Begin
start
main-para .
sequential next
perform display-title-screen
sequential next
procedure call
perform-exit
display-title-screen .
display spaces
display "********** HEAT INDEX CALCULATOR BEGINS **********"
display "Written by, Clifford A. Chipman, EMIT " with no advancing
display "July 4, 2020"
display "in Enterprise COBOL v6.3 for z/OS"
display spaces
display "Enter zero for any parameter to end the program."
perform outside-temp-data-entry
outside-temp-data-entry .
display spaces
display "Enter outdoor dry bulb temperature in degF " with no advancing
display "(nnn.n): " with no advancing
accept outside-temp-in
if function test-numval (outside-temp-in) IS NOT EQUAL ZERO
false
true
compute outside-temp = function numval (outside-temp-in)
display "Temperature " not-numeric
go to outside-temp-data-entry
if outside-temp IS EQUAL ZERO
outside-if
go to end-program
END-IF
if outside-temp > max-temp
display "Temperature " too-much max-temp " degF."
go to outside-temp-data-entry
if outside-temp < min-temp
display "Temperature " too-small min-temp " degF."
go to outside-temp-data-entry
move outside-temp to outside-temp-out
perform relative-humidity-data-entry
relative-humidity-data-entry .
display "Enter relative humidity as % " with no advancing
display "(nnn.n): " with no advancing
accept relative-humidity-in
if function test-numval (relative-humidity-in) IS NOT EQUAL ZERO
compute relative-humidity = function numval (relative-humidity-in)
display "Relative humidity " not-numeric
display spaces
go to relative-humidity-data-entry
if relative-humidity IS EQUAL ZERO
if relative-humidity > max-rh
display "Relative humidity " too-much max-rh "%."
if relative-humidity < min-rh
display "Relative humidity " too-small min-rh "%."
move relative-humidity to relative-humidity-out
perform calculate-it
calculate-it .
compute heat-index rounded = 0.5 * (outside-temp + 61.0 + ((outside-temp - 68.0) * 1.2) + relative-humidity * 0.094)
compute heat-index rounded = function mean (heat-index outside-temp)
evaluate TRUE
evaluate when
when heat-index IS GREATER THAN 80
compute heat-index rounded = negative-one * cf1 + cf2 * outside-temp + cf3 * relative-humidity - cf4 * outside-temp * relative-humidity - cf5 * outside-temp ** 2 - cf6 * relative-humidity ** 2 + cf7 * outside-temp ** 2 * relative-humidity + cf8 * outside-temp * relative-humidity ** 2 - cf9 * outside-temp ** 2 * relative-humidity ** 2
when outside-temp IS GREATER THAN OR EQUAL TO 80 AND outside-temp IS LESS THAN OR EQUAL TO 112 AND relative-humidity IS LESS THAN 13
compute adjustment rounded = ((13 - relative-humidity) / 4) * function sqrt ((17 - function abs (outside-temp - 95)) / 17)
subtract adjustment from heat-index
when relative-humidity IS GREATER THAN 85 AND outside-temp IS GREATER THAN OR EQUAL TO 80 AND outside-temp IS LESS THAN OR EQUAL TO 87
compute adjustment rounded = ((relative-humidity - 85) / 10) * ((87 - outside-temp) / 5)
add adjustment to heat-index
move heat-index to heat-index-out
perform display-results
display-results .
display "Outdoor Temperature: " outside-temp-out " degF"
display "Relative Humidity: " relative-humidity-out "%"
display "Heat Index: " heat-index-out " degF"
when heat-index > 79 AND heat-index < 90
when heat-index >= 90 AND heat-index < 105
when heat-index >= 105 AND heat-index < 130
when heat-index >= 130
display "***"
display "** CAUTION - Fatigue possible with prolonged **"
display "** exposure and/or physical activity. **"
display "*** EXTREME CAUTION - Sunstroke, muscle ***"
display "*** cramps, and/or heat exhaustion possible ***"
display "*** with prolonged exposure and/or physical ***"
display "*** activity. ***"
display "**** DANGER - Sunstroke, muscle cramps, ****"
display "**** and/or heat exhaustion likely. ****"
display "**** Heatstroke possible with prolonged ****"
display "**** exposure and/or physical activity. ****"
display "***** EXTREME DANGER - Heat stroke likely. *****"
END-EVALUATE
backward
go to end-program
end-program .
display "*********** HEAT INDEX CALCULATOR ENDS ***********"
stop run