VLSI Design Flow: RTL To GDS (NPTEL Course)

Lab Tutorial 2

Objective: To get familiarized with the TCL commands

Requirement: A UNIX system

Command	**Purpose**
set	Define a variable
$variable_name	Use value of a variable
foreach	Iterate over all elements in a list
incr	Increment value of variable
puts	Write to a channel
if	Check condition
lset	Change element in a list
expr	Evaluate expression
[]	First the command between the square braces is evaluated and result is returned to command line
open	Open a file-based channel w+: read and write mode, truncates the file if file exists, else creates a file if file does not exist r: read only mode
close	Close an open channel
read	Read from channel
proc	Create a Tcl procedure
return	Return from procedure, return control to calling function
exec	Execute a system command

Example 1: Commands: for, foreach, if, while, continue, break

```
set List {0 1 2 3 4 5 6}
set index -1
foreach elem $List {
        incr index
        puts "Index: $index"
        if {$elem % 2 == 0} {
                lset List $index [expr {-$elem}]
        }
        puts "Updates list: $List"
}
```

Example 2: Commands: open, close, read, eof

```
set fp [open "input.txt" w+]
puts $fp "test"
close $fp

set fp [open "input.txt" r]
set file_data [read $fp]
puts $file_data
close $fp
```

Example 3: Commands: proc, return

```
proc printSumProduct {x y} {
        set sum [expr {$x + $y}]
        set prod [expr {$x * $y}]
        puts "Sum is : $sum"
        puts "Product is : $prod"
        return
        puts " This line will not be printed"
        }

puts [printSumProduct 10 50]
```

Example 4: Commands: exec Run system commands in Tcl

```
puts [exec ls]
puts [exec pwd]
```

See man pages of the commands for more information. Additionally, there are lots of useful material on internet.