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"Aggies do not lie, cheat, or steal, or tolerate those who do."
"I have not given or received any unauthorized aid on this assignment."
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Name: HUY Q LAI 132000359
BRANDON A WHITE 331004571
WILLIAM A ROBERTS 530008478
JOHN RIOS JR 631004090
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Assignment: Lab 8a Activity 1
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Tree

1) Perform linear interpolation for the specific volume, specific internal energy, specific enthalpy, and specific entropy given an inputted temperature.
   a) Find starting values
      i) Get input temperature
      ii) Scale temp to index file
      iii) Unscaled T rounded to 20
   b) Perform linear interpolation to find answer
      i) Get The necessary data
         (1) Get val
         (2) Get next val
      ii) Calculate slope
      iii) Calculate specific answers
   c) output answers

Variables:

T	Temperature given from input
T_scaled	Temperature scaled to correlate with rows of data
T_unscaled	t_scaled multiplied by 20
Val	data set for t_scaled
val_next	data set for t_scaled + 1
Slope	list of slopes for temperature and all four data values
Vol	Volume
Eng	Specific Internal Energy
Ehp	Specific Enthalpy
Ety	Specific Entropy

Test cases

T = 0

Properties at 0.0 deg C are:

Specific volume (m^3/kg): 0.0009977

Specific internal energy (kJ/kg): 0.04

Specific enthalpy (kJ/kg): 5.03

Specific entropy (kJ/kgK): 0.000100

T = 50

Properties at 50.0 deg C are:

Specific volume (m^3/kg): 0.0010103

Specific internal energy (kJ/kg): 208.60

Specific enthalpy (kJ/kg): 213.66

Specific entropy (kJ/kgK): 0.699600

T = 100

Properties at 100.0 deg C are:

Specific volume (m^3/kg): 0.0010410

Specific internal energy (kJ/kg): 417.65

Specific enthalpy (kJ/kg): 422.85

Specific entropy (kJ/kgK): 1.303400

T = 102.5

Properties at 102.5 deg C are:

Specific volume (m^3/kg): 0.0010431

Specific internal energy (kJ/kg): 428.18

Specific enthalpy (kJ/kg): 433.39

Specific entropy (kJ/kgK): 1.330925

T = 125

Properties at 125.0 deg C are:

Specific volume (m^3/kg): 0.0010624

Specific internal energy (kJ/kg): 523.13

Specific enthalpy (kJ/kg): 528.44

Specific entropy (kJ/kgK): 1.576300

T = 219

Properties at 219.0 deg C are:

Specific volume (m^3/kg): 0.0011851

Specific internal energy (kJ/kg): 933.87

Specific enthalpy (kJ/kg): 939.79

Specific entropy (kJ/kgK): 2.503320

T = 260

Properties at 260.0 deg C are:

Specific volume (m^3/kg): 0.0012755

Specific internal energy (kJ/kg): 1128.50

Specific enthalpy (kJ/kg): 1134.90

Specific entropy (kJ/kgK): 2.8841

Conclusion

Describing the difficulty with which your team was able to combine the code at the end. Did this provide your team any insight into how the design itself might have been specified more clearly?

The code had bugs initially; however, we banded together and overcame the issues with the code. Each process could have been described more specifically.

Describing any benefits and drawbacks you saw into dividing the coding like this. Can you see reasons why this might be a good idea? Can you see reasons why this might be a bad idea?

Top-down design allows the problem to be broken into small parts. These small parts would be easier to debug. Combining all the code at the end could introduce bugs.