Name: Bhanupratap Sahu
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CFD Assignment 4.

INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI

COMPUTATIONAL FLUID DYNAMICS

ASSIGNMENT 4

Submitted by – Bhanupratap Sahu

Roll Number – 224103306

Branch – Fluid and Thermal Engineering

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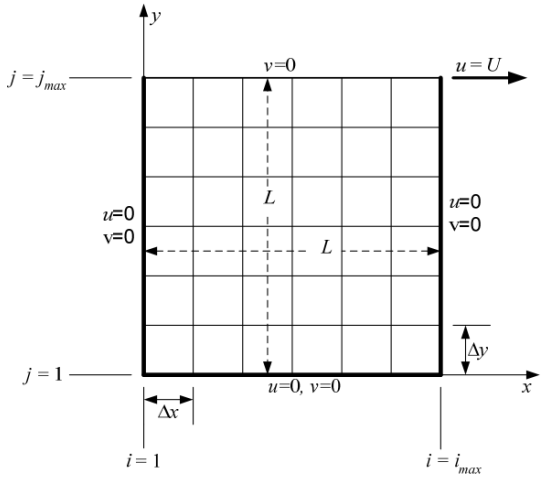
Lid driven cavity problem

Given Data : Velocity of Top wall: U = 1 m/s. (other 3 walls are stationary)

Length of Horizontal wall: H = 1 m

Length of Vertical wall V: =1 m

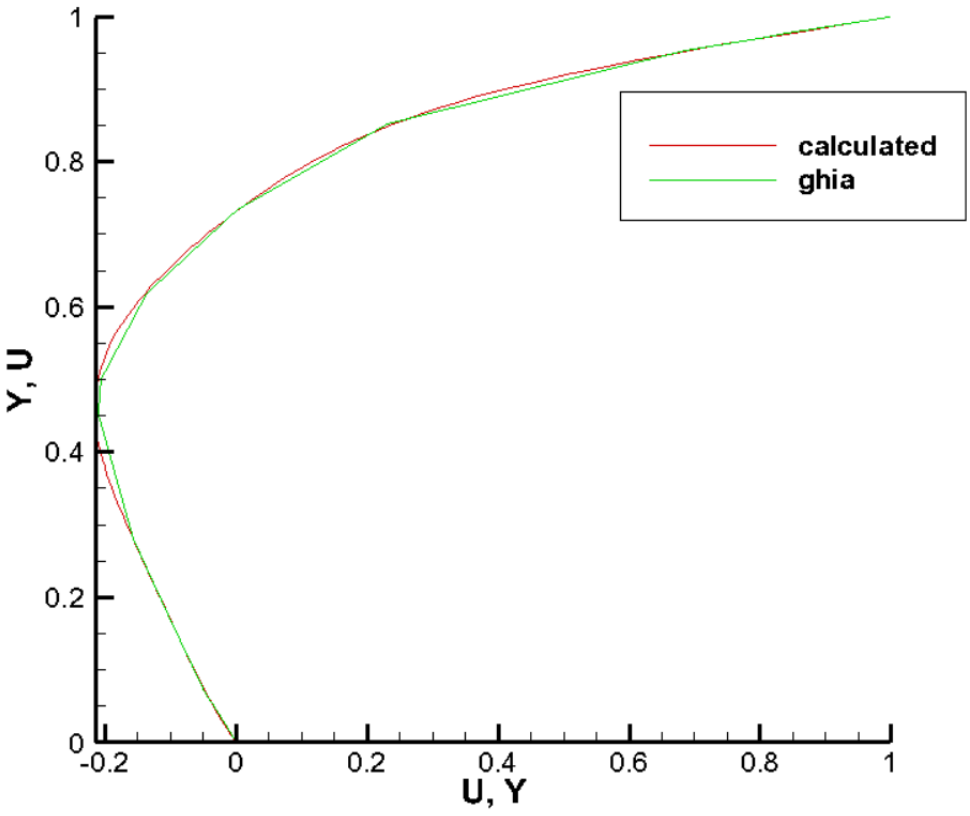


Lid-driven square cavity with grid, Re = $LUl\nu$

Part A: For Reynold's Number =100

Number of Iterations required to converge up to accuracy of 10^{-5} = **71048**

1. **Centre Line horizontal velocity(u):**



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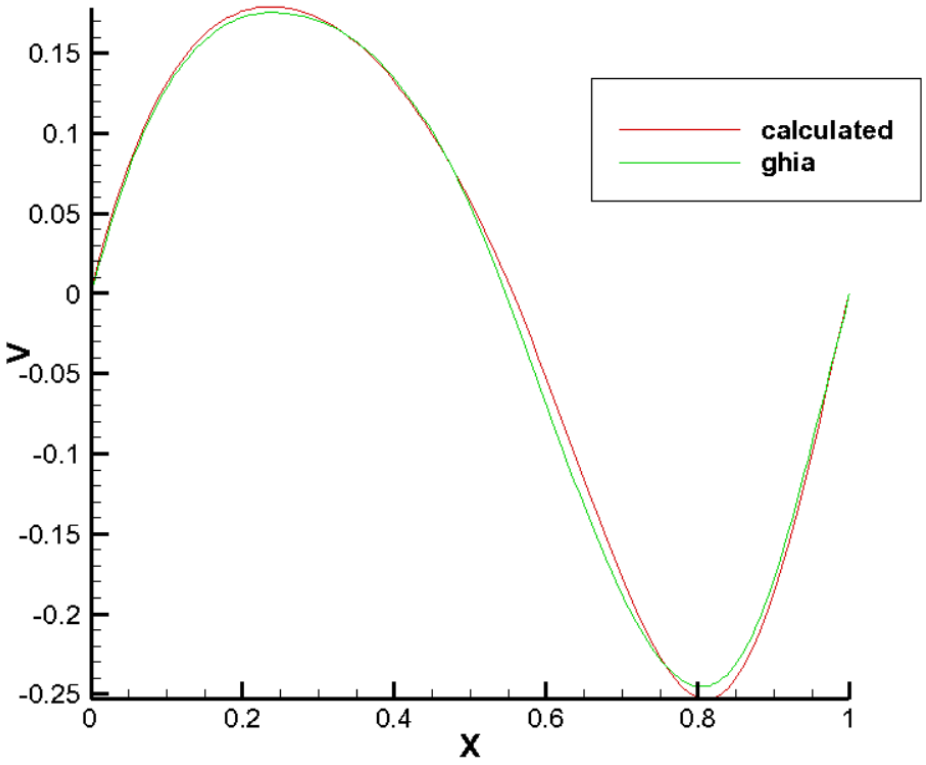
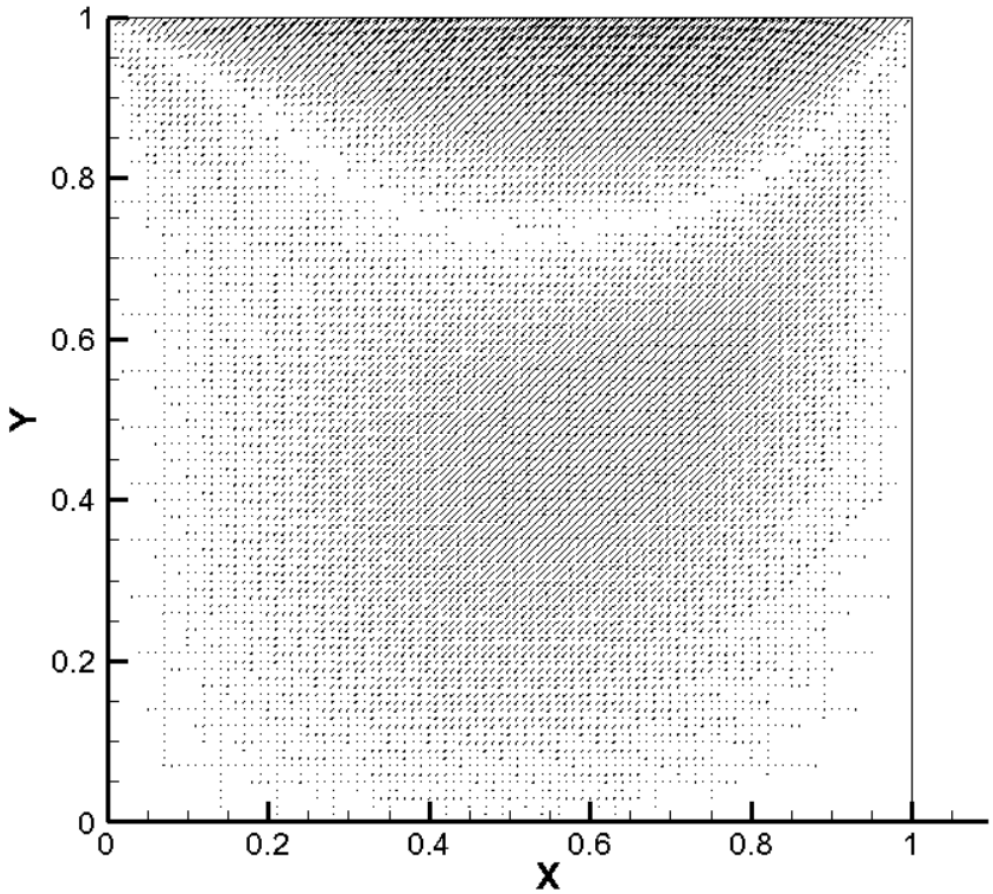
2. **Centre Line vertical velocity(v):**



3. **U Vector plot:**



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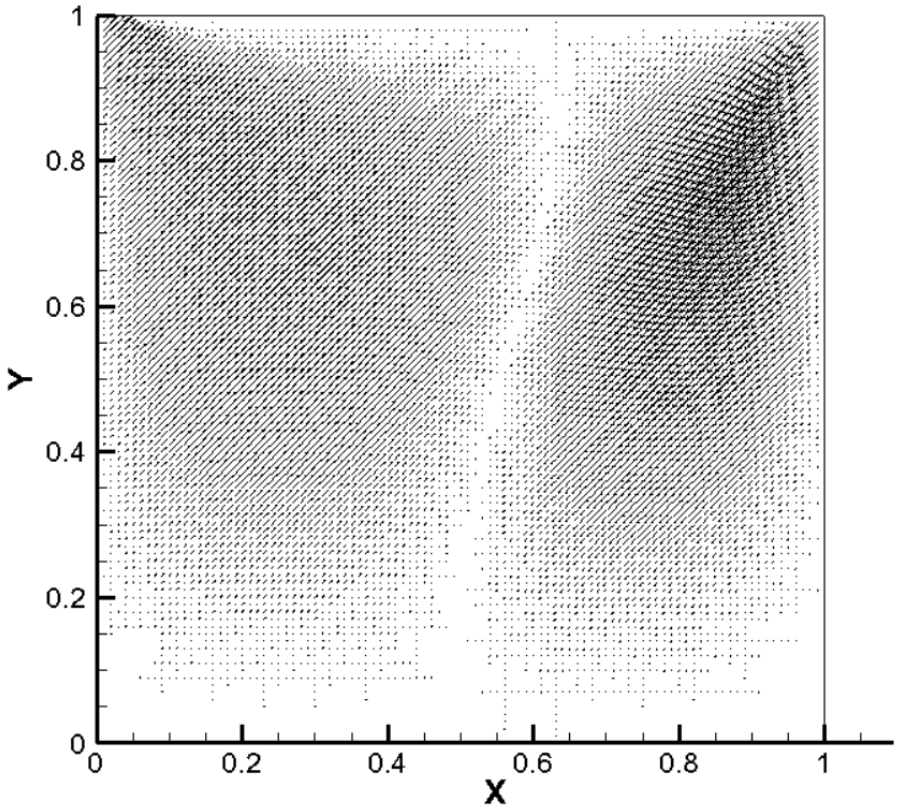
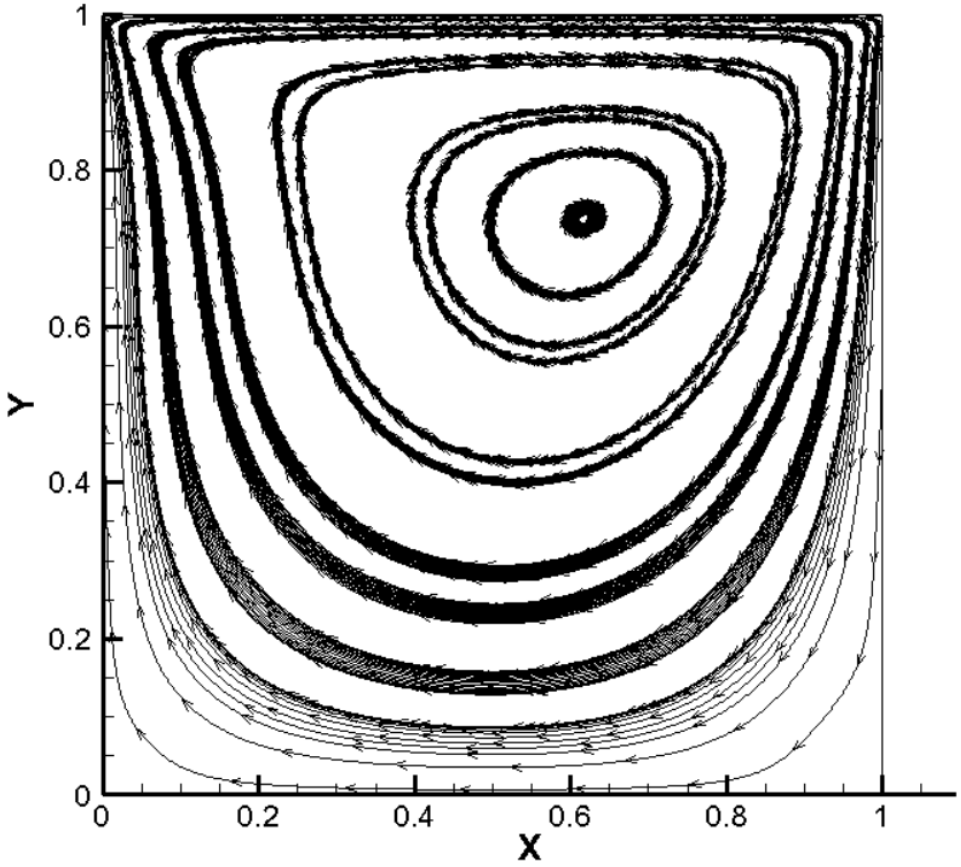
4. **V Vector plot:**



5. **Streamline Plot:**



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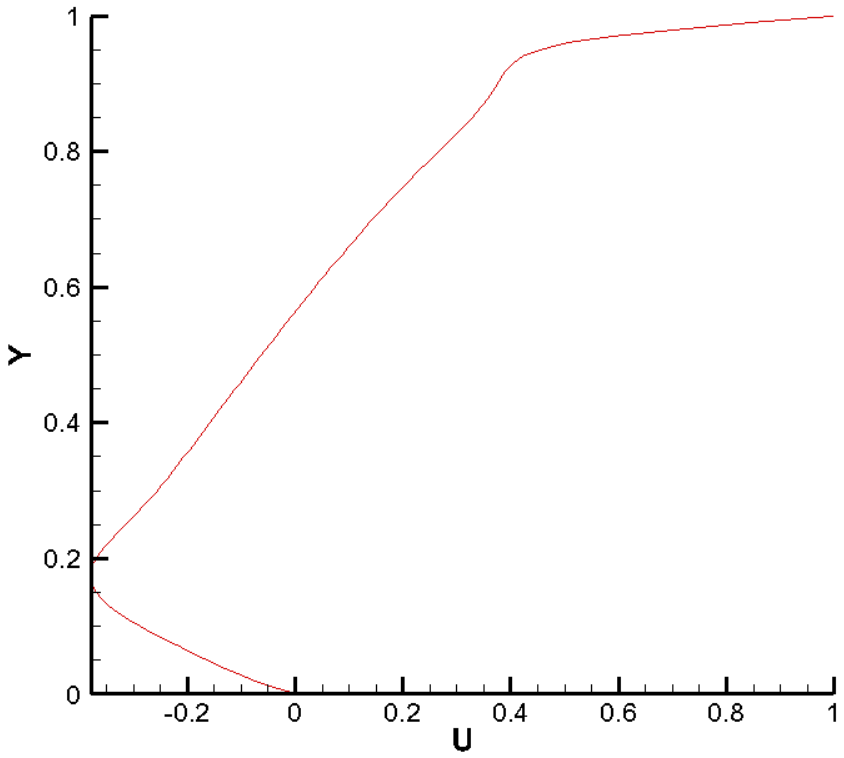
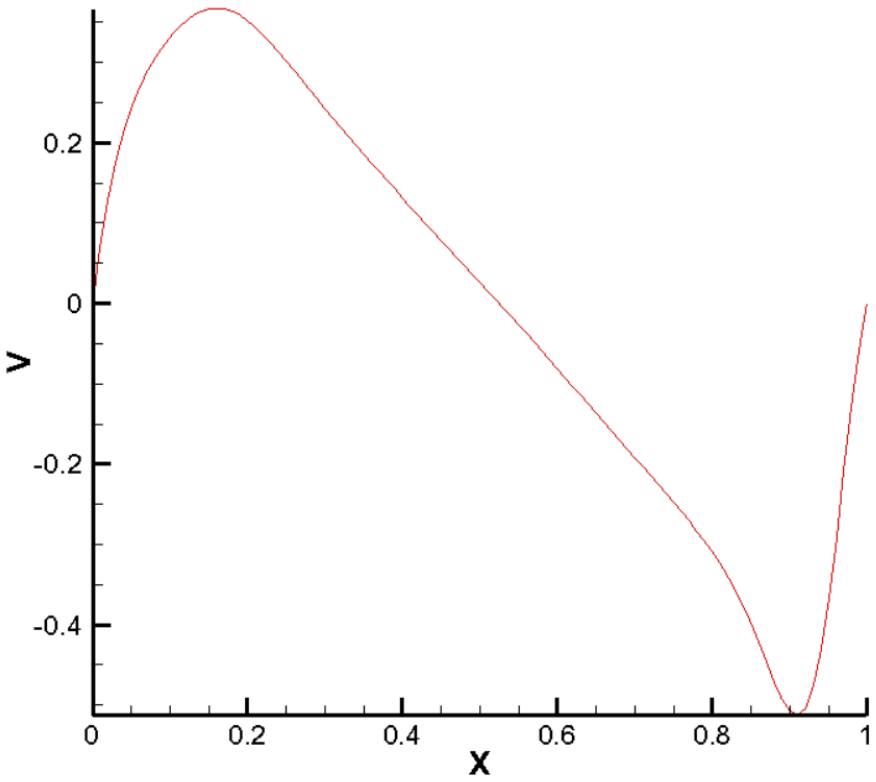
Part B: For Reynold's Number = 1000

Number of Iterations required to converge up to accuracy of 10^{-5} = **208966**

1. **Centre Line horizontal velocity(u):**



2. **Centre Line vertical velocity(v):**



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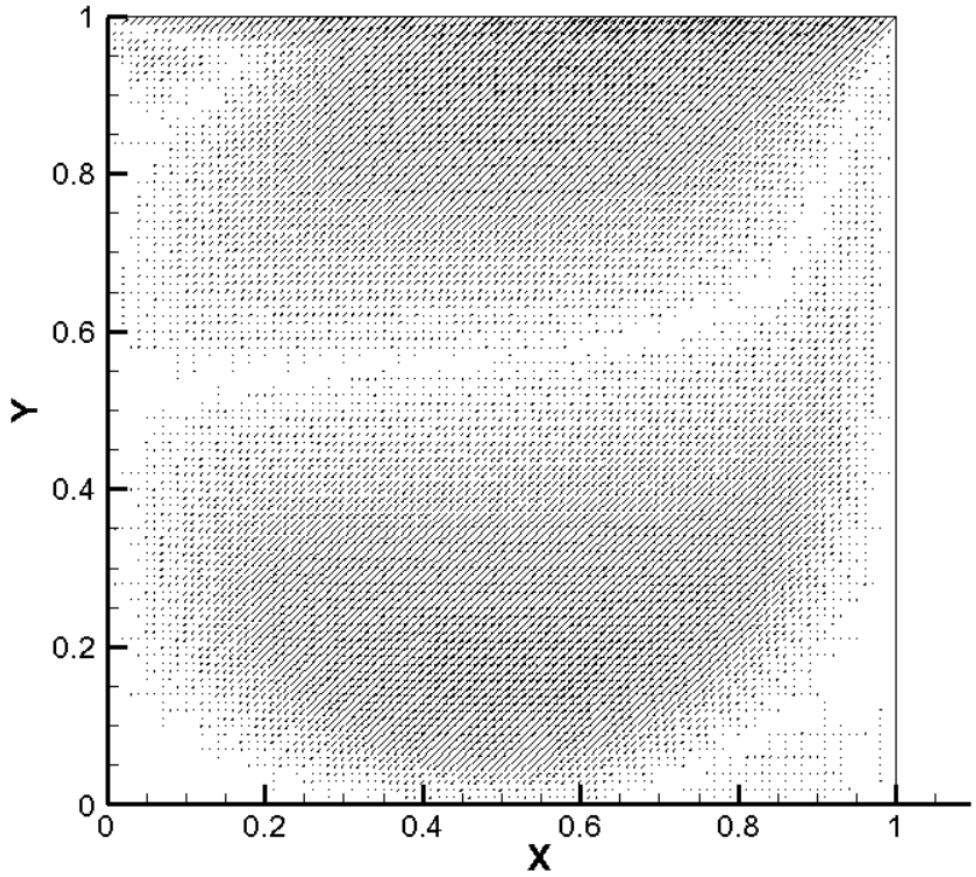
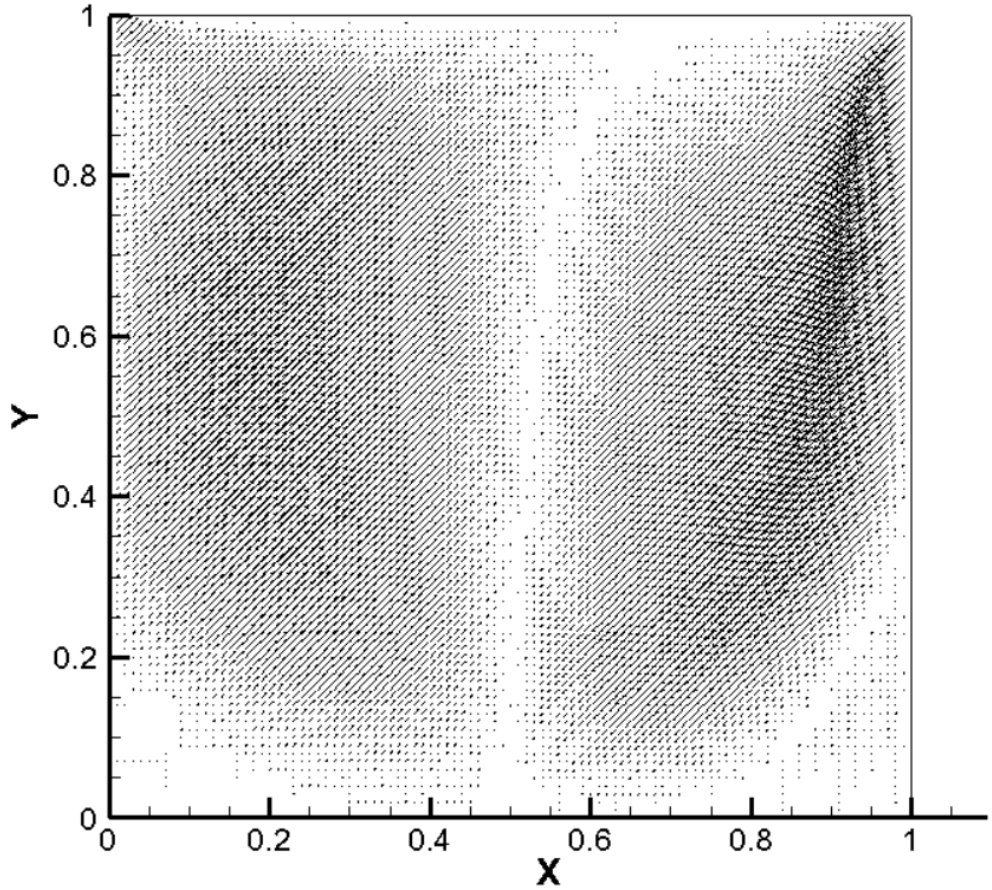
3. U Vector plot:



4. V Vector plot:



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5. Streamline Plot: