CPSC 1150 – Assignment 1

Wind Chill Index Calculator

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Program Description:

This is a Java program, which takes two user input values for temperature and wind speed; then returns the wind chill index.

First the program prompts the user to enter an ambient air temperature. The value entered is passed to a recursive method called tempChecker. If the value is valid, it is stored in an integer called temperature.

Second, the user is prompted to enter a wind speed. The entered value is passed to a recursive method called windChecker. If the value is valid it is stored in an integer called windSpeed.

Third, the variables windSpeed and temperature are then used to calculate the wind chill index; the resulting value is stored in a double called windChillCalculation.

Finally, windChillCalculation is then casted to a integer called windChillIndex, and printed to the console.

The Program, Step By Step:

1. **PRINT** “Please enter an ambient air temperature between -50 and 5 degrees Celsius.”
2. **READ** temperature
3. **IF** temperature is not int **OR** temperature > 5 **OR** temperature < -50

   READ temperature (and return to step 3)
4. **PRINT** “Please enter a wind speed between 0 and 100kn/h.”
5. **READ** windSpeed
6. **IF** windSpeed is not int **OR** windSpeed > 100 **OR** windSpeed < 0

   READ windSpeed (and return to step 6)
7. **COMPUTE** windChillCalculation
8. **COMPUTE** cast windChillCalculation to windChillIndex
9. **PRINT** “The wind chill index is “ + windChillIndex

Trace Table:

temperature	windSpeed	windChillCalculation	OUTPUT / windChillIndex
0	20	-5.2502327978093	-5
-10	43	-21.0953096215546	-21
-38	38	-57.8176797148219	-57

Flowchart: