**Bash Arithmetics**

**Arithmetic Expansion**

A close up of a screen

Description automatically generated

### expr command

A close up of a screen

Description automatically generated

### let command

A picture containing sitting, table

Description automatically generated

### bc command

A close up of a sign

Description automatically generated

**Backup.sh Update**

#!/bin/bash

# This bash script is used to backup a user's home directory to /tmp/.

function backup {

if [ -z $1 ]; then

user=$(whoami)

else

if [ ! -d "/home/$1" ]; then

echo "Requested $1 user home directory doesn't exist."

exit 1

fi

user=$1

fi

input=/home/$user

output=/tmp/${user}\_home\_$(date +%Y-%m-%d\_%H%M%S).tar.gz

function total\_files {

find $1 -type f | wc -l

}

function total\_directories {

find $1 -type d | wc -l

}

function total\_archived\_directories {

tar -tzf $1 | grep /$ | wc -l

}

function total\_archived\_files {

tar -tzf $1 | grep -v /$ | wc -l

}

tar -czf $output $input 2> /dev/null

src\_files=$( total\_files $input )

src\_directories=$( total\_directories $input )

arch\_files=$( total\_archived\_files $output )

arch\_directories=$( total\_archived\_directories $output )

echo "########## $user ##########"

echo "Files to be included: $src\_files"

echo "Directories to be included: $src\_directories"

echo "Files archived: $arch\_files"

echo "Directories archived: $arch\_directories"

if [ $src\_files -eq $arch\_files ]; then

echo "Backup of $input completed!"

echo "Details about the output backup file:"

ls -l $output

else

echo "Backup of $input failed!"

fi

}

for directory in $\*; do

backup $directory

let all=$all+$arch\_files+$arch\_directories

done;

echo "TOTAL FILES AND DIRECTORIES: $all"