

SHIVANI SABHLOK

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LAB 1

testgrid_1

```
[shivanisabhlok.1@sl6 untitled]$ time ./a.out .1 .1 < /class/cse5441/testgrid_1

*****
dissipation converged in 52 iterations,
    with max DSV = 118.918 and min DSV = 107.279
    affect rate  = 0.1 and epsilon = 0.1

elapsed convergence loop time (clock): 0
elapsed convergence loop time  (time): 0
elapsed convergence loop time  (chrono): 15.000000
*****

real    0m0.004s
user    0m0.000s
sys     0m0.001s
[shivanisabhlok.1@sl6 untitled]$
```

```
[shivanisabhlok.1@sl6 untitled]$ time ./a.out .1 .2 < /class/cse5441/testgrid_1

*****
dissipation converged in 42 iterations,
    with max DSV = 128.411 and min DSV = 102.823
    affect rate  = 0.1 and epsilon = 0.2

elapsed convergence loop time (clock): 0
elapsed convergence loop time  (time): 0
elapsed convergence loop time  (chrono): 13.000000
*****

real    0m0.003s
user    0m0.000s
sys     0m0.001s
[shivanisabhlok.1@sl6 untitled]$
```

testgrid_2

```
[shivanisabhlok.1@sl6 untitled]$ time ./a.out .1 .1 < /class/cse5441/testgrid_2

*****
dissipation converged in 245 iterations,
    with max DSV = 55.8359 and min DSV = 50.2669
    affect rate  = 0.1 and epsilon = 0.1

elapsed convergence loop time (clock): 0
elapsed convergence loop time  (time): 0
elapsed convergence loop time  (chrono): 294.000000
*****

real    0m0.006s
user    0m0.001s
sys      0m0.000s
[shivanisabhlok.1@sl6 untitled]$
```

```
[shivanisabhlok.1@sl6 untitled]$ time ./a.out .1 .2 < /class/cse5441/testgrid_2

*****
dissipation converged in 161 iterations,
    with max DSV = 57.1972 and min DSV = 45.7793
    affect rate  = 0.1 and epsilon = 0.2

elapsed convergence loop time (clock): 0
elapsed convergence loop time  (time): 0
elapsed convergence loop time  (chrono): 198.000000
*****

real    0m0.004s
user    0m0.002s
sys      0m0.000s
[shivanisabhlok.1@sl6 untitled]$
```

testgrid_50_78

```
[shivanisabhlok.1@sl6 untitled]$ time ./a.out .1 .1 < /class/cse5441/testgrid_50_78
```

```
*****
```

```
dissipation converged in 1508 iterations,  
    with max DSV = 23.3695 and min DSV = 21.0358  
    affect rate  = 0.1 and epsilon = 0.1
```

```
elapsed convergence loop time (clock): 0  
elapsed convergence loop time  (time): 0  
elapsed convergence loop time  (chrono): 3221.000000
```

```
*****
```

```
real    0m0.010s  
user    0m0.004s  
sys     0m0.001s
```

```
[shivanisabhlok.1@sl6 untitled]$
```

```
[shivanisabhlok.1@sl6 untitled]$ time ./a.out .1 .2 < /class/cse5441/testgrid_50_78
```

```
*****
```

```
dissipation converged in 1204 iterations,  
    with max DSV = 24.7354 and min DSV = 19.7971  
    affect rate  = 0.1 and epsilon = 0.2
```

```
elapsed convergence loop time (clock): 0  
elapsed convergence loop time  (time): 0  
elapsed convergence loop time  (chrono): 2808.000000
```

```
*****
```

```
real    0m0.008s  
user    0m0.003s  
sys     0m0.001s
```

```
[shivanisabhlok.1@sl6 untitled]$
```

testgrid_50_201

```
[shivanisabhlok.1@sl6 untitled]$ time ./a.out .1 .1 < /class/cse5441/testgrid_50_201

*****
dissipation converged in 2286 iterations,
    with max DSV = 4.78876 and min DSV = 4.30989
    affect rate = 0.1 and epsilon = 0.1

elapsed convergence loop time (clock): 10000
elapsed convergence loop time (time): 0
elapsed convergence loop time (chrono): 15452.000000
*****

real    0m0.020s
user    0m0.013s
sys      0m0.001s
[shivanisabhlok.1@sl6 untitled]$
```

```
[shivanisabhlok.1@sl6 untitled]$ time ./a.out .1 .2 < /class/cse5441/testgrid_50_201

*****
dissipation converged in 1506 iterations,
    with max DSV = 4.98325 and min DSV = 3.98739
    affect rate = 0.1 and epsilon = 0.2

elapsed convergence loop time (clock): 0
elapsed convergence loop time (time): 0
elapsed convergence loop time (chrono): 8452.000000
*****

real    0m0.013s
user    0m0.009s
sys      0m0.000s
[shivanisabhlok.1@sl6 untitled]$
```

testgrid_200_1166

```
[shivanisabhlok.1@sl6 untitled]$ time ./a.out .1 .1 < /class/cse5441/testgrid_200_1166

*****
dissipation converged in 14461 iterations,
    with max DSV = 0.812727 and min DSV = 0.731455
    affect rate = 0.1 and epsilon = 0.1

elapsed convergence loop time (clock): 530000
elapsed convergence loop time (time): 1
elapsed convergence loop time (chrono): 544203.000000
*****

real    0m0.551s
user    0m0.532s
sys      0m0.002s
[shivanisabhlok.1@sl6 untitled]$
```

```
[shivanisabhlok.1@sl6 untitled]$ time ./a.out .1 .2 < /class/cse5441/testgrid_200_1166

*****
dissipation converged in 9016 iterations,
    with max DSV = 0.833016 and min DSV = 0.666414
    affect rate  = 0.1 and epsilon = 0.2

elapsed convergence loop time (clock): 320000
elapsed convergence loop time  (time): 0
elapsed convergence loop time  (chrono): 329557.000000
*****

real    0m0.338s
user    0m0.327s
sys     0m0.001s
[shivanisabhlok.1@sl6 untitled]$
```

test_400_1636

```
[shivanisabhlok.1@sl6 untitled]$ time ./a.out .1 .1 < /class/cse5441/testgrid_400_1636

*****
dissipation converged in 22283 iterations,
    with max DSV = 1.18174 and min DSV = 1.06357
    affect rate  = 0.1 and epsilon = 0.1

elapsed convergence loop time (clock): 1190000
elapsed convergence loop time  (time): 1
elapsed convergence loop time  (chrono): 1260982.000000
*****

real    0m1.271s
user    0m1.197s
sys     0m0.001s
[shivanisabhlok.1@sl6 untitled]$
```

```
[shivanisabhlok.1@sl6 untitled]$ time ./a.out .1 .2 < /class/cse5441/testgrid_400_1636

*****
dissipation converged in 14444 iterations,
    with max DSV = 1.20968 and min DSV = 0.967755
    affect rate  = 0.1 and epsilon = 0.2

elapsed convergence loop time (clock): 810000
elapsed convergence loop time  (time): 1
elapsed convergence loop time  (chrono): 862938.000000
*****

real    0m0.873s
user    0m0.814s
sys     0m0.004s
[shivanisabhlok.1@sl6 untitled]$
```

test_400_12206

```
[shivanisabhlok.1@sl6 untitled]$ time ./a.out .1 .1 < /class/cse5441/testgrid_400_12206

*****
dissipation converged in 75270 iterations,
    with max DSV = 0.0866713 and min DSV = 0.0780044
    affect rate  = 0.1 and epsilon = 0.1

elapsed convergence loop time (clock): 37470000
elapsed convergence loop time  (time): 39
elapsed convergence loop time  (chrono): 39590777.000000
*****

real    0m39.618s
user    0m37.395s
sys      0m0.102s
[shivanisabhlok.1@sl6 untitled]$
```

```
[shivanisabhlok.1@sl6 untitled]$ time ./a.out .1 .2 < /class/cse5441/testgrid_400_12206

*****
dissipation converged in 57967 iterations,
    with max DSV = 0.0906498 and min DSV = 0.0725199
    affect rate  = 0.1 and epsilon = 0.2

elapsed convergence loop time (clock): 28720000
elapsed convergence loop time  (time): 30
elapsed convergence loop time  (chrono): 30112314.000000
*****

real    0m30.139s
user    0m28.729s
sys      0m0.022s
[shivanisabhlok.1@sl6 untitled]$
```

```
[shivanisabhlok.1@sl6 untitled]$ time ./a.out .08 .08 < /class/cse5441/testgrid_400_12206

*****
dissipation converged in 102155 iterations,
    with max DSV = 0.0860189 and min DSV = 0.0791374
    affect rate  = 0.08 and epsilon = 0.08

elapsed convergence loop time (clock): 50380000
elapsed convergence loop time  (time): 53
elapsed convergence loop time  (chrono): 53191377.000000
*****

real    0m53.219s
user    0m50.348s
sys      0m0.068s
[shivanisabhlok.1@sl6 untitled]$
```

```

[shivanisabhlok.1@sl6 untitled]$ time ./a.out .1 .05 < /class/cse5441/testgrid_4
00_12206

*****
dissipation converged in 98820 iterations,
    with max DSV = 0.0852405 and min DSV = 0.0809785
    affect rate  = 0.1 and epsilon = 0.05

elapsed convergence loop time (clock): 48910000
elapsed convergence loop time  (time): 50
elapsed convergence loop time  (chrono): 50266369.000000
*****

real    0m50.293s
user    0m48.894s
sys      0m0.049s
[shivanisabhlok.1@sl6 untitled]$

```

Summary

| Test File | Affect Rate | Epsilon | Iterations | Max DSV | Min DSV | Clock | Time | Chrono |
|--------------------|-------------|---------|------------|-----------|-----------|----------|------|----------|
| testgrid_1 | .1 | .1 | 52 | 118.918 | 107.279 | 0 | 0 | 15 |
| testgrid_1 | .1 | .2 | 42 | 128.411 | 102.823 | 0 | 0 | 13 |
| testgrid_2 | 0.1 | 0.1 | 245 | 55.8359 | 50.2669 | 0 | 0 | 294 |
| testgrid_2 | 0.1 | 0.2 | 161 | 57.1972 | 45.7793 | 0 | 0 | 198 |
| testgrid_50_78 | .1 | .1 | 1508 | 23.3695 | 21.0358 | 0 | 0 | 3221 |
| testgrid_50_78 | .1 | .2 | 1204 | 24.7354 | 19.7971 | 0 | 0 | 2808 |
| testgrid_50_201 | .1 | .1 | 2286 | 4.78876 | 4.30989 | 1000 | 0 | 15452 |
| testgrid_50_201 | .1 | .2 | 1506 | 4.98325 | 2.98739 | 0 | 0 | 8452 |
| testgrid_200_1166 | .1 | .1 | 14461 | .812727 | .731455 | 530000 | 1 | 544203 |
| testgrid_200_1166 | .1 | .2 | 9016 | .833016 | .666414 | 320000 | 0 | 329557 |
| testgrid_400_1635 | .1 | .1 | 22283 | 1.18174 | 1.06357 | 1190000 | 1 | 1260982 |
| testgrid_400_1635 | .1 | .2 | 14444 | 1.20968 | 0.967755 | 810000 | 1 | 862938 |
| testgrid_400_12206 | .1 | .1 | 75270 | 0.0866713 | 0.0780044 | 37470000 | 39 | 39590777 |
| testgrid_400_12206 | .1 | .2 | 57967 | .0906498 | 0.0725199 | 28720000 | 30 | 30112314 |
| testgrid_400_12206 | .08 | .08 | 102155 | .0860189 | .0791374 | 50380000 | 53 | 53191377 |
| testgrid_400_12206 | .1 | .05 | 98802 | .0852405 | 0.0809785 | 48910000 | 50 | 50266369 |