saved.d
fi

for file in $@
do
  cp $file saved.d/$file-`date +%Y-%m-%d-%H%M%S`
done
```

- Try the script by saving all `.txt` files:
  `./save.sh *.txt`
- Check the contents of the directory `saved.d`

- Add `save.sh` and commit the files to SVN

Step 8: End of Lab