Tutorial #4
Shell Programming Primer

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Outline

- What is a shell?
- Hello World!!!
- Using variables
- Special variables
- If then…
- For loops
- While loops
- Some relevant UNIX commands

What is a shell?

- Command line interface provided by the OS
- A program which accepts the user commands
- Invokes the OS Kernel through system calls
- Displays the output to the user
- Can be used to run small programs or scripts – shell programs

Hello World!!!

```
#My first shell program  hello.sh
echo Hello world
```

OR

```
echo "Hello world" #allows you to put spaces between the words
```

- To run the shell program

```
$sh  hello.sh
```

OR

```
$chmod 755 hello.sh
$./hello.sh
```

Note : for printing quotes use the escape sequence \"

Variables

```
#shell program using variables - var.sh
string="Nice to meet you"
num=5
num=`expr $num + 1` # use back quotes for executing  commands
echo $string $num
```

- Variables have no type and need not be declared
- Variables only exist within the scope of the program, unless specified otherwise

Special Variables

$# - number of parameters in the command line

$1,..$9 – command line parameters

$@ - all command line parameters

shell program using command line parameters – add.sh

echo `expr $1 + $2`

If then….

```
# shell program showing If then structure – if.sh
if test [ $1 –gt $2 ]
    then
        echo $1
    else
        echo $2
fi
```

- Common operators : –eq, -ne, -lt, -le, -gt, and –ge

For loops

```
#shell program – for loops– for.sh
for i in “hello I am Anirban”
do
    echo $i
done
for i in *
do
    echo $i
done
```

While loops

```
# shell program – while loop – while.sh
str=“”
while [ $str != “quit” ]
do
    echo “Please type in a string (“quit” to exit) :”
    read str
    echo “Input String : $str”
done
```

While loops

```
#shell program for printing a file line by line – line.sh
file=$1
while read f
do
    echo $f
done < $file
```

Some relevant UNIX commands

- grep - find the occurrences of a particular string within a file.
  - For specifying a string rather than a word use quotes
    - Eg. “in the”
  - Check the function of switch –o using: $man grep
- wc – finds the number of words or lines in a text file
  - Check the functionality of switch –l using: $man wc
- cat – prints the contents of a file

Note: you can use the pipe character (|) for feeding the output of one command to another command

E.g $cat test.txt |wc

May the force be with you.....