

ENGR 19500H, Spring 2013

Homework 04, Supplementary Material

REQUIRED INPUT

There are several inputs for this program. Please see Table 1 in the write-up for the list of input. It is necessary that you accept input in the correct order.

UNIX REDIRECTION AND TEST CASES

You may download the file named `HW04_redirect.txt`. The file contains data that can normally be typed via your keyboard in response to input request from your program using UNIX re-direction. You may use this file as a test case by typing the following line at a UNIX command prompt, where “a.out” is the compiled executable.

```
% a.out < HW04_redirect.txt
```

The test case file will only function properly when in a proper UNIX format. Thus, simply writing a test case in wordpad or notepad will not necessarily allow C to read the file. If you are getting unknown errors for your test case, type the following line at a UNIX prompt.

```
% dos2unix test_case_file.dat test_case_file.dat  
where test_case_file.dat is the file name of your test case.
```

Note: Correct execution of your program will only work if you have asked for input in the correct fashion. Be sure to explicitly follow the convention given in the assignment write-up, as well as demonstrated in the test case file supplied to you. Do not attempt to prompt for additional input or alter the order of input in the input file.

TEST CASE 1 SELECTED OUTPUT

This test case is a standard (everything works the first time) test case. An explanation of the inputs follows.

```
300.0  
Y  
100.0  
Y  
200.0  
Y  
10  
Y  
c  
Y  
200  
Y  
0.000001  
Y  
HW04_output.txt  
Y
```

The output to standard output for this test case is as follows.

Initial Pressure: 100.000000 (atm)
Final Pressure: 200.000000 (atm)
Number of Increments: 10

Gas Type: Carbon Dioxide
a = 3.592000
b = 0.042670

Maximum number of iterations: 200
Convergence Criteria: < 0.000001

Temperature (K)	Pressure (atm)	Molal Volume		Iterations	Molal Volume	
		L/mol (vdW)			L/mol (IGL)	
300.000	100.000	0.0795108		10	0.2461620	
300.000	110.000	0.0772383		7	0.2237836	
300.000	120.000	0.0754449		5	0.2051350	
300.000	130.000	0.0739666		5	0.1893554	
300.000	140.000	0.0727114		6	0.1758300	
300.000	150.000	0.0716228		7	0.1641080	
300.000	160.000	0.0706630		7	0.1538512	
300.000	170.000	0.0698060		7	0.1448012	
300.000	180.000	0.0690329		7	0.1367567	
300.000	190.000	0.0683294		7	0.1295589	
300.000	200.000	0.0676846		7	0.1230810	

The output to file HW04_output.txt for this test case is as follows.

Initial Pressure: 100.000000 (atm)
Final Pressure: 200.000000 (atm)
Number of Increments: 10

Gas Type: Carbon Dioxide
a = 3.592000
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Maximum number of iterations: 200
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300.000	200.000	0.0676846		7	0.1230810	

Good luck!