Lab # *1*
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CPSC 1150 - 003
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Lab Title: Wind Chill Index
Date submitted: May,18 ,2023
Department: CSIS

Program: Wind child index
File Name: Lab2.java
Purpose: To calculate wind chill index from following formula:

$T_{wc} = 13.112 + 0.6215\ T_a - 11.37\ V^{0.16} + 0.3965\ T_a\ V^{0.16}$

T_a : Ambient air temperature in Celsius degree,
V : Speed in kilometers per hour,
T_{wc} is the wind-chill index.

Input: T_a and V
Output: T_{wc}

Technical Information:
(You should fill the following information based on compiler and computer you are using).
Compiler: IntelliJ IDEA Community Edition 2023.1.1
Computer: (R) Core(TM) i7-10870H CPU @ 2.20GHz 2.21 GHz, 16 GB of RAM
Operating System: Windows 10 Home Single Language
Language: Java

Program Logic (Pseudocode)

Algorithm: Calculate wind chill factor
01. T_a : temperature in Celsius between -50 and 5
02. V : Velocity in km/h between 0 and 100

START
1. T_a ← input
2. V ← input
3. T_{wc} ← $13.112 + 0.6215\ T_a - 11.37\ V^{0.16} + 0.3965\ T_a\ V^{0.16}$
4. print T_{wc}
END

The test cases are created for this lab assignment for learning purpose. We will cover test cases in details later in our class, and you will create your own test cases starting from lab2. Test case format used in this lab assignment

purpose
input
output
expected value
passed or failed

Test Cases:

Test case 1: middle range values
Ta = -10
V = 35
Twc=-20.18836343694918
Expected value: -20.188
Passed

Test case 2: lower-bound values
Ta = -50
V = 0
Twc= -17.963
Expected value: -17.963
passed

Test case 3: upper-bound values
Ta = 5
V = 100
Twc= -3.3937674283922963
Expected value: -3.4
passed