

Simulation and Scientific Computing 2

Assignment 1: Multigrid Methods

Team Members :

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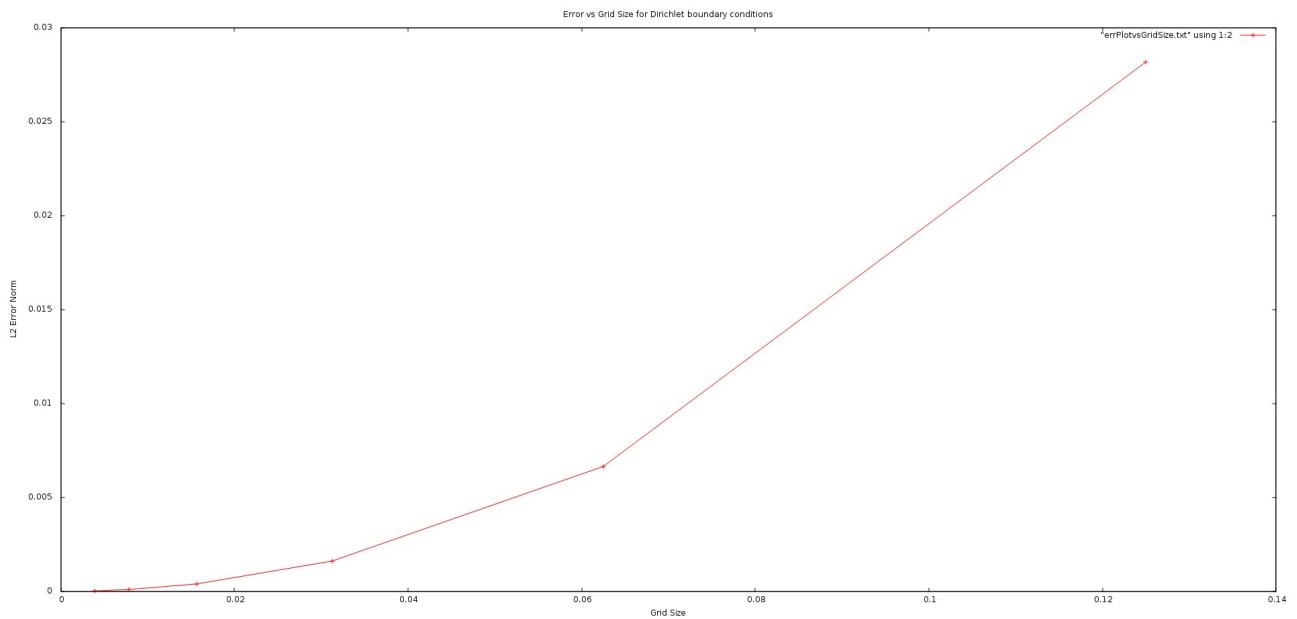
1) Dirichlet Boundary Conditions:

For this case, number of V-cycle = 15

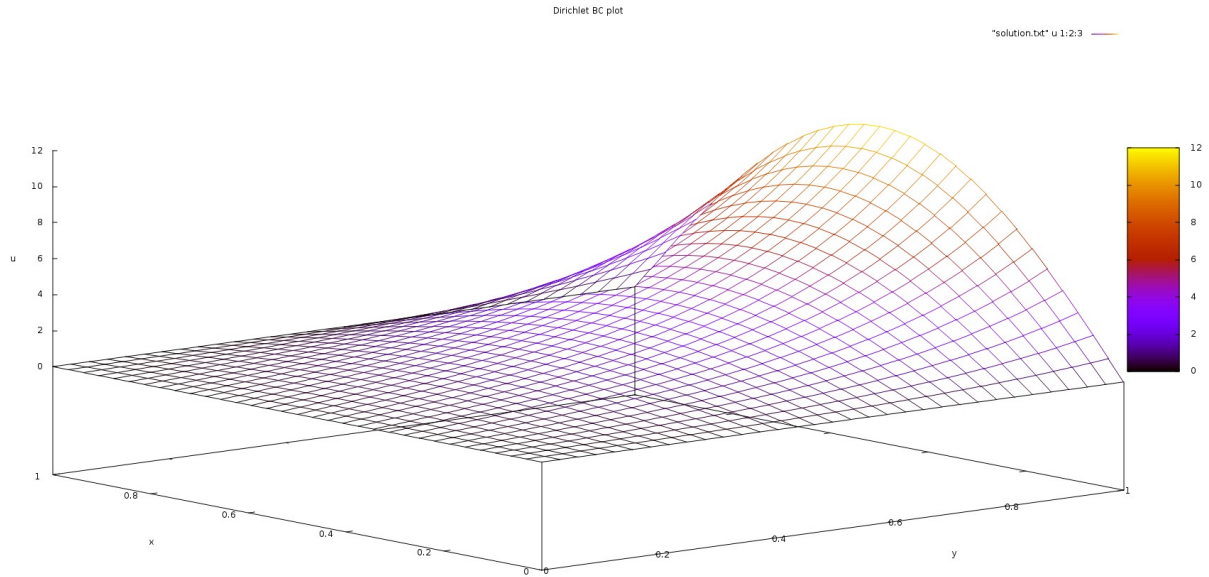
Following table contains error norm with varying grid size.

S No	Grid Size (h)	Error Norm
1	0.125	0.0281737
2	0.0625	0.00664675
3	0.03125	0.00161231
4	0.015625	0.000396936
5	0.0078125	9.84684e-05
6	0.00390625	2.45215e-05

Following graph contains error norm with varying grid size.



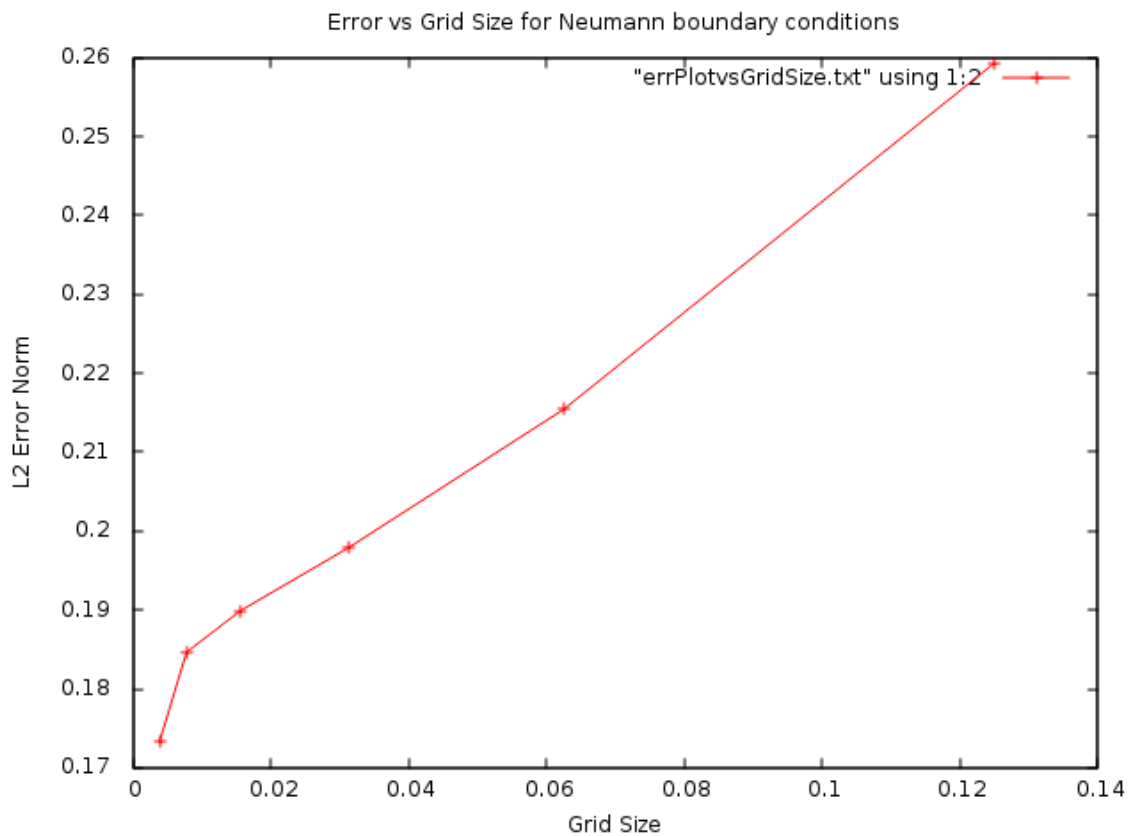
Computed solution for Dirichlet bc for level = 5, number of V-cycle =15.



2) Neumann Boundary Conditions:

For this case, number of V-cycle = 50

S No	Grid Size (h)	Error Norm
1	0.125	0.259294
2	0.0625	0.215424
3	0.03125	0.197853
4	0.015625	0.189904
5	0.0078125	0.184646
6	0.00390625	0.173314



Computed solution for Neumann bc for level = 5, number of V-cycle = 50.

