Finite Volume Method: Practical Assignment 2

December 8, 2020

Deadline: 22/12/2020

1 Dirichlet Boundary Condition

Given a $2D$ Poisson problem on $\Omega = (0,1) \times (0,1)$

$$\begin{cases} -\Delta u(x,y) = f(x,y), (x,y) \in \Omega \\ u(x,y) = u_d \text{ on } \Gamma = \partial\Omega \end{cases} \tag{1.1}$$

Solve equation (1.1) subject to inhomogeneous Dirichlet boundary condition by finite volume method with following questions

a $u_d = 0$ on Γ

b $u_d \neq 0$ on Γ

c You can explain some methods to approximate discrete solution on boundary to get higher convergent order.