Owen-Ethan_905452983_palatics_Lab2

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Problem 1

Compute:

- Average wirelength
- Number of wires with length > 50

Include:

- Screenshot of TCL script for this section
- Results for each wirelength and number of wires with length > 50

Screenshot of TCL Script:

```
#!/usr/bin/tclsh

# Set the input file path
set input_file "wirelength.txt"

# Check if file exists
if {![file exists $input_file]} {
    puts "Error: File '$input_file' not found!"
    exit 1
}

# Open and read the wirelength file
set fp [open $input_file r]
set wirelengths [list]

# Read each line and store in list
while {[gets $fp line] >= 0} {
    if {[string trim $line] ne ""} {
        lappend wirelengths [string trim $line]
    }
}
close $fp

# Get total count
set count [llength $wirelengths]
```

```
# Check if we have data
if {$count == 0} {
    puts "Error: $input_file is empty!"
    exit 1
}

# Calculate average wirelength
set sum 0.0
foreach wl $wirelengths {
    set sum [expr {$sum + $wl}]
}
set avg [expr {$sum / $count}]

# Count wires with length > 50
set count_over_50 0
foreach wl $wirelengths {
    if {$wl > 50} {
        incr count_over_50
    }
}

# Print results
puts ""
puts "  Lab 2 - Problem 1: Wirelength Analysis Results"
puts "  Total number of wires:            $count"
puts "  Average wirelength:               $avg"
puts "  Number of wires with length > 50: $count_over_50"
puts ""

# Optional: Write results to a file
set output_file "problem1_results.txt"
set out_fp [open $output_file w]
puts $out_fp "# Lab 2, Problem 1 Results"
puts $out_fp "# Total wires: $count"
puts $out_fp "AVERAGE_WIRELENGTH: $avg"
puts $out_fp "NUMBER_OF_WIRES_OVER_50: $count_over_50"
close $out_fp

puts "Results to: $output_file"
puts ""
```

Results from TCL Script:

- Average wirelength: 47.39
- Number of wires > 50 length: 89

Problem 2