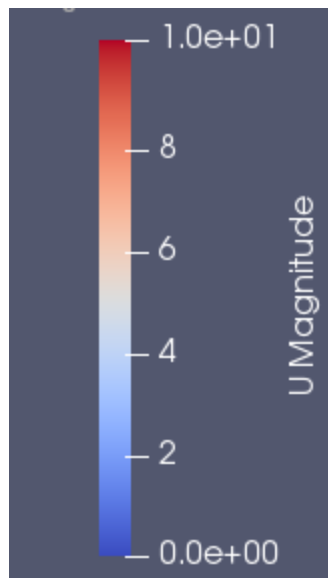
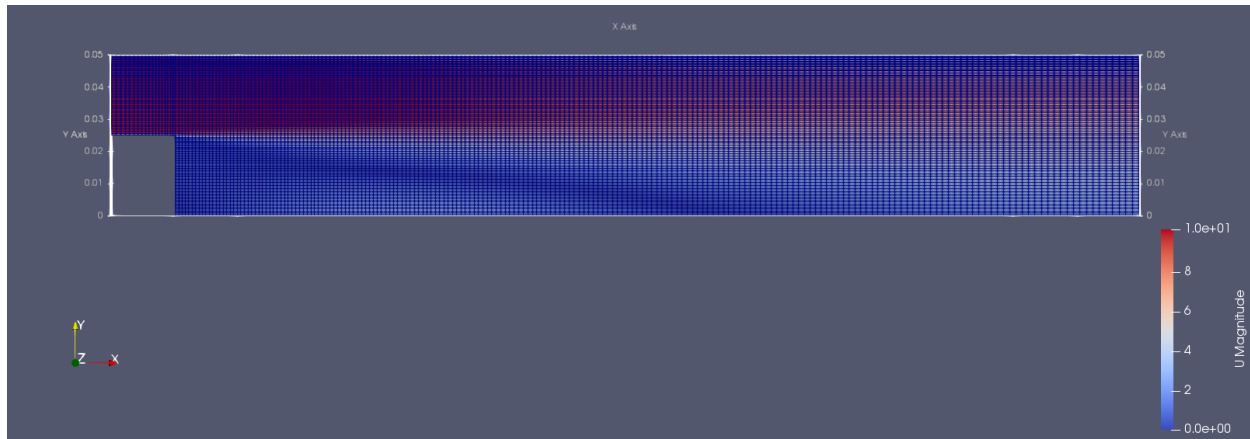


Assignment 3 : CL 455

190110043

BlockMesh



Calculation of Cf and Yp

Given:

$$Y^+ = 242.2$$

$$Re = 25000$$

$$U_{inf} = 10 \text{ m/s}$$

$$d = 25 \text{ mm} = 0.025 \text{ m}$$

$$\nu = Ud/Re = 10 * 0.025/25000 = 1 * 10^{-5} \text{ m}^2/\text{s}$$

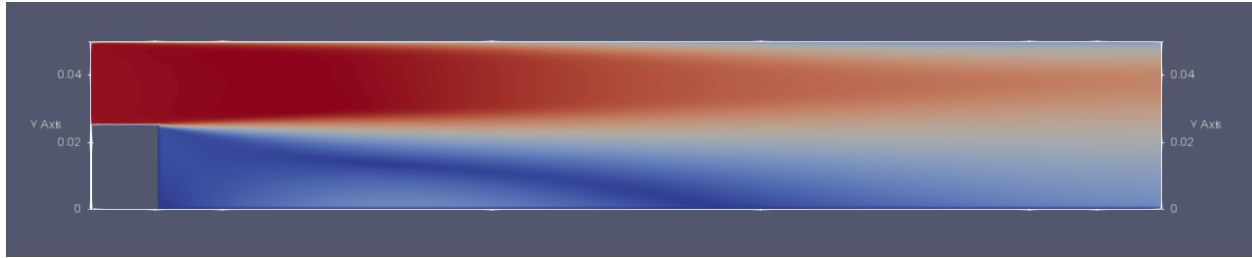
$$Cf = 0.078Re^{-1/4} = 0.078 * 25000^{-0.25} = 0.0062$$

$$Yp = \frac{Y^+ \nu}{\sqrt{0.5 Cf U_{inf}^2}} = 4.35 * 10^{-3}$$

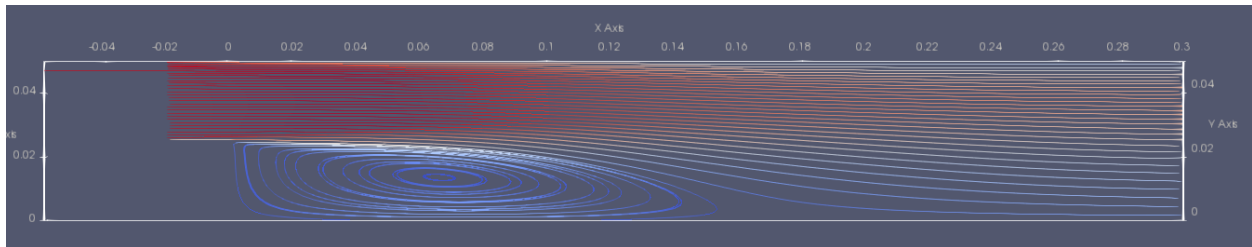
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$$Y_p = \frac{242.2 \times 10^{-5}}{\sqrt{0.5 \times 0.0002 \times 10^2}} = 4.35 \times 10^{-3}$$
$$I = 0.045 \text{ l}$$
$$K = 0.305 \text{ m}^2/\text{s}^2$$
$$l = 0.00175 \text{ m}$$
$$E = 15.816 \text{ m}^2/\text{s}^3$$

Velocity Contour



StreamLines



Codes

Link: <https://github.com/MananMohnot/DesignLab1CFD/tree/main/assign3/kepsilon>